MINERAL RESOURCES AND RESERVES REPORT 2018

ASSORE

CONTENTS

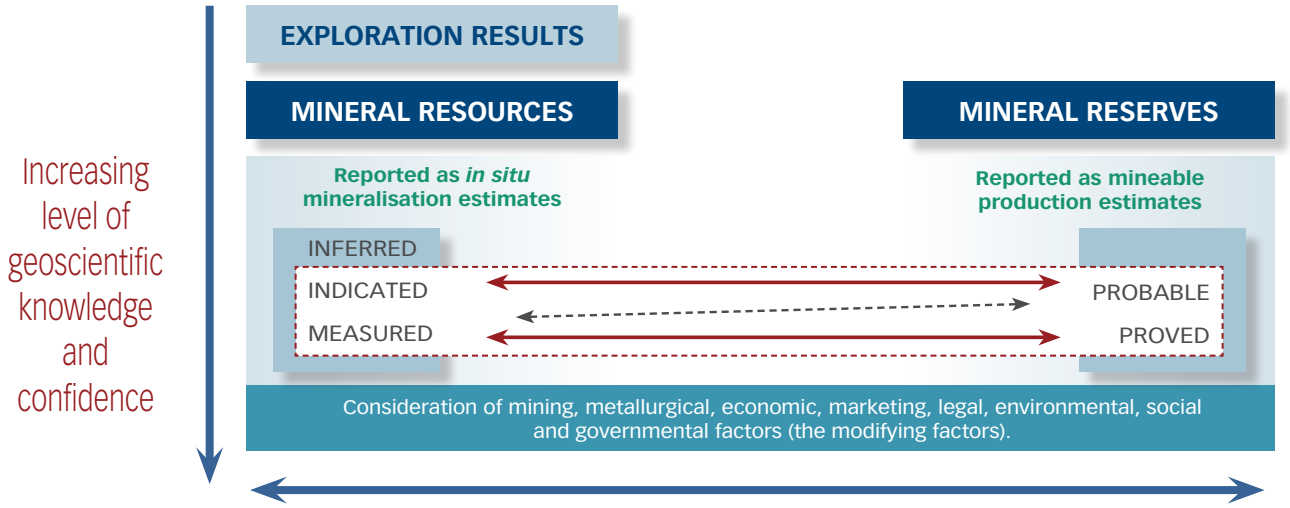
What's inside

MINERAL RESOURCES AND RESERVES REPORT

DEFINITIONS

A "Mineral Resource"	is a concentration or occurrence of material of economic interest in or on the earth's crust in such form, quality and quantity that there are reasonable and realistic prospects for eventual economic extraction. The location, quantity, grade, continuity and other geological characteristics of a Mineral Resource are known, or estimated from specific geological evidence, sampling and knowledge interpreted from an appropriately constrained and portrayed geological model. Mineral Resources are subdivided, and must be so reported, in order of increasing confidence in respect of geoscientific evidence, into Inferred, Indicated or Measured categories.
An "Inferred Mineral Resource"	is that part of a Mineral Resource for which volume or tonnage, grade and mineral content can be estimated with only a low level of confidence. It is inferred from geological evidence and sampling and assumed but not verified geologically or through analysis of grade continuity. It is based on information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes that may be limited in scope or of uncertain quality and reliability.
An "Indicated Mineral Resource"	is that part of a Mineral Resource for which tonnage, densities, shape, physical characteristics, grade and mineral content can be estimated with a reasonable level of confidence. It is based on information from exploration, sampling and testing of material gathered from locations such as outcrops, trenches, pits, workings and drill holes. The locations are too widely or inappropriately spaced to confirm geological or grade continuity but are spaced closely enough for continuity to be assumed.
A "Measured Mineral Resource"	is that part of a Mineral Resource for which tonnage, densities, shape, physical characteristics, grade and mineral content can be estimated with a high level of confidence. It is based on detailed and reliable information from exploration, sampling and testing of material from locations such as outcrops, trenches, pits, workings and drill holes. The locations are spaced closely enough to confirm geological and grade continuity.
A "Mineral Reserve"	is the economically mineable material derived from a Measured or Indicated Mineral Resource or both. It includes diluting and contaminating materials and allows for losses that are expected to occur when the material is mined. Appropriate assessments to a minimum of a Pre-feasibility Study for a project and a Life-of-Mine (LoM) Plan for an operation must have been completed, including consideration of, and modification by, realistically assumed mining, metallurgical, economic, marketing, legal, environmental, social and governmental factors (the modifying factors). Such modifying factors must be disclosed.
A "Probable Mineral Reserve"	is the economically mineable material derived from a Measured or Indicated Mineral Resource or both. It is estimated with a lower level of confidence than a Proved Mineral Reserve. It includes diluting and contaminating materials and allows for losses that are expected to occur when the material is mined. Appropriate assessments to a minimum of a Pre-feasibility Study for a project or a LoM Plan for an operation must have been carried out, including consideration of, and modification by, realistically assumed mining, metallurgical, economic, marketing, legal, environmental, social and governmental factors. Such modifying factors must be disclosed.
A "Proved Mineral Reserve"	is the economically mineable material derived from a Measured Mineral Resource. It is estimated with a high level of confidence. It includes diluting and contaminating materials and allows for losses that are expected to occur when the material is mined. Appropriate assessments to a minimum of a Pre-feasibility Study for a project or a LoM Plan for an operation must have been carried out, including consideration of, and modification by, realistically assumed mining, metallurgical, economic, marketing, legal, environmental, social and governmental factors. Such modifying factors must be disclosed.

RELATIONSHIP BETWEEN EXPLORATION RESULTS, MINERAL RESOURCES AND MINERAL RESERVES



ASSMANG

COMPETENCE

The Competent Person with overall responsibility for the compilation of the 2018 Mineral Resources and Mineral Reserves Report is Shepherd Kadzviti (PrSciNat), an African Rainbow Minerals (ARM) employee working at the ARM corporate office. He confirms that the information in this report complies with the SAMREC Code and that it may be published in the form and context in which it was intended.

Shepherd Kadzviti graduated with a BSc in Geology and Mathematics and a MSc in Exploration Geology from the University of Zimbabwe. He later completed a Graduate Diploma in Mining Engineering (GDE) at the University of the Witwatersrand. He worked at RioZim's Renco Gold Mine for 14 years in various capacities as Geologist, Technical Services Superintendent and Mine Manager. In 2005, he joined Anglo American Platinum at Union Mine as an Evaluation Geologist with responsibilities for geological database management and Mineral Resource estimation. After two years at the mine, he was transferred to the Anglo American Platinum corporate office where he was appointed Resource Geologist. He then joined ARM as Mineral Resources Specialist in 2008, and was involved in the evaluation of the various mineral deposits for the group. In 2012, he was appointed group Mineral Resources Manager for ARM. He is registered with the South African Council for Natural Scientific Professions (SACNASP) as a Professional Natural Scientist (PrSciNat) in the field of practice of geological science, registration number 400164/05. He has a total of 28 years' experience in various aspects of Mining and Exploration Geology, database management and Mineral Resource estimation and as such is considered to be a Competent Person. SACNASP is based in the Management Enterprise Building, Mark Shuttleworth Street, Innovation Hub, Pretoria, 0087, South Africa.

All Competent Persons at ARM corporate office and the operations have sufficient relevant experience in the type of deposit and in the activity for which they have taken responsibility. Details of Assmang's Competent Persons are available from the Company Secretary on written request.

The following ARM corporate office Competent Persons were involved in compiling some aspects of the Mineral Resources and Mineral Reserves report or general review of the report. They are employed by ARM.

ARM corporate office

Competent Person	Professional organisation	Membership number	Qualifications	Relevant experience
C Schlegel	SACNASP	400149/90	BSc, BSc Hons (Geology), MSc (Geology)	32 years
M Mabuza	SACNASP	400081/94	BSc, BSc Hons (Geology), MSc (Geology), GDE (Mining Engineering)	28 years
V Moyo	SACNASP	400305/11	BSc, BSc Hons (Geology), MSc (Project Management)	21 years
R Jooste	SACNASP	400163/05	BSc, BSc Hons (Geology), MEng (Mining Engineering)	17 years

All the Competent Persons consent to the inclusion of the exploration results, Mineral Resources and Mineral Reserves information in this report, in the form and context in which it appears.

Shepherd Kadzviti (PrSciNat)
Group Mineral Resources Manager
African Rainbow Minerals
24 Impala Road, Chislehurston,
Sandton, South Africa

30 October 2018

ASSMANG OPERATIONS

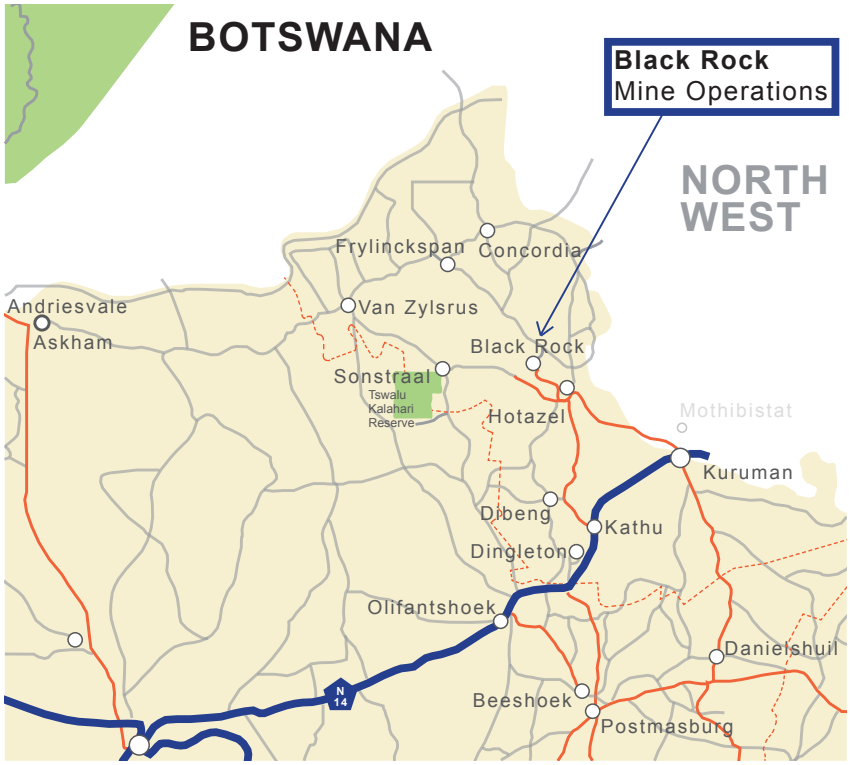
Assmang operations comprise Black Rock Manganese Mines as well as Khumani and Beeshoek Iron Ore Mines.

ASSMANG continued
Manganese mines

LOCALITY
Black Rock Manganese Mines encompass Nchwaning and Gloria Mines which are situated approximately 80 kilometres north-west of the town of Kuruman in the Northern Cape province of South Africa. Located at latitude 27°07'50"S longitude 22°50'50"E, the mines are accessed via the national N14 route between Johannesburg and Kuruman, and the provincial R31 road.

Nchwaning 3 and Nchwaning 2 (including Graben Area) shafts are situated on portions of Nchwaning 267, Belgravia 264 and Santoy 230 farms while Gloria Mine is on Portion 1 of Gloria 266. The Nchwaning and the adjoining Gloria Mining Rights are bounded by the farms Wessels 227, Dibiaghomo 226 and Dikgathlong 268 in the north, Rhodes 269, East 270 and Kipling 271 in the east, Umtu 281 and Mukulu 265 to the south.

LOCALITY OF BLACK ROCK MANGANESE OPERATION



HISTORY
In 1940, The Associated Manganese Mines of South Africa acquired a manganese ore outcrop on a small hillock known as Black Rock. Several large properties underlain by ore were subsequently found and acquired. Today, the Black Rock area is considered to be one of the largest and richest manganese deposits in the world. Manganese mining operations were extended and today include the Gloria and Nchwaning underground mines. Manganese ore is supplied locally to the Assmang-owned Cato Ridge Smelter, and is exported through Port Elizabeth, Durban, Richards Bay and Saldanha.

COMPETENCE
The following Competent Persons were involved in the estimation of Black Rock Mineral Resources and Mineral Reserves. They are employed by Assmang.

Competent Person	Professional organisation	Membership number	Qualifications	Relevant experience
B Ruzive (Mineral Resources)	SACNASP	400238/07	BSc, BSc Hons (Geology), MSc (Exploration Geology), MBA	18 years
J Smuts (Mineral Reserves)	ECSA	201270097	BTech (Mining Engineering)	7 years

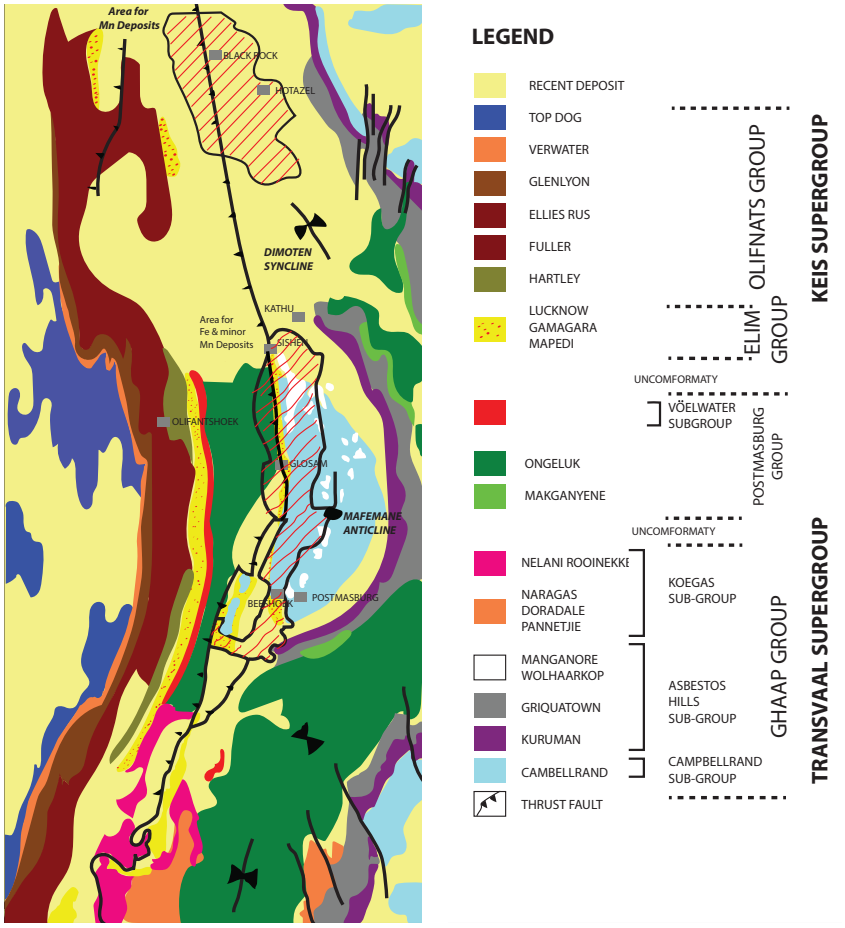
Mining authorisation

Legal entitlement	Minerals covered by Mining Right	Comment	Period of Mining Right (years)	Known impediments on legal entitlement
Mining Right NC 30/5/1/2/2/203 MRC	Manganese ore	None	30 13 July 2011 to 12 July 2041	None

ASSMANG continued

Manganese mines

REGIONAL GEOLOGICAL MAP



GEOLOGY

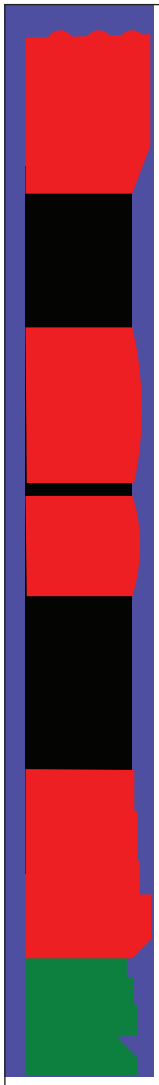
The manganese ores of the Kalahari Manganese Field are contained within sediments of the Hotazel Formation in the Postmasburg Group of the Griqualand West Sequence, a sub-division of the Proterozoic Transvaal Supergroup. The Griqualand West Sequence comprises a basal dolomite and banded ironstones dominating the Ghaap, Postmasburg and the Olifantshoek Groups. The Postmasburg Group consists of basal basaltic andesites of the Ongeluk lava and banded ironstone and manganese of the Hotazel Formation.

On Belgravia, Santoy and Nchwaning farms the Hotazel Formation and overlying Mapedi shales and Lucknow quartzite sequences have been duplicated by thrusting. The thrusted ore bodies were mined from surface at the Kalahari Manganese Field discovery outcrop around the Black Rock Koppie area. Mining reached depths of approximately 200 metres. The manganese resources hosted in the thrusted ore bodies are reported, collectively, under Black Rock (Koppie Area) ore bodies. The average thickness of the Hotazel Formation is approximately 40 metres, with the banded iron formation (BIF) hosted manganese ore bodies occurring as three stratabound and stratiform units of variable thickness. The lowermost ore body (Seam 1) is higher grade in comparison to the topmost ore body (Seam 2). Seam 3, which occurs in between Seam 1 and Seam 2, is thin and uneconomic.

ASSMANG continued

Manganese mines

GENERALISED STRATIGRAPHY OF MANGANESE UNITS IN THE HOTAZEL FORMATION



- Banded ironstone
- Top Mn Seam (Mn2): lower Mn, higher Fe, largely unmined, up to 10 m thick
- Marker Mn thin (1 m – 1.5 m), carbonaceous, uneconomic
- Lower Mn Seam (Mn1): higher Mn, lower Fe, most mined, up to 40 m thick*
- Lava

** Mn seams tend to be thicker in lower grade Mamatwan/Gloria type ore compared to the higher grade Wessels/Nchwaning type ore.*

The manganese ore bodies exhibit a complex mineralogy and more than 200 ore and gangue mineral species have been identified. Hydrothermal upgrading has resulted in zoning of the ore body adjacent to fault positions. Distal areas exhibit more original and low-grade kutnohorite and braunite assemblages, while areas immediately adjacent to faults exhibit high-grade hausmannite rich ore. The intermediate areas exhibit mineralogy which includes bixbyite, braunite and jacobsite among a host of other manganese-bearing minerals. Similar zonation also exists in the vertical sense. At the top and bottom contacts it is common to have high iron (Fe) and low manganese (Mn) contents while the reverse is true towards the centre of the seam. This vertical zoning has given rise to a mining practice where only the 4,0 to 5,0 metre-high centre portion of the seam is being mined.

EXPLORATION ACTIVITIES

There was no exploration expenditure for the year. A capital application for a three-year in-fill drilling campaign was approved in 2018. The areas planned for drilling are: Nchwaning 3, Graben and Gloria.

MINING METHODS AND INFRASTRUCTURE

Trackless mechanised equipment is used in the Bord and Pillar mining method. Two manganese seams are mined. The lowermost (Seam 1) at Nchwaning 3 is up to 6 metres thick, of which up to 5 metres is mined. There is, therefore, minimum dilution. Mining of Nchwaning Seam 2 has also been done on an optimum cut of 4,0 metres. Gloria Seam 1 is approximately 14 metres thick, but only an optimum cut of 4,0 metres is mined. No mining has been undertaken to date on Gloria Seam 2.

NCHWANING MINE MINERAL RESOURCES

Nchwaning Mine was diamond drilled from surface at 330 metre grid centres and the data is captured in a Geological Database Management System (GDMS) developed by Datamine. The core is logged and 0,5 metre-long, half-core, diamond-saw cut samples are submitted to Assmang's laboratory at Black Rock for X-ray fluorescence (XRF) analyses. Mn and Fe values are checked by Wet Chemical analyses. Several standards are used to calibrate the XRF equipment, and results are compared with other laboratories on a regular basis.

At Nchwaning, boreholes and underground sample sections were considered in the geological modelling and grade estimation for Nchwaning Seam 1 and Seam 2. The geological modelling and the grade estimation were undertaken using Datamine Strat 3D software and Datamine Studio 3 respectively. The resource models were built on 50 metre x 50 metre x optimal minable cut. The optimal minable cuts were 4 to 5 metres for Nchwaning Seam 1, 2, and 3 and Graben. The blocks were sub-split in the X and Y directions to accurately follow the geological boundaries.

ASSMANG continued
Manganese mines

Statistical and geostatistical analysis were done on the following variables: Mn, Fe, Al_2O_3, BaO, CaO, K_2O, MgO, Na_2O, P, S and SiO_2. Ordinary kriging interpolation within Datamine Studio 3 was used to estimate the grade of each block. Borehole and/or underground sample data composited to the optimal minable cut was used in the estimation of grades. The relative density of the Nchwaning manganese Seams 1 and 2 was determined as 4,3 t/m³. Mineral Resource classification at Nchwaning Mine is based on a number of parameters: kriging variance, kriging efficiency, regression slope, geological continuity of the manganese seams, geological structures and quality of assay data. Each of these parameters contributes to the overall classification depending on a weighting assigned to each of the parameters. Measured and Indicated Resources have been declared for Nchwaning.

NCHWANING MINE MINERAL RESERVES

Conversion of the Mineral Resources to Mineral Reserves is done for the Measured and Indicated Mineral Resources. The main modifying factors for the conversion are: plant recovery factor, manganese prices and mining extraction factors. Details of these factors are listed below the Mineral Reserves tables.

Mining in the eastern extremity of Nchwaning occurs at a depth of 200 metres, while the deepest (current) excavations are 528 metres below surface. Ore from Nchwaning No 2 Mine is crushed underground before being hoisted to a surface stockpile via a vertical shaft. Similarly, ore from the Nchwaning No 3 Mine is crushed underground before being conveyed to a surface stockpile via a declined conveyor system. Ore is withdrawn from the surface stockpile and undergoes two stages of crushing, dry screening and wet screening to yield lumpy and fine products.

At the plant, the finer fractions are stockpiled while the coarser fractions are extracted from the respective product boxes into road haulers, sampled, weighed and stored on stacks ahead of despatch. Samples from each stack are analysed for chemical content and size distribution. This ensures good quality control and enables the ore control department to blend various stacks according to customer requirements.

Nchwaning Mine: Seam 1 manganese Mineral Resources and Mineral Reserves

** Mineral Resources and Mineral Reserves are reported on a 100% basis*	Mineral Resources Mt	Mn%	Fe%		Mineral Reserves Mt	Mn%	Fe%
Measured	75,70	44,61	8,92	Proved	35,31	44,30	8,94
Indicated	52,35	40,78	8,53	Probable	37,87	42,30	8,76
Total resources (Seam 1) 2018	**128,05**	**43,04**	**8,76**	**Total reserves (Seam 1) 2018**	**73,17**	**43,26**	**8,85**
Total resources (Seam 1) 2017	135,62	43,30	8,70	Total reserves (Seam 1) 2017	76,20	46,00	9,00

The Measured and Indicated Mineral Resources are inclusive of those modified to produce Mineral Reserves
Totals are rounded off

Key assumptions for Mineral Resources:
- True thickness cut-off: 4,0 m to 5,0 m
- Density: 4,3 t/m³

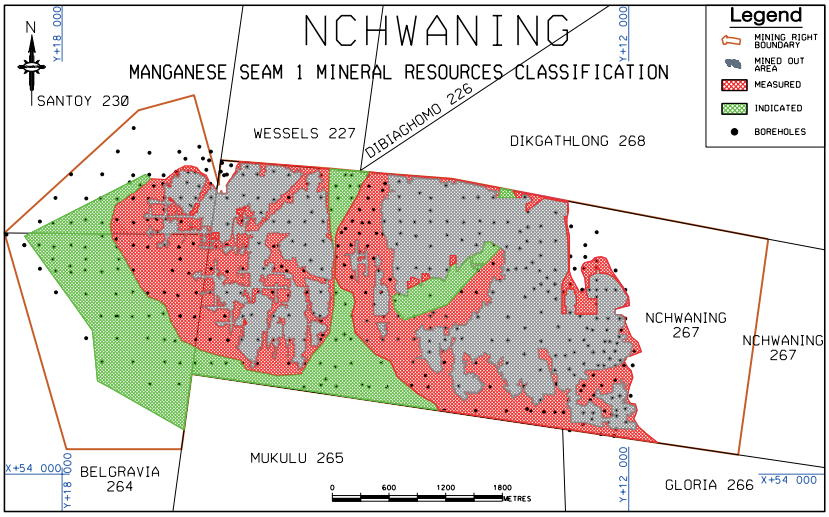
Modifying factors for the conversion of Mineral Resources to Reserves include:
- Cut-off grade: 35% Mn
- Tramming loss factor: 1%
- Plant recovery: 91%
- Mine extraction factor: 72% to 78%
- Price ranges: Based on market-related long-term view
- Exchange rate used: Market related

** Black Rock Manganese Mine attributable interests (ARM 50%; Assore 50%)*

ASSMANG continued

Manganese mines

NCHWANING MANGANESE SEAM 1 MINERAL RESOURCES CLASSIFICATION



Nchwaning Mine: Seam 2 manganese Mineral Resources and Mineral Reserves

* Mineral Resources and Mineral Reserves are reported on a 100% basis	Mineral Resources Mt	Mn%	Fe%		Mineral Reserves Mt	Mn%	Fe%
Measured	97,38	42,57	15,87	Proved	69,36	42,52	15,93
Indicated	74,86	42,09	15,36	Probable	33,83	42,62	15,68
Total resources (Seam 2) 2018	**172,24**	**42,36**	**15,65**	**Total reserves (Seam 2) 2018**	**103,19**	**42,55**	**15,85**
Total resources (Seam 2) 2017	198,73	42,30	15,70	Total reserves (Seam 2) 2017	103,80	42,90	15,20

The Measured and Indicated Mineral Resources are inclusive of those modified to produce Mineral Reserves
Totals are rounded off

Key assumptions for Mineral Resources:
- True thickness cut-off: 4,0 m
- Density: 4,3 t/m^3

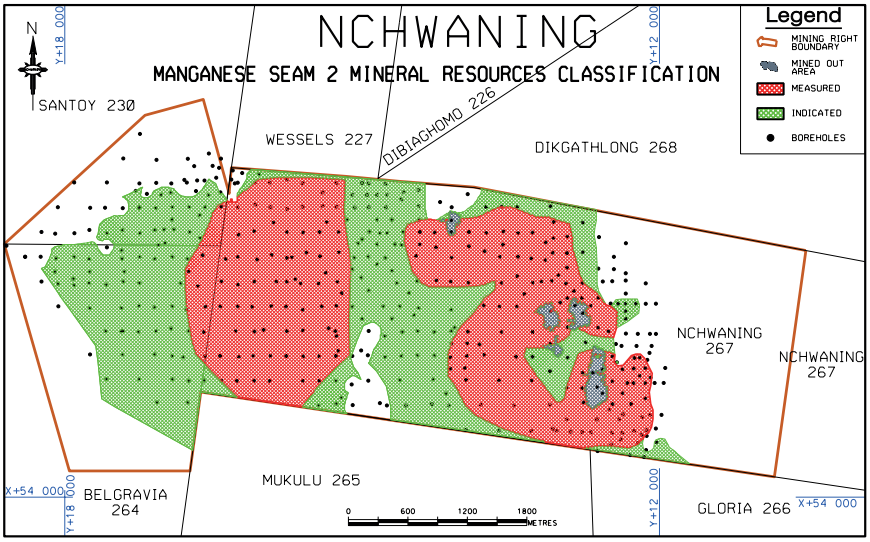
Modifying factors for the conversion of Mineral Resources to Reserves include:
- Cut-off grade: 38% Mn
- Tramming loss factor: 1%
- Plant recovery: 91%
- Mine extraction factor: 72% to 78%
- Price ranges: Based on market-related long-term view
- Exchange rate used: Market related

** Black Rock Manganese Mine attributable interests (ARM 50%; Assore 50%)*

ASSMANG continued

Manganese mines

NCHWANING MANGANESE SEAM 2 MINERAL RESOURCES CLASSIFICATION



Historical manganese production at Nchwaning Mine

Financial year	ROM Mt	Saleable Mt
2013/2014	3,15	2,69
2014/2015	3,05	2,48
2015/2016	2,91	2,39
2016/2017	3,00	2,35
2017/2018	3,59	3,00

NCHWANING YEAR-ON-YEAR CHANGE

The Mineral Resources for Nchwaning Mine Seam 2 decreased from 198,73 million tonnes at 42,30% Mn to 172,24 million tonnes at 42,36% Mn due to mining depletion and remodelling of the Mineral Resource. The remodelling decreases are as a result of termination of the seam by glacial tillites to the east and thrust faults to the west of the resource, which resulted in reduced thickness of the seam on both the margins of the ore body. The decrease in the Nchwaning Seam 1 and Seam 2 Mineral Reserves was mainly due to mining production.

BLACK ROCK "KOPPIE" MINERAL RESOURCES

The Black Rock ore bodies occur in the Black Rock Koppie, Belgravia 1 and Belgravia 2 areas. They are all part of a large thrust complex. Modelling of these ore bodies was undertaken using 151 Nchwaning boreholes that intersected the thrust complex and 174 Black Rock in-fill boreholes. A 38% manganese cut-off was used in the modelling. Seams 1 and 2 were modelled at variable thicknesses. No mining is currently being done at Black Rock Koppie.

Black Rock (Koppie area): Seam 1 manganese Mineral Resources

** Mineral Resources and Mineral Reserves are reported on a 100% basis*	Mineral Resources Mt	Mn%	Fe%
Measured	9,03	40,30	18,10
Indicated	34,57	40,70	18,10
Total resources (Seam 1) 2018	**43,60**	**40,60**	**18,10**
Total resources (Seam 1) 2017	43,60	40,60	18,10

Totals are rounded off

Key assumptions for Mineral Resources:

- Density: 4,0 t/m^3

** Black Rock Manganese Mine attributable interests (ARM 50%; Assore 50%)*

ASSMANG continued

Manganese mines

Black Rock (Koppie area): Seam 2 manganese Mineral Resources

* Mineral Resources and Mineral Reserves are reported on a 100% basis	Mineral Resources		
	Mt	Mn%	Fe%
Measured	8,23	37,40	19,80
Indicated	18,58	39,20	19,80
Total resources (Seam 2) 2018	**26,81**	**38,60**	**19,80**
Total resources (Seam 2) 2017	26,81	38,60	19,80

Totals are rounded off

Key assumptions for Mineral Resources:
Density: 4,0 t/m³

** Black Rock Manganese Mine attributable interests (ARM 50%; Assore 50%)*

GLORIA MINE MINERAL RESOURCES
Procedures for drilling and assaying at Gloria Mine are the same as at Nchwaning. Both boreholes and underground sample sections were considered in the evaluation of Gloria Seam 1. Gloria was modelled similarly to Nchwaning using Datamine Strat 3D software for the geological modelling and Datamine Studio 3 for the grade estimation. The geological block model was created for an optimum cut of 4 metres for Seam 1 and Seam 2. Block sizes in the X and Y directions were 50 x 50 metres allowing for sub-splitting. A relative density was determined as 3,8 t/m³. The full vertical extent of both Seams 1 and 2 were modelled.

Statistical and geostatistical analyses for the following variables: Mn, Fe, Al_2O_3, BaO, CaO, K_2O, MgO, Na_2O, P, S and SiO_2 were undertaken. Ordinary kriging interpolation within Studio 3 was used to estimate the grade in the 50 x 50 x 4 metre blocks using borehole and/or underground sample data. Mineral Resource classification methods were similar to those applied at Nchwaning Mine.

GLORIA MINE MINERAL RESERVES
Conversion of the Mineral Resources to Mineral Reserves is done for Measured and Indicated Mineral Resources. The main modifying factors for the conversion are: plant recovery factor, manganese prices and mining extraction factors. Details of these factors are listed below the Mineral Reserves tables.

Manganese is extracted at depths that vary between 180 to 300 metres. Ore is crushed underground before being conveyed to a surface stockpile via a decline shaft. Ore is withdrawn from the surface stockpile and forwarded to two stages of crushing, dry screening and wet screening to yield lumpy and fine products. At the plant, the ore is processed similarly to Nchwaning run of mine ore.

Gloria Mine: Seam 1 manganese Mineral Resources and Mineral Reserves

* Mineral Resources and Mineral Reserves are reported on a 100% basis	Mineral Resources				Mineral Reserves		
	Mt	Mn%	Fe%		Mt	Mn%	Fe%
Measured	64,32	37,45	4,83	Proved	49,62	37,51	4,83
Indicated	92,93	37,69	4,89	Probable	74,31	37,91	4,87
Total Measured and Indicated (Seam 1) 2018	**157,25**	**37,59**	**4,86**	**Total Reserves (Seam 1) 2018**	**123,93**	**37,75**	**4,86**
Total Measured and Indicated (Seam 1) 2017	157,73	37,60	4,90	Total Reserves (Seam 1) 2017	118,20	37,50	4,80
Inferred 2018	**31,87**	**37,11**	**5,46**				
Inferred 2017	31,50	37,00	5,50				

The Measured and Indicated Mineral Resources are inclusive of those modified to produce Mineral Reserves
Totals are rounded off

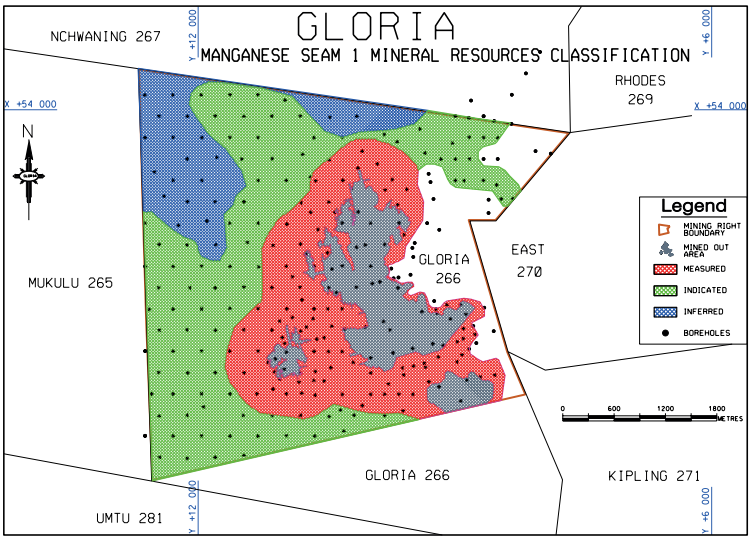
Key assumptions for Mineral Resources:
- True thickness cut-off: 4 m
- Density: 3,8 t/m³

Modifying factors for the conversion of Mineral Resources to Reserves include:
- Cut-off grade: 35% Mn
- Tramming loss factor: 1%
- Plant recovery: 91%
- Mine extraction factor: 82%
- Price ranges: Based on market-related long-term view
- Exchange rate used: Market related

** Black Rock Manganese Mine attributable interests (ARM 50%; Assore 50%)*

ASSMANG continued
Manganese mines

GLORIA MANGANESE SEAM 1 MINERAL RESOURCES CLASSIFICATION



Gloria Mine: Seam 2 manganese Mineral Resources

* Mineral Resources and Mineral Reserves are reported on a 100% basis	Mineral Resources		
	Mt	Mn%	Fe%
Measured			
Indicated	34,81	28,41	9,39
Total Measured and Indicated (Seam 2) 2018	**34,81**	**28,41**	**9,39**
Total Measured and Indicated (Seam 2) 2017	34,81	28,41	9,39
Inferred 2018	**133,46**	**30,03**	**9,67**
Inferred 2017	133,46	30,00	9,70

Totals are rounded off

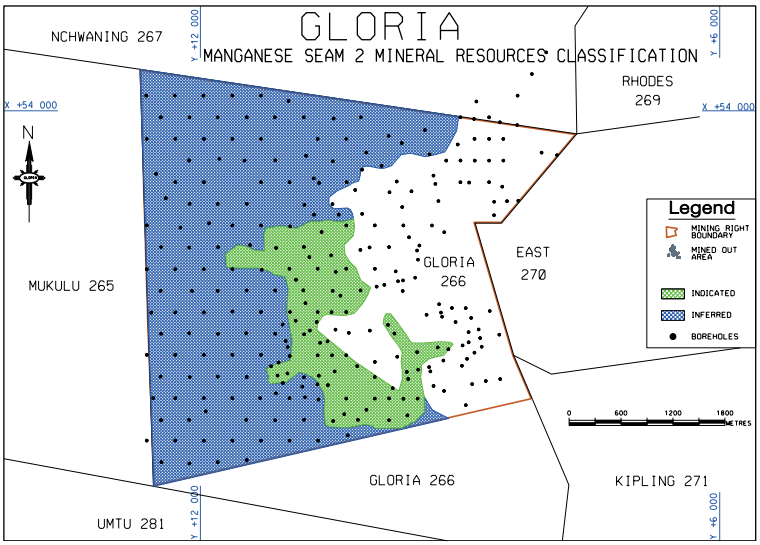
Key assumptions for Mineral Resources:
- True thickness cut-off: 4,0 m
- Density: 3,8 t/m^3

** Black Rock Manganese Mine attributable interests (ARM 50%; Assore 50%)*

ASSMANG continued

Manganese mines

GLORIA MANGANESE SEAM 2 MINERAL RESOURCES CLASSIFICATION



GLORIA YEAR-ON-YEAR CHANGE

Changes to Mineral Reserve for Seam 1 are attributable to mining production and updates to the Mineral Reserve model for Gloria Seam 1. The depletion of the Mineral Reserves was off-set by the model updates resulting in a net increase of 5% in Mineral Reserves to 123,93 million tonnes at 37,75% Mn.

Historical manganese production at Gloria Mine

Financial year	ROM Mt	Saleable Mt
2013/2014	0,79	0,67
2014/2015	0,74	0,61
2015/2016	0,56	0,55
2016/2017	0,72	0,72
2017/2018	0,69	0,71

ASSMANG continued

Iron Ore mines

LOCALITY

The Iron Ore division is made up of Beeshoek Mine located on the farms Beesthoek 448 and Olyn Fontein 475 and Khumani Mine situated on farms Bruce 544, King 561, Mokaning 560 and Parson 564. All properties are approximately 200 kilometres west of Kimberley in the Northern Cape. The Beeshoek open-pit operations are situated 7 kilometres west of Postmasburg and the Khumani open-pits are adjacent to, and south-east of Kumba Iron Ore's Sishen Mine. Beeshoek and Khumani mines are located at latitude 28°30'00"S longitude 23°01'00"E, and latitude 27°45'00"S longitude 23°00'00"E respectively.

HISTORY

Mining of iron ore (mainly specularite) was undertaken as early as 40 000 BC on the farm Doornfontein which is due north of Beeshoek. The potential of iron ore in this region was discovered in 1909, but, due to lack of demand and limited infrastructure, this commodity was given little attention. In 1929, the railway line was extended from Koopmansfontein (near Kimberley) to service a manganese mine at Beeshoek. In 1935, the Associated Manganese Mines of South Africa Limited (Assmang) was formed, and in 1964, Beeshoek Iron Ore Mine was established, with a basic hand-sorting operation. In 1975, a full washing and screening plant was installed at Beeshoek Mine. The Khumani Iron Ore Mine was commissioned in 2007.

COMPETENCE

The following Competent Persons were involved in the estimation of Mineral Resources and Mineral Reserves for the Iron Ore operations. S Kadzviti and R Jooste are employed by ARM while the rest are employed by Assmang.

Mining operation	Competent Person	Professional organisation	Membership number	Qualifications	Relevant experience
Beeshoek Mine	S Kadzviti (Mineral Resources)	SACNASP	400164/05	BSc (Geology and Mathematics), MSc (Exploration Geology), GDE (Mining Engineering)	28 years
	R Jooste (Mineral Resources)	SACNASP	400163/05	BSc, BSc Hons (Geology), MEng (Mining Engineering)	17 years
	A Burger (Mineral Reserves)	SACNASP	400233/08	BSc (Geology), BSc Hons (Geology), GDE (Mining Engineering)	17 years
Khumani Mine	M Burger (Mineral Resources and Mineral Reserves)	SACNASP	400086/03	BSc (Geochemistry), BSc Hons (Geochemistry), GDE (Mining Engineering)	35 years
	I van Niekerk (Mineral Resources)	SACNASP	400006/94	BSc Hons (Geology)	28 years

MINING AUTHORISATION

Mining operation	Legal entitlement	Mineral covered by Mining Right	Comment	Period of Mining Right (years)	Known impediments on legal entitlement
Beeshoek Mine	Mining Right NC 30/5/1/2/2/223 MRC	Iron ore	None	30 16 March 2012 to 15 March 2042	None
Khumani Mine	Mining Right NC 50/5/1/2/5/2/70 MRC	Iron ore	None	30 25 January 2007 to 24 January 2037	None

ASSMANG continued

Iron Ore mines

GEOLOGY

Beeshoek and Khumani Mines are situated within a sequence of early Proterozoic sediments of the Transvaal Supergroup. Both mines are symmetrically located on the Maremane Anticline in the Griqualand West Sequence of the Transvaal Supergroup, as well as the Elim Group of the Keis Supergroup.

Refer to the regional geological map on page 4.

In general, two ore types are present: laminated haematite ore, forming part of the Manganore Iron Formation, and conglomerate ore, belonging to the Doornfontein Conglomerate Member at the base of the Gamagara Formation. The laminated ore types occur in the upper portion of the Manganore Iron Formation as enriched high-grade hematite bodies. The boundaries of high-grade hematite ore bodies cross-cut primary sedimentary bedding, indicating that secondary hematitisation of the iron formation took place. In all of these, some of the stratigraphic and sedimentological features of the original iron formation are preserved. The conglomeratic ore found in the Doornfontein Conglomerate Member of the Gamagara Formation, is lenticular but not consistently developed along strike. It consists of stacked, upward fining conglomerate-gritstone-shale sedimentary cycles.

The lowest conglomerates and gritstones tend to be rich in sub-rounded to rounded hematite ore pebbles and granules and form the largest part of the resource. The amount of iron ore pebbles decreases upwards in the sequence so that upper conglomerates normally consist of poorly sorted, angular to rounded chert and banded iron formation pebbles. Hematite is the predominant ore mineral, but limonite and specularite also occur.

Erosion in the Khumani deposit is less than in the Beeshoek area. The result is that Khumani is being characterised by larger stratiform bodies and prominent hangingwall outcrops. The down-dip portions are well preserved and developed, but in the outcrop the deposits are thin and isolated. Numerous deeper iron ore extensions occur into the basins due to karst development. A prominent north-south strike of the ore bodies dipping to the west is notable. The southern Beeshoek ore bodies were exposed to more erosion and hence are more localised and smaller. Outcrops are limited to the higher topography on the eastern side of the properties. Down-dip to the west, the ore is thin and deep. The strike of the ore bodies is also in a north-south direction dipping to the west, but less continuous.

EXPLORATION ACTIVITIES

A total of R34,82 million was spent in the 2017/2018 year on exploration drilling at Khumani Mine. This drilling was for infill drilling on King, exploration on Mokaning and minor infill drilling on Bruce. An additional R36 million exploration drilling phase is scheduled for the 2018/2019 budget year, which will include continued infill drilling on King, Bruce and Mokaning. This is predominantly on 50 m x 50 m grid, otherwise on a 100 m x 100 m grid.

At Beeshoek, exploration expenditure for the past financial year up to end of April 2018 was R10,73 million. A total of 67 percussion and 23 diamond drill holes were drilled. The drilling included infill exploration drilling to the west of Village Pit, drilling in the BN Pit on North Mine as well as an area on North Mine. The 2018 to 2019 exploration plan include a continuation of the drilling in the west and south-west areas of Village Pit, exploration on the BF and the Oppikoppie area, HF Pit and an area North of BN Pit.

Refer to Beeshoek deposits map on page 15 and Khumani deposits map on page 17.

MINING METHODS AND INFRASTRUCTURE

Mining operations are all open-pit, based on the conventional drill-and-blast, truck-and-shovel operations. Run-of-mine ore is crushed and stored as “on” or “off-grade” on blending stockpiles. Ore from the stockpiles is either sent to the wash-and-screen plants or, if “off-grade”, to the beneficiation plants. The washing and screening plants consist primarily of tertiary crushing, washing, screening, conveying and stacking equipment. The beneficiation plants consist of tertiary crushers; scrubbers; coarse and fine jigs; lumpy and fines product stockpiles; and a rapid load-out facility. No chemicals are being used in any of the treatment plants.

MINERAL RESOURCES

The methodology followed to identify exploration targets is initiated with geological mapping, followed by geophysics (ground magnetics and gravity). Numerous exploration programmes have been completed in the past. Percussion drilling is used to pilot holes through overlying waste rock down to the iron ore bodies. Diamond drilling is the next phase, which is usually on a 200 x 200 metre grid. Further in-fill drilling is carried out at spacing ranging from 100 x 100 metres to 25 x 25 metres, depending on the complexity of the geological structures. Core samples are logged and split by means of a diamond saw and the half-core is sampled at 0,5 metre intervals. The half-cores are crushed, split and pulverised and submitted to the owner-managed laboratory for assaying. All holes and blast holes in mineralisation are sampled and analysed for Fe, K_2O, Na_2O, SiO_2, Al_2O_3, P, S, CaO, MgO, Mn and BaO. The analytical technique for elemental analyses is XRF spectroscopy. Volumetric titration is used as verification method for the determination of total iron in the ore. International standards (eg SARM11) and in-house iron standards are used for the calibration of the XRF spectrometer. The Khumani laboratory undertakes stringent quality control and assurance methods, including “round robin” analysis with 11 laboratories for verification of assay results.

A Datamine “Fusion” database with all the borehole data has been established at Khumani Mine while an MS Access database is in place at Beeshoek Mine.

At Khumani, the geological model is built with Datamine’s Strat 3D modelling functionality to create a 3D representation of the stratigraphy using all validated borehole information. The stratigraphy is modelled from the surface geology to the stratigraphic unit below the lowest mineralised zone. Within the host stratigraphic units, Doornfontein (conglomeritic mineralisation) and Manganore (laminated mineralisation) outlines for mineralisation above a cut-off of 55% Fe are interpreted and solid wireframes created. Any lower-grade samples inside the ore body are defined as internal waste and modelled separately. Ordinary kriging interpolation is used to estimate the grade of each 25 x 25 x 10 metre block generated within the

ASSMANG continued
Iron Ore mines

geological model for the following separate units: mineralised envelopes (Fe>=55%), internal shales and banded ironstone, Doornfontein and Manganore units outside the Fe>=55% envelope. Densities in the resource model are calculated using a fourth degree polynomial fit applied to the estimated Fe grade. Mineral Resource classification is based on both geostatistical parameters as well as the geological continuity of the mineralisation. The geostatistical parameters that are considered are: kriging efficiency, kriging variance, number of samples, search volume and regression slope. The final assessment of the classification is done by the lead Competent Person who may make adjustments as necessary. The geological modelling of the ore body at Beeshoek is similar to Khumani, although the cut-off grade used is 60% Fe.

MINERAL RESERVES
Only Measured and Indicated Mineral Resources are converted to Proved and Probable Mineral Reserves respectively. Modifying factors are applied to these Mineral Resources and are financially optimised. The financial parameters are used to define the optimal pit outline. The pit designs are based on geotechnical parameters, mining fleet and selective mining unit (SMU). The combined waste and mineralisation models are reblocked at 6,25 x 6,25 x 10 metre blocks or an appropriate mining block size. The Resources within this mining constraint (optimised pit-shell) with grades of greater than 55% Fe (Khumani) and greater than 60% Fe (Beeshoek), are defined as Reserves. These are categorised into different product types, destined for the different plant processes and then scheduled for mining. The average Fe, K_2O, Al_2O_3 and SiO_2 grades of the SMUs are used to define "on-grade" (wash and screen) feed as well as "off-grade" (Jig) feed.

Beeshoek Iron Ore Mine: Mineral Resources and Mineral Reserves

** Mineral Resources and Mineral Reserves are reported on a 100% basis*	Mineral Resources								Mineral Reserves					
	Measured Resources		Indicated Resources		Total Measured and Indicated Resources		Inferred Resources		Proved Reserves		Probable Reserves		Total Reserves	
Pit/area	Mt	Fe%	Mt	Fe%	Mt	Fe%	Mt	Fe%	Mt	Fe%	Mt	Fe%	Mt	Fe%
BN Pit	6,64	63,10			6,64	63,10			2,59	63,18			2,59	63,18
HF/HB Pit	16,56	64,58			16,56	64,58			6,16	65,05			6,16	65,05
BF Pit	7,50	63,51	0,23	63,54	7,73	63,51			0,60	61,59			0,60	61,59
East Pit	3,29	64,99	0,02	64,53	3,31	64,98			1,00	65,01			1,00	65,01
Village area	46,27	64,41	2,18	63,21	48,45	64,36	1,00	62,74	24,78	65,05	0,01	63,18	24,79	65,05
GF Pit	3,13	63,81	0,09	61,80	3,22	63,75								
HH Ext Pit	0,28	62,63			0,28	62,63								
HL Pit	1,98	64,82	0,02	65,21	2,00	64,82								
West Pit	9,45	63,19			9,45	63,19	0,05	61,88						
Detrital**							2,50	60,00						
Total 2018	**95,10**	**64,16**	**2,54**	**63,22**	**97,64**	**64,14**	**3,55**	**60,80**	**35,13**	**64,85**	**0,01**	**63,18**	**35,14**	**64,85**
Total 2017	94,50	64,09	9,62	63,81	104,12	64,07	2,55	60,04	39,88	64,79	3,85	63,95	43,73	64,71

The Measured and Indicated Mineral Resources are inclusive of those modified to produce Mineral Reserves
Totals are rounded off
** Beeshoek Iron Ore Mine attributable interests (ARM 50%; Assore 50%)*
*** Detrital is loose fragmented material occurring in various areas at Beeshoek*

Key assumptions for Mineral Resources:
- Grade cut-off: 60% Fe

Modifying factors for the conversion of Mineral Resources to Reserves include:
- Grade cut-off: 60% Fe
- Plant yield: on-grade (84%); off-grade (28% to 45% depending on material type)
- Price used for iron ore (US$/t): Based on market-related long-term view and customer contracts related
- Exchange rate used: Market related

ASSMANG continued

Iron Ore mines

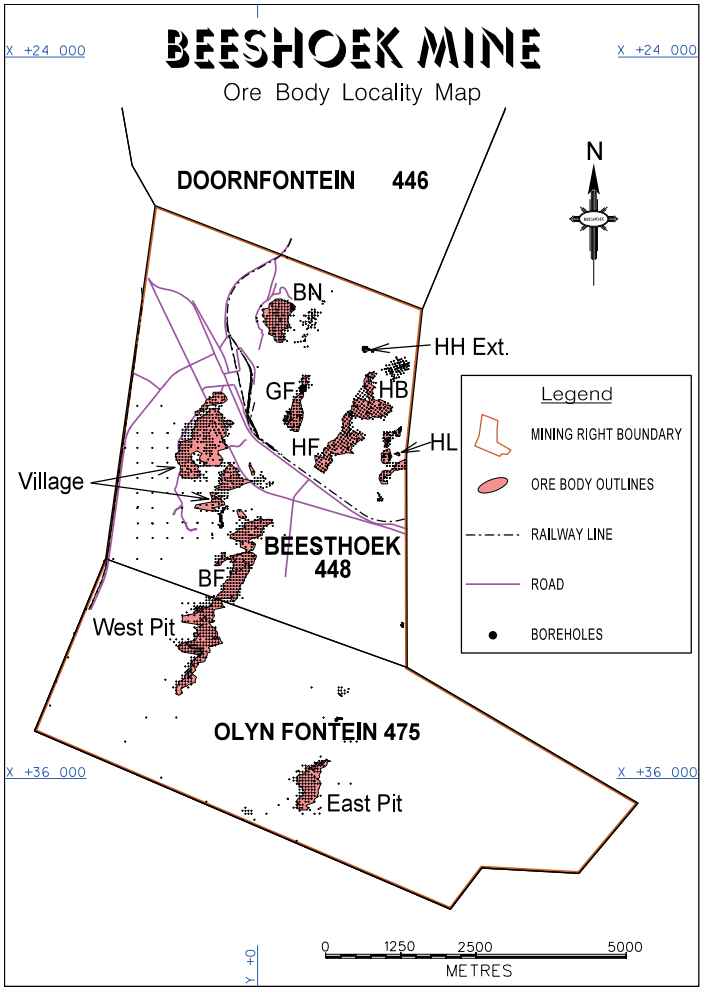
Beeshoek stockpiles Mineral Reserves

** Mineral Resources and Mineral Reserves are reported on a 100% basis*

Area	Mineral Reserves					
	Proved Reserves		Probable Reserves		Total Reserves	
	Mt	Fe%	Mt	Fe%	Mt	Fe%
North Mine Run-of-Mine (ROM) on-grade			0,04	64,00	0,04	64,00
North Mine (B RoM off-grade**)			0,01	55,00	0,01	55,00
North Mine (C off-grade)			1,69	55,00	1,69	55,00
South Mine Village Pit (off-grade)			0,18	55,00	0,18	55,00
South Mine Village Pit (on-grade)			0,02	64,00	0,02	64,00
South Mine East Pit (ROM on-grade)			0,12	64,00	0,12	64,00
South Mine East Pit (B RoM off-grade)			0,10	55,00	0,10	55,00
South Mine (C off-grade)			0,68	55,00	0,68	55,00
Total 2018 stockpiles			**2,83**	**55,58**	**2,83**	**55,58**
Total 2017 stockpiles			4,97	55,49	4,97	55,49

Totals are rounded off
*** RoM Off grade ore is beneficiated to produce a saleable product*
** Beeshoek Iron Ore Mine attributable interests (ARM 50%; Assore 50%)*

BEESHOEK DEPOSITS MAP



BEESHOEK YEAR-ON-YEAR CHANGE

Mineral Reserves for Beeshoek Mine decreased from 43,73 million tonnes at 64,71% Fe to 35,14 million tonnes at 64,85% Fe, mainly due to mining production and updates of the Mineral Reserve models. For the BN pit, the Mineral Reserves decreased from 5,23 million tonnes to 2,59 million tonnes, due to new information and an updated Mineral Resource Model. For the HF pit, the geological model was re-interpreted which led to minor changes in both the Mineral Resource and Mineral Reserve.

Historical production at Beeshoek mine

Financial year	ROM Mt	Saleable Mt
2013/2014	2,06	3,12
2014/2015	3,35	3,43
2015/2016	3,05	3,11
2016/2017	3,39	3,15
2017/2018	4,17	3,88

ASSMANG continued

Iron Ore mines

Khumani Iron Mine: Mineral Resources and Mineral Reserves

* Mineral Resources and Mineral Reserves are reported on a 100% basis	Mineral Resources								Mineral Reserves					
	Measured Resources		Indicated Resources		Total Measured and Indicated Resources		Inferred Resources		Proved Reserves		Probable Reserves		Total Reserves	
Pit/area	Mt	Fe%	Mt	Fe%	Mt	Fe%	Mt	Fe%	Mt	Fe%	Mt	Fe%	Mt	Fe%
Bruce A	56,58	63,37	61,03	63,96	117,60	63,68			49,29	61,90	55,92	63,31	105,21	62,65
Bruce B	71,77	62,15	12,08	62,16	83,85	62,15	3,74	59,36	58,74	62,34	12,84	61,14	71,59	62,12
Bruce C	11,39	63,30			11,39	63,30			5,58	62,10			5,58	62,10
Total for Bruce Pits	**139,73**	**62,74**	**73,11**	**63,67**	**212,84**	**63,06**	**3,74**	**59,36**	**113,61**	**62,14**	**68,76**	**62,90**	**182,37**	**62,43**
KM02	8,15	62,32			8,15	62,32			4,81	60,66			4,81	60,66
King Main	295,11	63,07	34,88	62,30	329,99	62,99	30,73	60,55	250,74	62,14	9,21	61,97	259,95	62,14
Mokaning South							25,02	63,53						
Total King/ Mokaning	**303,26**	**63,05**	**34,88**	**62,30**	**338,14**	**62,97**	**55,75**	**61,89**	**255,55**	**62,12**	**9,21**	**61,97**	**264,76**	**62,11**
Total 2018	**442,99**	**62,95**	**108,00**	**63,23**	**550,99**	**63,00**	**59,49**	**61,73**	**369,16**	**62,12**	**77,97**	**62,79**	**447,13**	**62,24**
Total 2017	480,36	62,54	138,65	62,53	619,01	62,53	40,35	59,66	361,80	62,18	89,70	62,06	451,50	62,15

The Measured and Indicated Mineral Resources are inclusive of those modified to produce Mineral Reserves
Totals are rounded off

Key assumptions for Mineral Resources:
- Grade cut-off: 55% Fe

Modifying factors for the conversion of Mineral Resources to Reserves include:
- Mining loss factor: 2%
- Wash and screen recovery: 87% (on-grade)
- Jig recovery: 74% (off-grade)
- Grade cut-off: 55% Fe
- Price used for Iron Ore (US$/t): Based on market-related long-term view and customer contracts related
- Exchange rate used: Market related

** Khumani Iron Ore Mine attributable interests (ARM 50%; Assore 50%)*

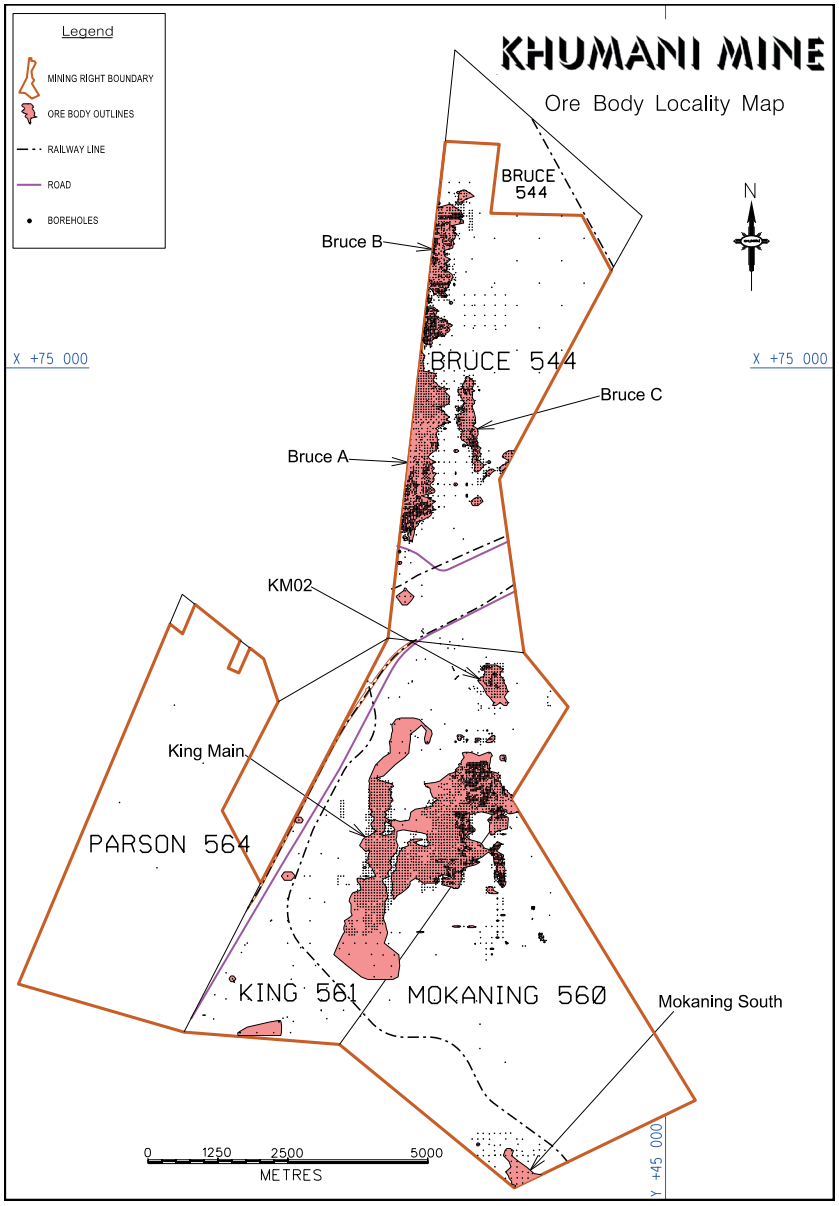
Khumani stockpiles Mineral Reserves

* Mineral Resources and Mineral Reserves are reported on a 100% basis	Mineral Reserves					
	Proved Reserves		Probable Reserves		Total Reserves	
Area	Mt	Fe%	Mt	Fe%	Mt	Fe%
Bruce			3,04	55,00	3,04	55,00
King			1,97	55,20	1,97	55,20
Total 2018 stockpiles**			**5,01**	**55,08**	**5,01**	**55,08**
Total 2017 stockpiles			3,90	55,22	3,90	55,22

Totals are rounded off
*** Stockpiles are beneficiated to produce a saleable product*
** Khumani Iron Ore Mine attributable interests (ARM 50%; Assore 50%)*

ASSMANG continued
Iron Ore mines

KHUMANI DEPOSITS MAP



KHUMANI YEAR-ON-YEAR CHANGE

An Inferred Mineral Resource of 25,02 million tonnes at 63,53% Fe for Mokaning South was added to the Mineral Resources for Khumani Mine after geological modelling and Mineral Resource estimation of the Mokaning South ore body. Measured and Indicated Mineral Resources for Khumani Mine decreased from 619,01 million tonnes at 62,53% Fe to 550,99 million tonnes at 63,00% Fe mainly due to depletion and remodelling of the ore bodies. Mineral Reserves decreased marginally to 447,13 million tonnes at 62,24% Fe due to the update of the Mineral Resource model and mining depletion.

Historical iron ore production at Khumani Mine

Financial year	ROM Mt	Saleable Mt
2013/2014	19,12	12,93
2014/2015	19,06	12,65
2015/2016	21,38	13,62
2016/2017	20,35	14,56
2017/2018	22,00	14,69

ASSORE

ASSORE SUBSIDIARY COMPANIES MINERAL RESOURCES AND MINERAL RESERVES SUMMARY

The summaries below reflect the Measured and Indicated Resources and the corresponding Proved and Probable Reserves for each mine or project. The detail is within the relevant mine's section in this report. The Mineral Resources are inclusive of those modified to produce Mineral Reserves.

ASSORE SUBSIDIARY COMPANIES GENERAL STATEMENT

Assore's method of reporting Mineral Resources and Mineral Reserves complies with the South African Code for Reporting Exploration Results, Mineral Resources and Mineral Reserves (SAMREC Code), of 2016. The Code sets out minimum standards, recommendations and guidelines for Public Reporting of Exploration Results, Mineral Resources and Mineral Reserves in South Africa.

The convention adopted in this report is that Mineral Resources are reported inclusive of that portion of the total Mineral Resource converted to a Mineral Reserve. Resources and Reserves are quoted for the financial year ended June 2018. Inferred Mineral Resources have not been included into feasibility studies or any LoM Plan.

Underground Resources are *in situ* tonnages at the postulated mining width, after deductions for geological losses. Underground Mineral Reserves reflect tonnages that are planned to be mined and processed, and include deductions comprising geological, pillar and mining losses, as well as mining dilution. Surface Mineral Reserves consist of dumps/stockpiles already mined and ready for processing and/or sale. Open-pit Mineral Resources are quoted as *in situ* tonnages and Mineral Reserves are tonnages falling within an economic pit shell that include deductions for geological and mining losses.

The environmental sustainability funding provisions are stated on page 35 of the integrated annual report and note 15 of the annual financial statements.

Subsidiary companies – 2018

	Mineral Resources				Mineral Reserves		
	Measured Mt	Indicated Mt	Inferred Mt	Total Resource	Proved Mt	Probable Mt	Total Reserve
Dwarsrivier Chrome Mine	56,4	30,7	43,0	**130,1**	37,4	25,2	**62,5**
Rustenburg Minerals (LG6)	3,6	1,7	9,8	**15,1**	0,0	0,0	**0,0**
Zeerust Chrome (LG1 to LG3)	0,3	1,1	6,6	**8,0**	0,0	0,0	**0,0**
Wonderstone Report	7,7	9,9	107,2	**124,8**	7,3	9,4	**16,7**

The Mineral Resources and Mineral Reserves are reported on a total basis (ie 100%). Maps, plans and reports supporting Resources and Reserves are available for inspection at the company's registered offices and the relevant mines.

The operating subsidiary mining companies have already concluded their Mining Right conversions from old-order mining licences to new-order Mining Rights.

Rounding-off of figures may result in minor computational discrepancies on the Mineral Resources and Reserve tabulation.

ASSORE continued

ASSORE SUBSIDIARY COMPANIES COMPETENCE

The Competent Person with overall responsibility for the compilation of the Mineral Resources and Reserves for the subsidiary companies' report is Ms C van der Merwe, an employee of African Mining and Trust Company Limited since January 2013. She confirmed in writing that the information in this report complies with the SAMREC Code and that it may be published in the form and context in which it was intended.

Ms Van der Merwe graduated from the University of Johannesburg with a BSc Geology and Environmental Management and a BSc Honours in Geology. She also completed a Management Advancement Programme certificate at the University of the Witwatersrand as well as an Iron and Steelmaking certificate.

She is considered a Competent Person who is registered with the South African Council for Natural Scientific Professionals (PrSciNat No 114059). She has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity being undertaken to qualify as a Competent Person as defined in the 2016 Edition of the "South African Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves".

SACNASP is based in Suite B 313, Geoscience Building, 280 Pretoria Road, Silverton, Pretoria, 0184, South Africa. She is also a member of the Geological Society of South Africa (No 967480) and the Australian Institute of Mining and Metallurgy (No 329991).

Christelle van der Merwe (PrSciNat)
Senior Geologist

Assore Limited
15 Fricker Road
Illovo Boulevard
Illovo, 2195
South Africa

30 October 2018 (as per the letter supplied in writing)

All Competent Persons at the Assore corporate office and the operations have sufficient relevant experience in the type of deposit and in the activity for which they have taken responsibility. Details of Assore's Competent Persons are available from the Company Secretary on written request.

The following Assore corporate office, Dwarsrivier and Contractor Competent Persons were involved in compiling some aspects of the Mineral Resources and Mineral Reserves report or general review of the report:

Competent Person	Professional organisation	Membership number	Qualifications	Relevant experience	Employed
C Moffatt	IMSSA	2071	NHD (Mine Surveying), MSCC (No 1839)	30 years	Assore
L Maluleke	SACNASP	400076/16	BSc Geology, BSc (Hons) Geology	10 years	Dwarsrivier Chrome Mine
V Clark-Mostert	SACNASP	400161/07	BSc Geology, BSc (Hons) Environmental and Engineering Geology, MSc Earth Science Practice and Management	15 years	Practara (consultant)

ASSORE SUBSIDIARY COMPANIES

DWARSRIVIER CHROME MINE

LOCALITY

Dwarsrivier Chromite Mine (DCM) is situated on the "Remaining Extent of Portion 1" and the "Remaining Extent" of the Farm Dwarsrivier 372 KT. DCM is approximately 30 kilometres by road from Steelpoort and 60 kilometres by road from Lydenburg, Limpopo province, South Africa.

HISTORY

Assmang Proprietary Limited (Assmang) bought the farm Dwarsrivier 372 KT, together with all surface and Mineral Rights, from Gold Fields Limited in October 1998. In July 1999, board approval was given to proceed with final design and construction of a chrome mine. Following an extensive feasibility study which incorporated a beneficiation plant, tailings dam and both open-pit and underground mine designs to project, proceeded into fruition. Construction of the infrastructure, plant and open-pit mine was completed by September 2000.

CURRENT OPERATIONS

Currently, all the chromite production from DCM is extracted from the underground operations as the open-pit reserves were exhausted in 2005. Production from underground is gradually increasing towards the current design capacity of 200 000 RoM tonnes per month. The operations are focused on delivering high-grade metallurgical, chemical and foundry grade products to the export market.

The mine was previously owned by Assmang, which is jointly owned by African Rainbow Minerals Limited (ARM) (50%) and Assore Limited (Assore) (50%). In July 2016, Assore concluded a transaction to purchase the ARM shares, making Assore the 100% owner of DCM. FY2017/2018 was the second year under Assore management and the operations have performed extremely well, by surpassing the 2,4 Mt RoM target for the year.

Tenure

Farm	Legal entitlement	Mineral covered by Mining Right	Licence validity expiry date	Period of Mining Right (years)	Known impediments on legal entitlement
Dwarsrivier 372 KS	LP179 MRC	Chrome ore inclusive of Platinum Group Minerals (PGM)	14 May 2043	30	None

Surface Rights for the remaining of extent of Portion 1 and the remaining extent of the farm Dwarsrivier 372 KS have been purchased from Assmang and are in the process of being transferred to DCM.

GEOLOGY

DCM is situated on the Bushveld Complex (BC), the world's largest source of PGMs and chromite. It has an aerial extent over 65 000 km^2 and an average thickness of 7 km (Cawthorn, 1999) with an age of approximately 2,06 Ga (Kinnard, 2010). The BC is exposed in three portions, the eastern and western limbs and the northern portion (Kinnard, 2010). Mining is currently taking place along all of these portions. DCM is situated in the eastern limb of the BC.

The economically significant portion is the Rustenburg Layered Suite (RLS) and is sub-divided into several zones. The economically important units at DCM are situated within the Critical Zone (CZ) of the RLS. The CZ is the most economically important zone in the BC and is made up of cyclic units that include pyroxenite, norite and anorthosite. Three chromitite groups are hosted within the CZ, namely the Upper Group (UG), the Middle Group (MG) and the Lower Group (LG). The CZ is exposed on the property. Most of the lease area is underlain by these units.

DCM falls within the so called Tweefontein section of the RLS eastern limb, south of the Steelpoort fault. The northern part of the eastern limb is known as the Clapham-Winterveld section, and between these blocks, the chromitite seams are known to have distinct lateral variations. In the central part of these blocks, various thin chromitite seams are developed which to date have had little to no work done in terms of correlation (Schürmann, 1985; Hatton and Von Gruenewaldt, 1987), as well as the form in which these continue along strike.

As previously reported, DCM has commenced with some extensive work in and around the seam properties within the lease area based on the need to better understand the viability of mining the MG2 and MG3 seams in the upper lithologies. Together with this there has also been an initiative to improve the Steelpoort Chromitite Seam (SCS) extraction from a safety and economic perspective.

From the initial work conducted six (6) distinct facies have been identified, based mainly on the thickness of the lithology and the chromitite seam convergence. Geological strike is north-south on the farm with an average of 10º dip towards the west. The SCS, is on average 1,00 – 2,00 m thick and is the main seam currently being exploited by DCM. Both the hangingwall and footwall lithologies of the seam are pyroxenitic, making for very competent ground conditions.

Measuring approximately 40 cm above the SCS, there is a disseminated Chromitite-Pyroxenite stringer, referred to as the false hangingwall disseminated zone (FHW-DZ). The entire unit from the SCS contact to the FHW-DZ is referred to as the false hangingwall (FHW) unit. The SCS and FHW unit form the economically mineable unit at DCM and is considered as such for the Reserve estimate.

RESOURCE ESTIMATE

Additional exploration information was considered in this year's estimate. Fifty-eight (58) new exploration boreholes were drilled and included in the geological database for the FY2017/2018 reporting period. A geophysics survey was also conducted that has resulted in revised structural interpretation which is included as part of the revised estimate.

This year the estimation and blockmodelling work was done in Leapfrog Geo and Resource tonnes were extracted from Datamine Studio RM, which is in line with the previous year's process. A total of 457 boreholes were used for FY2017/2018 geostatistical modelling and resource estimation.

Geological losses, similar to the previous year, were applied. Major structures, except faults and the associated affected ground, were depleted from the blockmodel and actual tonnes estimated for the geological losses were based on the geological model interpretation. Fault losses are accounted for in the mine design to replicate actual mining practice.

ASSORE SUBSIDIARY COMPANIES continued

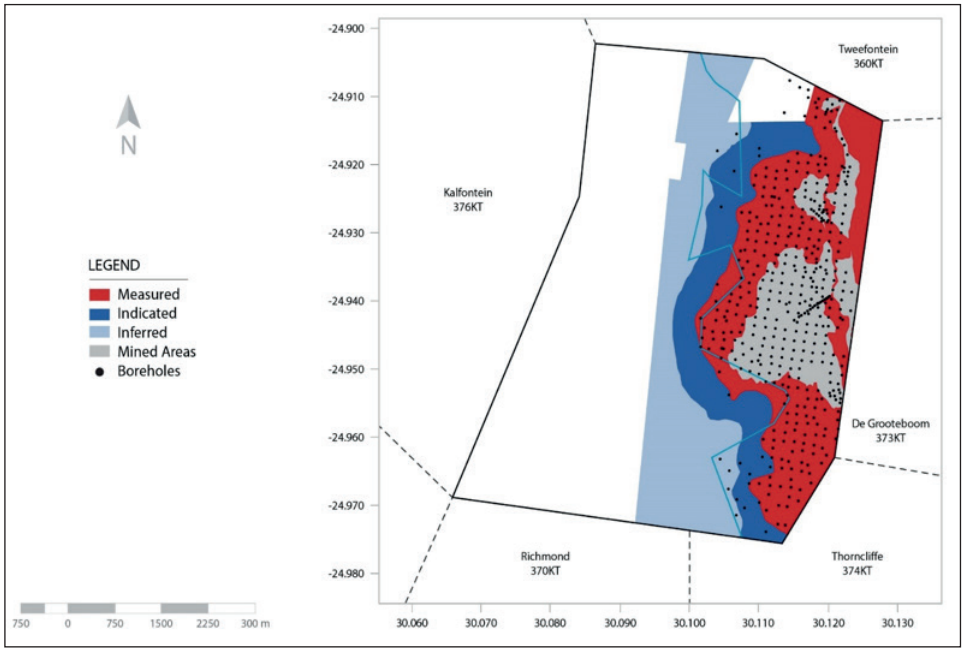
Resource estimate

Mineral Resources for Dwarsrivier Chrome Mine at the FY ending 2018							
Resource classification	**Mt**	**Cr_2O_3 %**	**FeO %**	**SiO_2 %**	**MgO %**	**Al_2O_3 %**	**Density g/cm³**
Measured	56,35	37,31	22,32	10,61	11,95	13,39	4,18
Indicated	30,69	36,79	22,25	10,35	12,21	13,17	4,22
Total (Measured and Indicated)	**87,04**	**37,13**	**22,30**	**10,52**	**12,04**	**13,31**	**4,19**
Inferred	42,97	35,18	20,64	11,82	14,00	11,91	4,33

Key assumptions for Mineral Resources

- Geological loss factor applied: losses to be encountered when mining through all known geological structures (except faults) depleted from the model. The loss amounted to 8%. An additional 5% (unknown geological losses) was further depleted from the estimated Inferred Resources.
- Density is estimated for each resource block.
- No grade or thickness cut-offs applied to Resource due to consistency of the Steelpoort Chromitite Seam layer with grade above 30% Cr_2O_3 and thickness of over 1 m.

Dwarsrivier chrome mine resource classification



ASSORE SUBSIDIARY COMPANIES continued

MINING

DCM is a shallow mining operation that employs a fully mechanised Bord and Pillar mining method.

For both the North and South Shaft complexes, the underground workings are accessed through on-reef decline. For each mining area, a five-barrel decline system is advanced on reef at an apparent dip of 8°. These serve as the main arteries for the underground workings, supplying ventilation, material, personnel and ore transport means for the operations.

Bords are mined on an apparent dip in a roughly northern and southern direction, respectively. With a direction of advance in a northern and southern direction, there are up and down dip mining in easterly and westerly directions to create the necessary ventilation holing. The bords are mined at widths of 10 m with the ventilation holings at 8 m wide. The pillars sizes increase with depth due to the increase in the overburden weight.

The total LoM is in excess of 30 years. Steady state production for the operations is planned at approximately 200 kt RoM per month (2,4Mt RoM per annum) for the DCM operations. The steady state target will be maintained by upgrading Inferred Resources to Reserves. All development is done on reef and therefore all the RoM is trammed to the plant.

RESERVE ESTIMATE

The reserves are classified into Proven and Probable Reserves with the areas adhering to the boundaries as per the Measured and Indicated categories determined in the resource modelling. The Reserve estimation is done in Datamine Studio 5D planner.

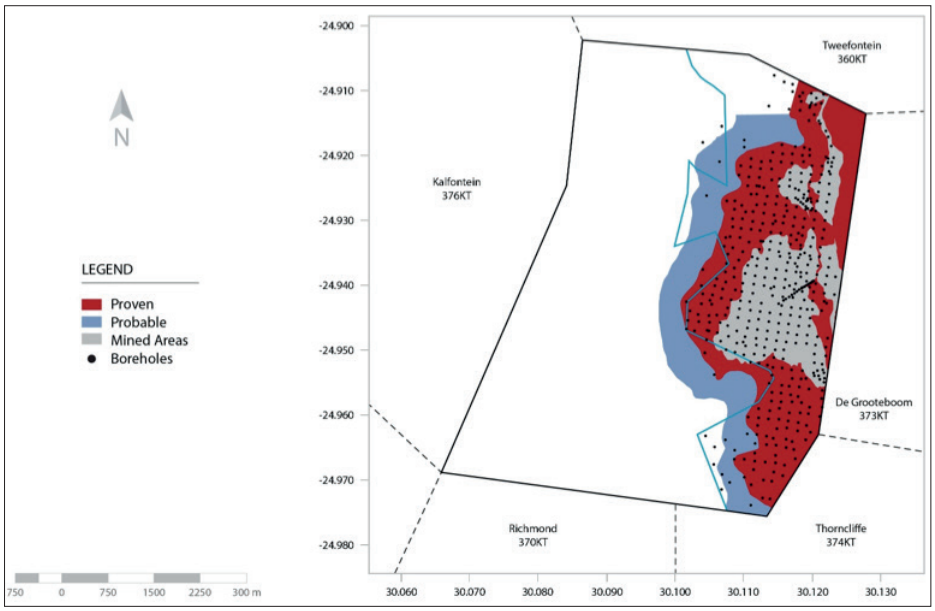
Reserve estimate

Mineral Reserves for Dwarsrivier Chrome Mine at the financial year ended 2018						
Reserve classification	**Mt**	**Cr_2O_3 %**	**FeO %**	**SiO_2 %**	**MgO %**	**Al_2O_3 %**
Proven	37,39	33,27	20,67	13,66	12,62	12,23
Probable	25,15	31,84	19,74	11,43	11,68	11,59
Total Reserves	**62,54**	**32,69**	**20,30**	**12,76**	**12,24**	**11,97**

Applied modifying factors for Mineral Reserves:

- 5% geological loss applied for unknowns
- 2% mining loss (sweepings being done)
- 66% to 84% mining extraction achieved
- Dilution 12%
- Plant yield 64%
- Market-related long-term prices considered
- Market-related exchange rates considered

DWARSRIVIER CHROME MINE RESERVE CLASSIFICATION



YEAR-ON-YEAR CHANGE

Table 1: Year on year change 2017 to 2018 for declared DCM Resources and Reserves

Resource classification	Mineral Resources Mt	Cr_2O_3%	FeO%	Reserve classification	Mineral Reserves Mt	Cr_2O_3%	FeO%
Total Measured and Indicated 2018	**87,04**	**37,13**	**22,32**	**Total Reserves 2018**	**62,54**	**32,69**	**20,30**
Total Measured and Indicated 2017	75,08	37,49	22,48	Total Reserves 2017	48,27	34,28	21,46
Inferred 2018	**42,97**	**35,18**	**20,64**				
Inferred 2017	31,00	36,86	22,45				

Geological and mining losses have remained in line with the FY2016/2017 losses applied. The change-over to a true three-dimensional mine design has brought a more refined approach to determining the actual Reserve tonnes. It has, however, resulted in reporting of lower grades than the previous year. The actual bottom contact of the SCS is used to guide the design, with a consistent 0,40 m applied from the top contact of the SCS. This is opposed to the previous year where a fixed 2,20 m mining cut was applied across the design. The FHW undercutting sections have not yet been applied to the design as the project is still in the testing phase and will be rolled out over the next financial year as a standard practice.

Due to the additional boreholes, Measured Resources increased by 92,30% to 56,35 million tonnes at 37,31 Cr_2O_3 and Indicated Resources decreased by 33,00% to 30,69 million tonnes at 36,79% Cr_2O_3. A significant increase in Proven tonnes is observed due to the upgrade in the Measured Resource classification, with a decrease in the Probable classification. Total Reserves have increased with 14,27 Mt due to this upgrade of Resources.

A total of 2 519 948 t (of which 1 887 385 t is ore tonnes) were mined since the previous statement was compiled.

HISTORICAL PRODUCTION AT DWARSRIVIER CHROME MINE

As per the strategic plan, production at DCM has shown a significant increase for FY2017/2018. The main contributing factor is the ramp-up of the new North Shaft.

Financial year	ROM Mt	Saleable Mt
2013/2014	1,61	1,07
2014/2015	1,77	1,11
2015/2016	1,96	1,20
2016/2017	2,04	1,31
2017/2018	2,52	1,89

DCM will continue at a planned steady state of 2,4 Mtpa but with sufficient flexibility to increase production should market demand increase.

ASSORE SUBSIDIARY COMPANIES continued

Assore Chromite mines

RUSTENBURG MINERALS DEVELOPMENT COMPANY PROPRIETARY LIMITED (RMDC)

Assore owns 56% of RMDC through African Mining and Trust Company Limited and 44% is owned by Mampa Investment Holdings Proprietary Limited.

LOCALITY

RMDC is located in the Mankwe District on the following farms: Portions 1 and 2 of Groenfontein 138 JP, which makes up the extent of MR51, the Remaining Extent of Zandspruit 168 JP, which makes up the extent of MR11, and Portion 3 of Vogelstruisnek 173 JP, which makes up the extent of MR50.

All properties are situated in the North West province approximately 70 km north-west of Rustenburg at latitude 25°7'6"S longitude 26°54'46".

HISTORY

The operations at RMDC commenced in 1968 and comprised a combination of underground and open-pit operations.

After the completion of the feasibility studies, a crushing, washing, screening and spiral plant was erected where chemical and metallurgical grade chromite has been produced for predominantly the export market, with a smaller proportion being sold to local customers.

RMDC established two underground projects which are still in a capital development phase. The two projects are located on the MR51 (Portions 1 and 2 of Groenfontein 138 JP) and the MR11 (Remaining Extent of Zandspruit 168 JP) mining lease areas.

OPERATIONS

During the 2014/2015 financial year, the economic extraction of reef from RMDC's underground operations became a challenge due to various factors comprising mainly falling commodity prices, increasing operational costs and unplanned strikes. As a result, the underground Reserves were reclassified as Resources in the 2015/2016 financial year after a feasibility study had been done. The open-pit operations also ceased during August 2016 when the last of the LG6 seam had been extracted at a feasible high wall. The open-pit operations were rehabilitated during the past financial year according to the RMDC Mining Closure Plan while the underground operations are being maintained against time dependant deterioration factors.

Tenure

Farm	Legal entitlement	Mineral covered by Mining Right	Licence validity/expiry date	Period of Mining Right (years)	Known impediments on legal entitlement
Portion 1 and 2 of Groenfontein 138 JP	ML: NW 30/5/1/2/2/51 MR	Chrome	23 April 2038	30	None
RE of Zandspruit 168 JP	MR: NW 30/5/1/1/2/11 MR	Chrome	13 October 2035	30	None
Portion 3 of Vogelstruisnek 173 JP	MR: NW 30/5/1/2/2/50 MR	Chrome	23 April 2038	30	None

GEOLOGY

RMDC is situated in the western limb of the Bushveld Layered Igneous Complex.

All seams of the three groups of the Critical Zone are exposed at RMDC, however, the Lower Group (LG) seams (LG1 through to LG7), which occur within pyroxenite or bronzitite, make up the vast majority of the potential Resources at RMDC in relation to the other seams of the Critical Zone. Only small faulted segments of the Middle (MG) and Upper Groups (UG) outcrop on the eastern side of the MR11 portion of RMDC. The LG1 to LG6 seams have been historically mined at RMDC, with the LG7 having proved to be uneconomical to mine. There is no significant grade variation in the respective LG seams.

The LG6, being the thickest and thus the most economical chromitite seam to mine, has been the main source of chromite ore at the RMDC operation. The LG6 seam is fairly constant in thickness, averaging approximately 80 cm. The seam dips at an average of 10 degrees towards the east, with a north-south strike. Local variation in the dip and thickness occur mostly in the vicinity of geological structures such as faults, dykes, potholes and reef rolls. Pipe-like dunite intrusions are evident in the area, especially on the Zandspruit Farm, MR11, as well as dolerite dykes. In addition pegmatoid intrusions also exist throughout the farm associated with the dyke intrusions and major faulting. The close proximity of the Pilanesberg Alkaline Intrusion further to the east has fractured the surrounding area, resulting in ground conditions which require a relatively high support density for the underground operations on the said farms.

MINERAL RESOURCES AND RESERVES

The individual LG chromitite seams at RMDC show relatively consistent thickness and grade, with geological features such as faults and dykes being the main variables.

The evaluation method is mainly based on grade and seam thickness intersections determined via open-pit and underground mining, trenches and boreholes.

ASSORE SUBSIDIARY COMPANIES continued

Assore Chromite mines

Mineral Resources were estimated from vertical boreholes and related to chrome intersections at intervals, in plan view, not exceeding 100 metres for Measured Resources, between 100 metres and 150 metres for Indicated Resources and between 150 metres and 400 metres for Inferred Resources. The resource classification was done by considering a number of geological parameters, which included the continuity of the seams and the influence of geological structures such as dykes and faults.

The drill core comprises BQ and NQ size which were both geologically and geotechnically logged. The collar positions of the drill holes were surveyed, but down-hole surveys were not done, and the holes were assumed to have minimal vertical deflection. The LG chromitite seams are bounded above and below by pyroxenites, and as such, the ore horizon is clearly defined. The core was sampled from the reef top contact downwards to the reef bottom contact. The core was split and half retained as reference material. The other half was crushed and split into representative samples, which were crushed and pulverised for chemical analysis. The samples were analysed using the XRF analysis technique to obtain the bulk analysis, with focus on the Cr_2O_3, SiO_2 and FeO. Three laboratories were contracted to undertake the analysis, all of which were ISO 17025 accredited for these analytical techniques. The specific gravity (SG) of the chromite was established by means of a gas pycnometer.

Inferred Mineral Resources had not been included into feasibility studies or the LoM Plan.

RMDC: Mineral Resources

RMDC					
		Mineral Resources			
Assore (AMT) Attributable interest: 56% *Mampa Investment Holding Proprietary Limited attributable interest: 44%*		Measured Mt	Indicated Mt	Inferred Mt	
Groenfontein	LG6 open-pit to 45 m high wall	0,0	0,0	0,0	
	LG6 underground	1,4	1,2	2,4	
	Groenfontein total	1,4	1,2	2,4	
Zandspruit	LG6 open-pit to 45 m high wall	0,0	0,0	0,0	
	LG6 underground	2,2	0,0	7,4	
	Zandspruit total	2,2	0,0	7,4	
Vogelstruisnek	LG6 open-pit to 45 m high wall	0,0	0,0	0,0	
	LG6 underground	0,0	0,5	0,0	
	Vogelstruisnek total	0,0	0,5	0,0	
	RMDC total 2018	**3,6**	**1,7**	**9,8**	
	RMDC total 2017	3,6	1,7	9,8	
Measured and indicated	**Total 2018**	**5,3**			
	Summary total 2017	5,3			

Totals are rounded off

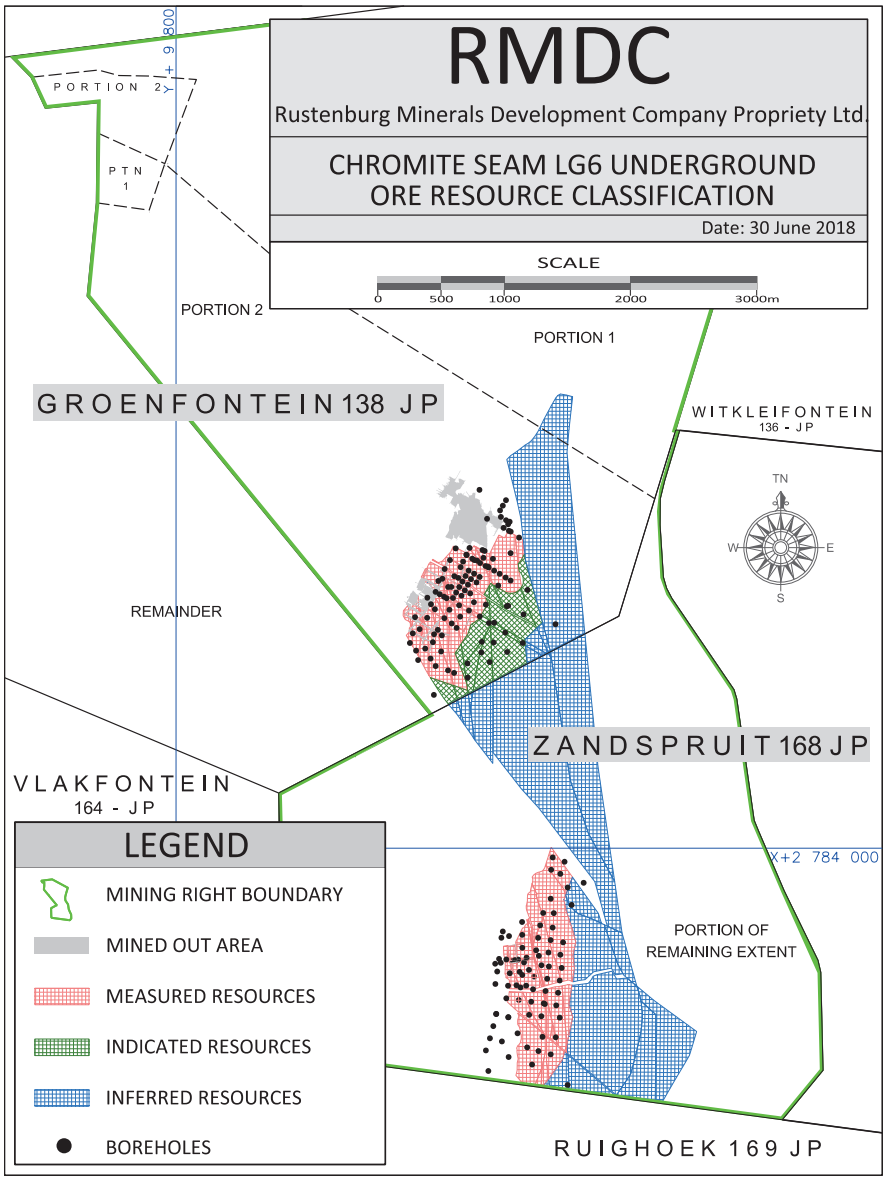
Key assumptions for Resources:

- True thickness of LG6: 80 cm
- Default density: 4 t/m^3
- LG6 *in situ* grade: 44% Cr_2O_3

ASSORE SUBSIDIARY COMPANIES continued

Assore Chromite mines

ZANDSPRUIT AND GROENFONTEIN UNDERGROUND RESOURCES



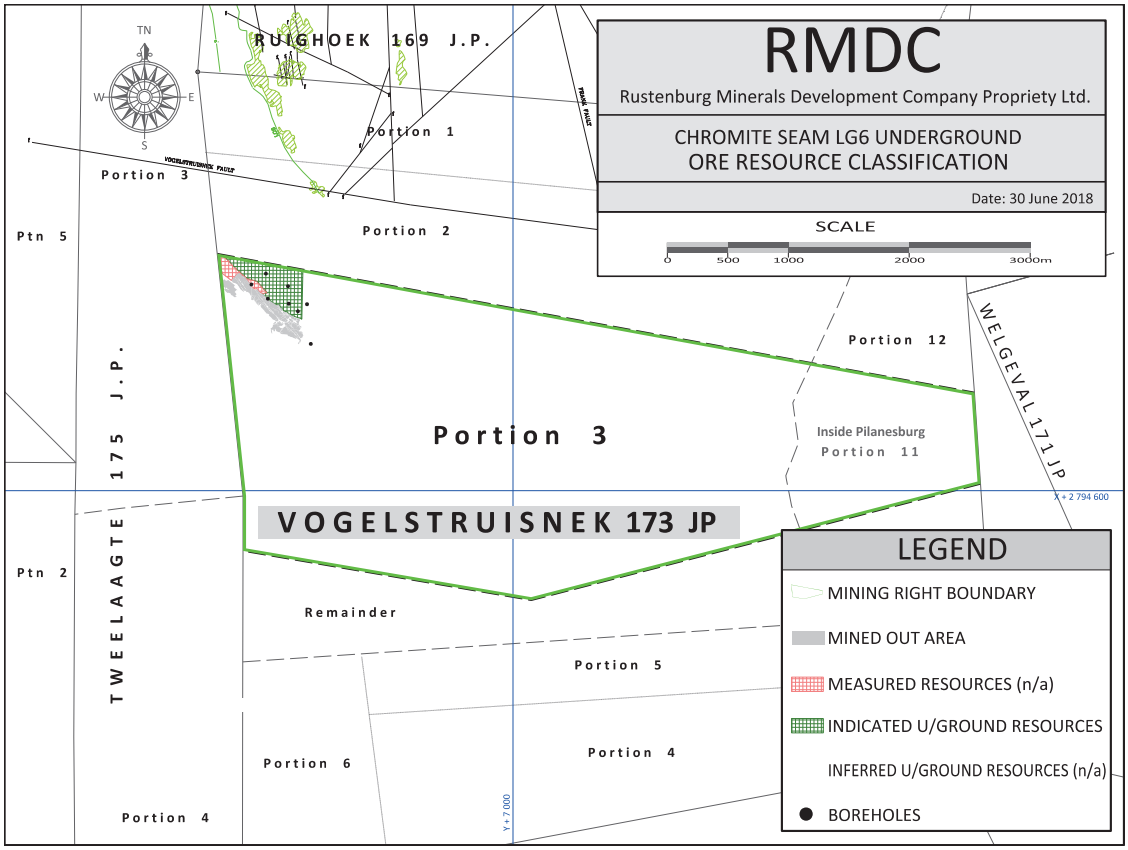
Source: RMDC Microstation base plans

At the Zandspruit underground operation, the borehole spacing is insufficient for underground Indicated Resources, therefore, only Inferred and Measured underground Resources are provided here.

ASSORE SUBSIDIARY COMPANIES continued

Assore Chromite mines

VOGELSTRUISNEK OPEN-PIT AND UNDERGROUND RESOURCES



Source: RMDC Microstation base plans

YEAR-ON-YEAR CHANGE

Measured and Indicated Resources remained at 5,3 million tonnes due to no mining depletion of the underground resources. The Mineral Reserves remained at nil tonnes as a result of unfeasible mining conditions and the consequent decision to place the mine on care and maintenance.

ASSORE SUBSIDIARY COMPANIES continued

Assore Chromite mines

ZEERUST CHROMITE MINES LIMITED (ZCM)

Assore owns 100% of Zeerust Chrome Mines Limited.

LOCALITY

Zeerust is located in the District of Zeerust on the following farms: Portions 2, 3, 4, 5, 8 and the Remaining Extent of Turfbult alias Kanaan 10 JP, which makes up the extent of MR314. All properties are situated in the North West province, approximately 70 km north of Zeerust at latitude 25°0'20"S longitude 26°12'48"E.

HISTORY

The operations at Zeerust commenced in 1962 and comprised a combination of underground and open-pit operations. The Zeerust chromite operations (located on the MR314) however, were later limited to open-pit operations only as that proved to be the only means of economically extracting the three bottom LG chromitite seams found in the area.

After the completion of the feasibility studies, a crushing, washing, screening and spiral plant was erected at the chromite mine where chemical and metallurgical grade chromite were produced for predominantly the export market, with a smaller proportion being sold to local customers.

OPERATIONS

During the 2014/2015 financial year, the economic extraction of reef from Zeerust's open-pit operations became a challenge due to various factors comprising mainly falling commodity prices, increasing operational costs and unplanned strikes. As a result, the open-pit operations ceased followed by rehabilitation completion during the 2015/2016 financial year according to the Zeerust Mining Closure Plan.

Tenure

Farm	Legal entitlement	Mineral covered by Mining Right	Licence validity/ expiry date	Period of Mining Right (years)	Known impediments on legal entitlement
Portions 2, 3, 4, 5, 8 and the RD of Turfbult alias Kanaan 10 JP	MR: NW 30/5/1/2/2/314 MR	Chrome	28 May 2042	30	None

GEOLOGY

ZCM is situated in the far western limb of the Bushveld Layered Igneous Complex.

Only the LG1, LG2 and LG3 of the Critical Zone, occurring within pyroxenite or bronzitite, are present and were mined at Zeerust.

The seams are fairly constant in thickness, with the LG1, LG2 and LG3 seams averaging 30, 27 and 12 centimetres respectively. The seam dips at an average of 10 degrees towards the east, with a north-south strike. Local variation in the dip and thickness occur mostly in the vicinity of geological structures such as faults, dykes, potholes and reef rolls. Dolerite dykes are present and sometimes associated with major faulting.

MINERAL RESOURCES AND RESERVES

The individual LG chromitite seams at Zeerust show relatively consistent thickness and grade, with geological features such as faults and dykes being the main variables.

The evaluation method is mainly based on grade and seam thickness intersections determined via open-pit and underground mining, trenches and boreholes.

Mineral Resources were estimated from vertical boreholes and related to chrome intersections at intervals, in plan view, not exceeding 100 metres for Measured Resources, between 100 metres and 150 metres for Indicated Resources and between 150 metres and 400 metres for Inferred Resources. The resource classification was done by considering a number of geological parameters, which include the continuity of the seams and the influence of geological structures such as dykes and faults.

The drill core comprises BQ and NQ size. The drill hole positions were surveyed, but down-hole surveys were not done, and the holes were assumed to have minimal vertical deflection. The LG chromitite seams are bounded above and below by pyroxenites, and as such, the ore horizon is clearly defined. The core was sampled from the reef top contact downwards to the reef bottom contact. The core was split and half was retained as reference material. The other half was crushed and split into representative samples, which were crushed and pulverised for chemical analysis. The samples were analysed using the XRF analysis technique to obtain the bulk analysis, with focus on the Cr_2O_3, SiO_2 and FeO. Three laboratories were contracted to undertake the analysis, all of which were ISO 17025 accredited for these analytical techniques. The specific gravity (SG) of the chromite was established by means of a gas pycnometer.

ASSORE SUBSIDIARY COMPANIES continued

Assore Chromite mines

Zeerust: Mineral Resources

Zeerust	Mineral Resources		
Assore (AMT) attributable interest: 100%	Measured Mt	Indicated Mt	Inferred Mt
LG1 and LG2 open-pit to 18 m high wall	0,3	0,0	0,0
LG1, LG2 and LG3 open-pit to 25 m high wall	0,0	0,2	1,7
LG1 and LG2 from 25 m to 80 m below surface	0,0	0,9	4,9
ZCM total 2018	**0,3**	**1,1**	**6,6**
ZCM total 2017	0,3	1,1	6,6
Summary total 2018	**1,4**		
Summary total 2017	1,4		

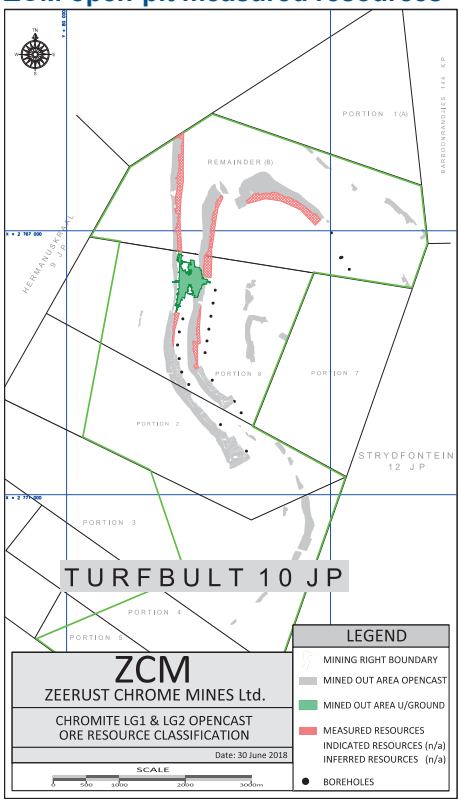
Totals are rounded off

Key assumptions for Resources:
- Average thickness of LG1 and LG2: 27 cm
- Default Density: 3.5 t/m³
- LG1 *in situ* grade: 46% Cr_2O_3
- LG2 *in situ* grade: 45% Cr_2O_3
- LG3 *in situ* grade: 46% Cr_2O_3

YEAR-ON-YEAR CHANGE

The Mineral Resources remain unchanged as the mine had been on care and maintenance since the 2014/2015 financial year. The Mineral Reserves still have a nil tonne value while mining remains uneconomic here.

ZCM open-pit measured resources



Note: The indicated and inferred resources are not shown at this scale to avoid confusion. The detail can be seen at the Assore office.

Source: WS Microstation base plans

ASSORE SUBSIDIARY COMPANIES continued

Assore Pyrophyllite mine

WONDERSTONE LIMITED (WONDERSTONE)

Assore owns 100% of Wonderstone Mine.

LOCALITY

The Wonderstone pyrophyllite outcrop extends from the main deposit on Portion 44 of the farm Gestoptefontein 349 IO, south-east (as the twin layered deposit) for a distance of 5,5 km to the main Hartbeesfontein/Ottosdal road. To the north-west it extends another 400 m beyond the current mining area to the boundary of Portion 15 of the farm Gestoptefontein 349 IO (north-west boundary of the prospecting area).

Wonderstone is in the North West province and situated approximately 12 km north of Ottosdal at latitude 26°44'7"S longitude 25°59'49".

HISTORY

Wonderstone mines a type of pyrophyllite which, for trade purposes, has been referred to as Wonderstone.

Mining commenced at the Wonderstone Mine in 1935. The open-pit operation mainly comprises hydraulic hammering and excavator loading with no drilling and blasting being necessary. The bulk of the material mined is beneficiated to produce high-precision components and powders manufactured to customers' specification which are exported to the United States of America, the United Kingdom and the Far East. A range of customised wear and acid-resistant tiles and ceramic products are produced that are mainly used for chute wear liners in the local mining industry. Wonderstone is also used in the manufacture of industrial filtration solutions.

Mining authorisation

Farm	Legal entitlement	Mineral covered by Mining Right	License validity/ expiry date	Period of Mining Right (years)	Known impediments on legal entitlement
Portion 44 of Gestoptefontein 349 IO	ML: ML1-97 to Converted MR: NW 30/1/2/2/398 MR	Pyrophyllite	23 April 2043	30	None

At the time of the compilation of this report, the directors of the subsidiary companies are not aware of any legal proceedings or material conditions that will inhibit of the subsidiary companies planned mining or exploration activities.

GEOLOGY

Wonderstone is a non-fibrous type of pyrophyllite, an aluminium silicate of the phyllosilicate family, with the chemical formula $Al_2 Si_4 O_{10} (OH)_2$. It is a very fine grained compact rock of uniform texture and composition, and comprises a greenschist metamorphic product derived from the alteration of felsic volcanics, with a melting temperature of approximately 1630° C.

The pyrophyllite forms part of the Syferfontein Formation of the Dominion Group and occurs as bands within a thick mass of inclined felsic volcanics. The thickness of the main band is approximately 190 metres with thinner lava bands up to 20 metres thick. The whole formation has a north-westerly to south-easterly strike and dips in a south-westerly direction at angles of between 25° and 48° from the horizontal.

Wonderstone occurs in two shades of grey, dark and light. The product is mined and grouped on the basis of customer colour demand, and grade is therefore not important. The lighter grey wonderstone is typically found towards the surface, while the darker grey wonderstone occurs beneath it in the less weathered regions. Flaws such as cracks and felsic inclusions are avoided through the selective surface open-pit mining method.

Resistance to the destructive influences of weathering and corrosive agents, superior workability, strength and other useful qualities, are distinct in the commercial exploitation of this mineral.

MINERAL RESOURCES AND RESERVES

Assore owns 100% of Wonderstone Limited.

The selection of wonderstone in the processing plant is not based on grade but on the ore's natural characteristics, ie colour, consistency in hardness, free of natural fractures, etc. The classification into Measured, Indicated and Inferred Mineral Resources relates to the borehole spacing and the open-pit development. The resources consist of stockpiles and *in situ* tonnages after deductions for mining and processing losses.

The boreholes were drilled at about 200 m spacing perpendicular to the dip angle, along the south-western contact boundary between the overlying felsic volcanic layer and the ore body. The collar positions of the drill holes were surveyed, but down-hole surveys were not done, and the holes were assumed to have minimal vertical deflection.

The Wonderstone Measured Resources are estimated below the natural ground level (NGL) and includes both mined tonnes and tonnes added to the stockpiles during the financial year. The Measured Resources includes the stockpiles and are estimated from the NGL and pit surface perimeter/ extend down to pit bottom; the Indicated Resources are estimated down to 30 metres below NGL and the open pit's extend (excluding the Measured Resources); whereas the Inferred Resources are estimated over the remaining lease area to a depth of 30 m below NGL. Inferred Mineral Resources has not been included into feasibility studies or the LoM Plan.

The SG of the *in situ* pyrophyllite is 2,64 t/m^3 whereas the SG of the stockpiles has been determined as being 1,96 t/m^3.

The Resource classification was done by considering various geological parameters, which include the continuity and overall behaviour of the Wonderstone obtained through borehole information.

ASSORE SUBSIDIARY COMPANIES continued

Assore Pyrophyllite mine

Wonderstone Mine: Mineral Resources and Reserves

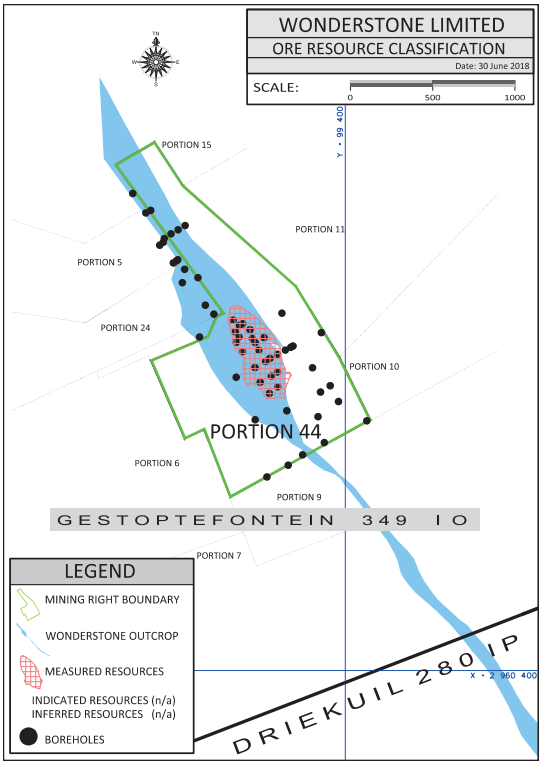
Wonderstone	Mineral Resources			Mineral Reserves	
Assore Attributable interest: 100%	Measured (Mt)	Indicated (Mt)	Inferred (Mt)	Proved Mt	Probable Mt
Outcrop below NGL to current mining floor	2,0	0,0	0,0	1,8	0,0
Ore dumps	5,9	0,0	0,0	5,5	0,0
Total volume down to 30 m below current mining floor	0,0	9,9	0,0	0,0	9,4
Prospecting area: Quarry depth 30 m	0,0	0,0	107,2	0,0	0,0
Total 2018	**7,7**	**9,9**	**107,2**	**7,3**	**9,4**
Total 2017	7,7	9,9	107,2	7,4	9,4
Summary total 2018	**17,6**			**16,7**	
Summary total 2017	17,6			16,8	

Mineral Resources are inclusive of Mineral Reserves
Totals are rounded off

Key assumptions for Resources:
- *In situ* default density: 2,64 t/m^3
- Stockpile default density: 1,96 t/m^3

Modifying factors for the conversion of Mineral Resources to Reserves include:
- Geological loss: ~5%
- Grade is not important as the market demand is based on colour, not grade

WONDERSTONE RESOURCES



Source: WS Microstation base plans

YEAR-ON-YEAR CHANGE

In total, 87 275 t were mined for the year (as opposed to the 85 023 t), 38 780 t was added to the stockpile, while 48 495 t was sold.

GLOSSARY OF TERMS

MASS UNITS

Tonnes: metric system unit of mass equal to 1 000 kilograms
Mt: million tonne; metric system unit of mass equal to 1 000 000 metric tonnes

GRADE UNITS

%Fe: weight percent iron
%Mn: weight percent manganese
%Cr_2O_3: weight percent chromium (III) oxide

PROFESSIONAL ORGANISATIONS

ECSA: Engineering Council of South Africa
SACNASP: South African Council for Natural Scientific Professions
IMSSA: The Institute of Mine Surveyors of South Africa

OTHER ABBREVIATIONS IN THE REPORT

ARM: African Rainbow Minerals Limited
Assore: Assore Limited
ASSMANG: Associated Manganese Mines of South Africa Limited
JSE: Johannesburg Stock Exchange

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