ASSORE

2017

Mineral Resources and Reserves report

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Mineral Resources and Reserves report

01

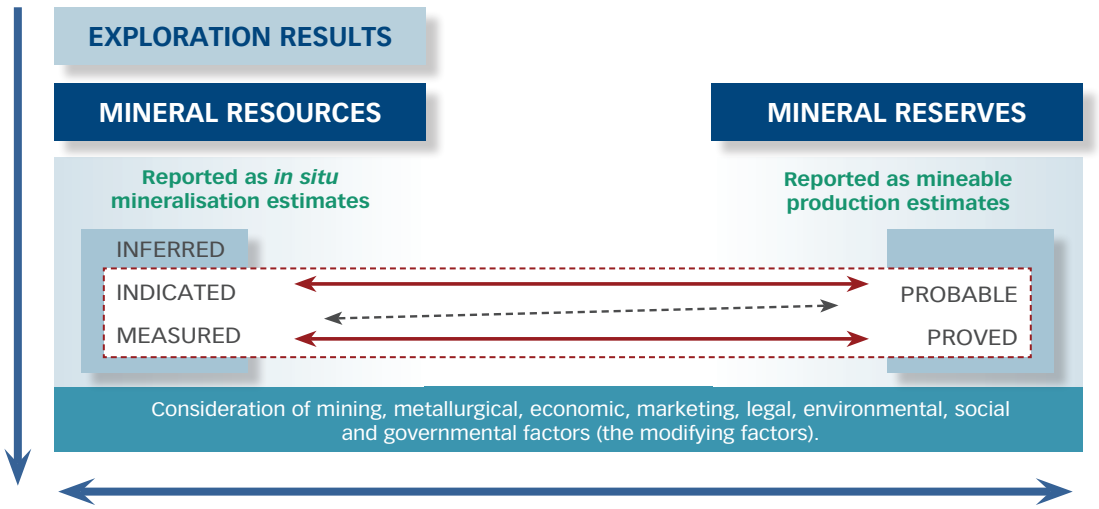
Definitions

The definitions of Mineral Resources and Reserves, quoted from the SAMREC Code (2007, as amended in July 2009), are as follows:

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

02



ASSMANG

The report is issued as the annual update of the Mineral Resources and Mineral Reserves to inform shareholders and potential investors of the mineral assets held by Assmang Proprietary Limited (Assmang). Assmang is controlled jointly by African Rainbow Minerals Limited (ARM) and Assore Limited, which each hold 50% of the issued share capital.

The report is a summary of Competent Persons' reports for Assmang's mining operations and projects. Assmang's method of reporting Mineral Resources and Mineral Reserves complies with the South African Code for Reporting of Exploration Results, Mineral Resources and Mineral Reserves (SAMREC Code of 2016) and the SAMVAL Code. The report also complies with section 12, paragraph 12.11 of the JSE Listings Requirements.

Salient features for 2017

KHUMANI MINE	Measured and Indicated Mineral Resource tonnage for Khumani (Bruce and King Pits) increased by 8% to 619,01 million tonnes due to application of a lower cut-off of 55% Fe. The grade consequently reduced by 3% to 62,53% Fe.
BEESHOEK MINE	The slight decrease of 3% in Measured and Indicated Mineral Resource to 104,12 million tonnes at 64,07% Fe is due to mining depletion at Village, East and BN Pits.
BLACK ROCK MINE	The Mineral Resources have been modelled on a composite optimal mineable cut of approximately 5,0 metres on Seam 1 for Nchwaning 3 and 4,0 metres for Gloria and Nchwaning 1, Nchwaning 2 and the Graben resulting in an increase in Mineral Resources. Mineral Reserves for Nchwaning Seam 1 reduced from 97 million tonnes at a grade of 43,3% Mn in 2016 to 76,20 million tonnes at a grade of 46,0% Mn in 2017 due to the exclusion of areas close to the major geological structures and mining depletion. Nchwaning Seam 2 Mineral Reserves also reduced from 124,00 million tonnes at a grade of 41,5% Mn last year to 103,80 million tonnes at 42,9% Mn in 2017 due to the exclusion of areas close to major geological structures and areas where middling between Seam 1 and Seam 2 is less than 11 metres.

2017 MINERAL RESOURCES AND RESERVES SUMMARY

The tables below are summaries of the Assmang Mineral Resources and Mineral Reserves. The detailed information on Mineral Resources and Mineral Reserves is provided per operation later in this report.

Assmang operations (iron)

	Mineral Resources								Mineral Reserves					
	Measured		Indicated		Measured and Indicated		Inferred		Proved		Probable		Total Reserves	
* *Mineral Resources and Reserves are reported on a 100% basis.*	Mt	Fe%	Mt	Fe%	Mt	Fe%	Mt	Fe%	Mt	Fe%	Mt	Fe%	Mt	Fe%
BEESHOEK MINE														
All pits	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
Stockpiles											4,97	55,49	4,97	55,49
KHUMANI MINE														
Bruce and King/Mokaning	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
stockpiles											3,90	55,22	3,90	55,22

The Mineral Resources are inclusive of those modified to produce Mineral Reserves.

** Iron ore operations attributable interests (ARM 50%; Assore 50%).*

ASSMANG continued

Assmang operations (manganese)

* Mineral Resources and Reserves are reported on a 100% basis.	Mineral Resources								Mineral Reserves					
	Measured		Indicated		(Measured and Indicated)		Inferred		Proved		Probable		Total Reserves	
	Mt	Mn%	Mt	Mn%	Mt	Mn%	Mt	Mn%	Mt	Mn%	Mt	Mn%	Mt	Mn%
BLACK ROCK MINE (NCHWANING MINE)														
Seam 1	73,22	44,6	62,40	41,8	135,62	43,3			29,00	45,3	47,20	46,4	76,20	46,0
Seam 2	108,90	42,5	89,83	42,1	198,73	42,3			66,40	42,7	37,40	43,2	103,80	42,9
BLACK ROCK (KOPPIE AREA)														
Seam 1	9,03	40,3	34,57	40,7	43,60	40,6								
Seam 2	8,23	37,4	18,58	39,2	26,81	38,6								
BLACK ROCK MINE (GLORIA MINE)														
Seam 1	63,90	37,4	93,83	37,7	157,73	37,6	31,50	37,0	43,20	37,3	75,00	37,6	118,20	37,5
Seam 2			34,81	28,4	34,81	28,4	133,46	30,0						

The Mineral Resources are inclusive of those modified to produce Mineral Reserves.
** Black Rock Manganese Mine attributable interests (ARM 50%; Assore 50%).*

GENERAL STATEMENT

Assmang's method of reporting Mineral Resources and Mineral Reserves complies with the South African Code for Reporting of Exploration Results, Mineral Resources and Mineral Reserves (SAMREC Code of 2016), SAMVAL Code of 2016 and section 12, paragraph 12.11 of the JSE Listings Requirements.

The SAMREC Code 2016 sets out minimum standards, recommendations and guidelines for Public Reporting of Exploration Results, Mineral Resources and Mineral Reserves in South Africa. It was launched and adopted by the Johannesburg Stock Exchange (JSE) in May 2016. The 2017 Mineral Resources and Mineral Reserves Report is based on the new SAMREC Code.

The convention adopted in this report is that the Measured and Indicated Mineral Resources are reported inclusive of that portion converted to Mineral Reserves. Inferred Mineral Resources have not been included in feasibility studies or LoM Plans. Mineral Resources and Mineral Reserves are quoted as at 30 June 2017 unless stated otherwise.

External consulting firms audit the Mineral Resources and Mineral Reserves of the Assmang operations when substantial geological borehole data has been added to the database. Underground Resources are *in situ* tonnages at the postulated mining width, after deductions for geological losses. Underground Mineral Reserves reflect tonnages that will be mined and processed while surface Mineral Reserves consist of stockpiles already mined and ready for processing. Both are quoted at the grade fed to the plant. Open-pit Mineral Resources are quoted as *in situ* tonnages and Mineral Reserves are tonnages falling within an economic pit-shell.

The classification into Measured, Indicated and Inferred Mineral Resources is done by consideration of geostatistical parameters, spacing of boreholes, geological structures and continuity of the mineralisation.

The Mineral Resources and Reserves are reported on a 100% basis and the attributable interest is noted in the footnotes of the tabulations. Maps, plans and reports supporting Mineral Resources and Mineral Reserves are available for inspection at Assmang's registered office and at the relevant mines.

Assmang's Prospecting and Mining Rights details are provided in this report for each project and operation (refer to the relevant sections of the operations and projects). Rounding of figures may result in computational discrepancies on the Mineral Resources and Mineral Reserves tabulations.

ASSMANG continued

COMPETENCE

The Competent Person with overall responsibility for the compilation of the 2017 Mineral Resources and 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 (2016) and that it may be published in the form and context in which it was intended.

Shepherd Kadzviti graduated with a BSc (Geology and Mathematics) and 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 of 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 Anglo American Platinum corporate office where he was appointed Resource Geologist. He then joined ARM as Mineral Resources Specialist in 2008 where he 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 27 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 the ARM corporate office and 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 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)	31 years
M Mabuza	SACNASP	400081/94	BSc, BSc Hons (Geology), MSc (Geology), GDE (Mining Engineering)	27 years
V Moyo	SACNASP	400305/11	BSc, BSc Hons (Geology), MSc (Project Management)	20 years

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

7 September 2017

ASSMANG PROPRIETARY LIMITED (ASSMANG) OPERATIONS

ARM's attributable beneficial interest in Assmang operations is 50%. The other 50% is held by Assore Limited. Assmang operations comprise Black Rock Manganese Mines as well as Khumani and Beeshoek Iron Ore Mines.

IRON ORE MINES

Locality

The Iron Ore division is made up of the Beeshoek Mine located on the farms Beeshoek 448 and Olyn Fontein 475 and the Khumani Mine situated on the farms Bruce 544, King 561 and Mokaning 560. 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.

Mineral Resources and Reserves report continued

ASSMANG continued

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, the 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 Reserves for the iron ore operations. S Kadzviti is employed by ARM while the rest are employed by Assmang.

Mining operation	Competent Person	Professional organisation	Membership number	Qualifications	Relevant experience (years)
BEESHOEK MINE	S Kadzviti (Mineral Resources)	SACNASP	400164/05	BSc (Geology and Mathematics), MSc (Exploration Geology), GDE (Mining Engineering)	27
	M Burger (Mineral Reserves)	SACNASP	400233/08	BSc (Geology), BSc Hons (Geology), GDE (Mining Engineering)	16
KHUMANI MINE	M Burger (Mineral Resources and Reserves)	SACNASP	400086/03	BSc (Geochemistry), BSc Hons (Geochemistry), GDE (Mining Engineering)	34
	I van Niekerk (Mineral Resources)	SACNASP	400006/94	BSc Hons (Geology)	27

Mining authorisation

Mining Operation	Legal entitlement	Minerals covered by Mining Right	Comment	Period of Mining Right (years)	Known impediments on legal entitlement
BEESHOEK MINE	Mining Right NC 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 MR	Iron ore	None	30 25 January 2007 to 24 January 2037	None

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 and Olifantshoek Group of the Transvaal Supergroup.

The Khumani iron ore deposit is situated along the contact between the Gamagara Formation and the underlying Manganore Iron Formation in the northern part of the Maremane dome. 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 is 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.

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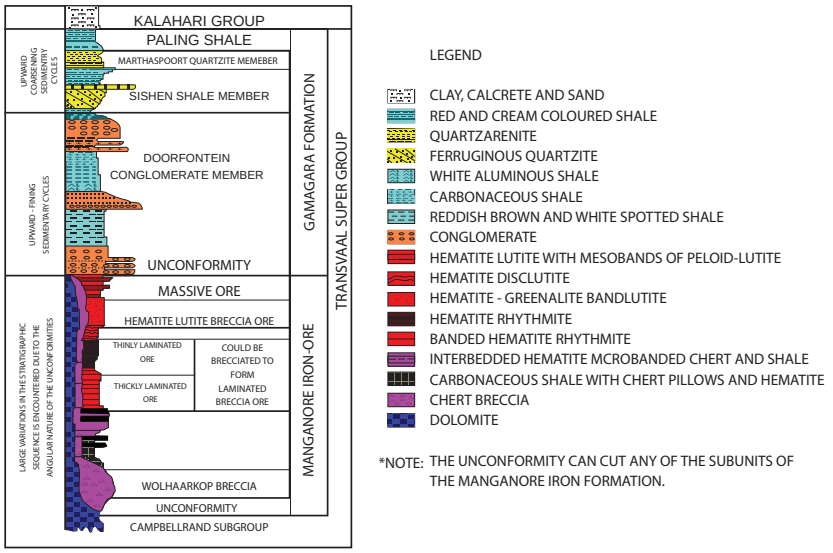
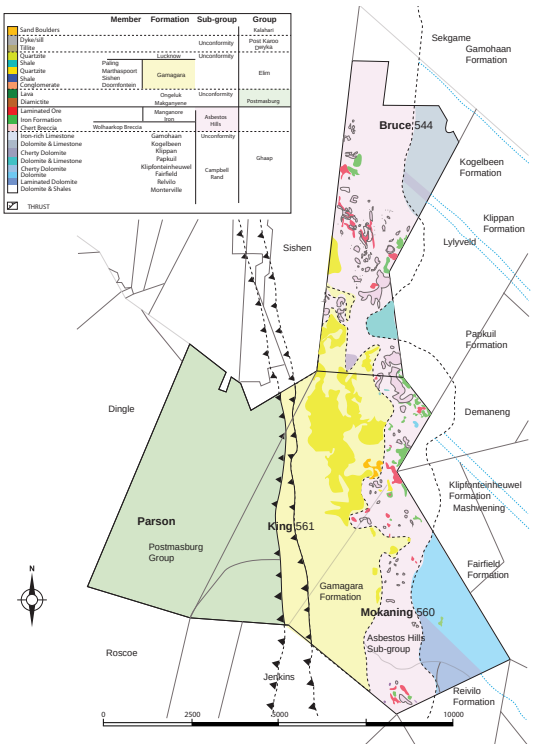
GENERALISED STRATIGRAPHY OF IRON DEPOSITS AROUND THE MAREMANE ANTICLINE

THE ASSOCIATED MANGANESE MINES OF S.A. LTD.
COMPOSITE PROFILE OF THE MANGANORE – IRON FORMATION
AND THE GAMAGARA FORMATION AT KHUMANI



*NOTE: THE UNCONFORMITY CAN CUT ANY OF THE SUBUNITS OF THE MANGANORE IRON FORMATION.

Erosion in the Khumani deposit is less than in the Beeshoek area. This results in Khumani being characterised by larger stratiform bodies and prominent hangingwall outcrops. The down-dip portions are well preserved and developed, but in 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

At Beeshoek exploration expenditure figure for the past financial year up to end-May 2017 was R9,6 million. A total of 35 percussion and 23 diamond drill holes were drilled, percussion drill holes only drilled as pilot holes before reaching the mineralisation. The exploration drilling was mainly for infill drilling in areas around Village Pit where the grid spacing was large. Results of samples taken are still awaited. The 2017 to 2018 exploration plan include continuation of this infill drilling and grid expansion on the western and south-western portion of the current Village Pit as well as exploration on the BF to Oppikopi area to the far south-east of the current Village Pit.

Exploration drilling expenditure for Khumani was R27,09 million. Drilling was targeted at reducing the drilling grid to 50 x 50 metres or 25 x 25 metres depending on the area. A five-year, R100 million in-fill and exploration drilling programme is planned for the Bruce A and B, King and Mokaning properties. (Refer to Khumani deposits map.)

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

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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 mineralised zone 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. 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 the geological model is built with Datamine's Strat3D 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 (conglomeratic 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 geological model for the following separate units: mineralised envelopes (Fe>=55%), internal shales and banded iron stone, 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 bodies at Beeshoek is similar to Khumani, although at a lower cut-off of 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 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. The Resources within this mining constraint (optimised pit-shell) with grades of greater than 55% Fe 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 Mine: Iron Mineral Resources and Mineral Reserves

** Mineral Resources and Reserves are reported on a 100% basis.*	Measured Resources		Indicated Resources		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	10,04	63,04			10,04	63,04			5,23	63,39			5,23	63,39
HF/HB Pit	16,00	64,10			16,00	64,10			6,87	64,27			6,87	64,27
BF Pit	7,50	63,51	0,23	63,54	7,73	63,51	0,001	65,24	0,60	61,59			0,60	61,59
East Pit	4,32	65,04	0,03	64,50	4,35	65,04			1,89	65,10			1,89	65,10
Village area	41,80	64,55	9,25	63,83	51,05	64,42			25,29	65,27	3,85	63,95	29,14	65,10
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	0,050	61,88						
Detrital*							2,500	60,00						
Total 2017	**94,50**	**64,09**	**9,62**	**63,81**	**104,12**	**64,07**	**2,551**	**60,04**	**39,88**	**64,79**	**3,85**	**63,95**	**43,73**	**64,71**
Total 2016	98,08	64,09	9,63	63,81	107,71	64,06	2,551	60,04	42,94	64,74	3,85	63,95	46,79	64,67

The Measured and Indicated Mineral Resources are inclusive of those modified to produce Mineral Reserves.
Totals are rounded off.
** 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: 55% to 85% (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.

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

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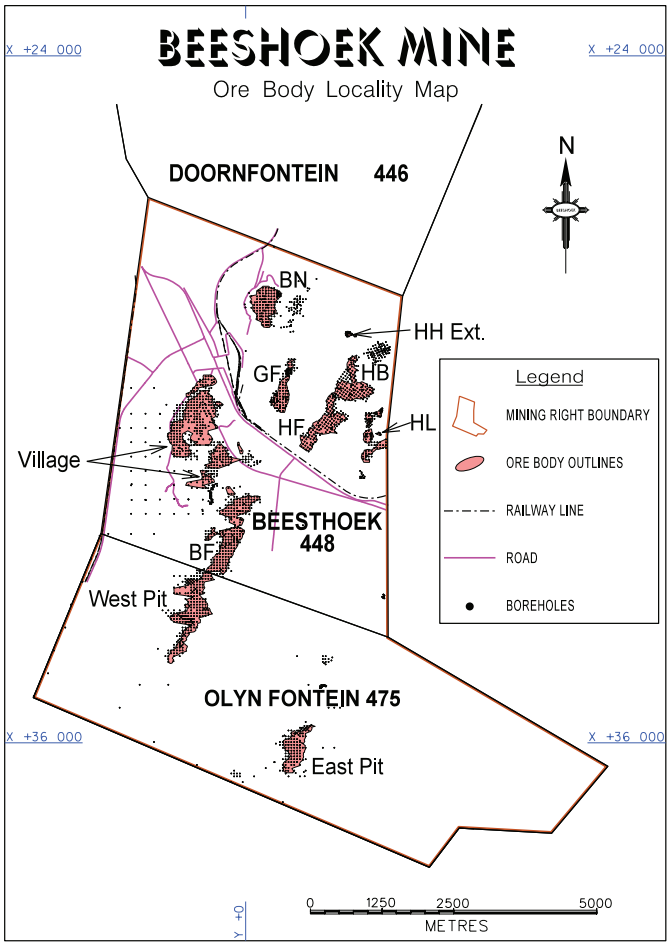
Beeshoek Mine stockpiles

* Mineral Reserves are reported on a 100% basis.	Proved Reserves		Probable Reserves		Total Reserves	
Area	**Mt**	**Fe%**	**Mt**	**Fe%**	**Mt**	**Fe%**
North Mine (Run-of-Mine (RoM) on-grade)			0,1	64,00	0,10	64,00
North Mine (B RoM off-grade**)			0,04	55,00	0,04	55,00
North Mine (C off-grade)			1,69	55,00	1,69	55,00
South Mine Village Pit (off-grade)			0,51	55,00	0,51	55,00
South Mine Village Pit (on-grade)			0,07	64,00	0,07	64,00
South Mine East Pit (RoM on-grade)			0,10	64,00	0,10	64,00
South Mine East Pit (B RoM off-grade)			0,16	55,00	0,16	55,00
South Mine (C off-grade)			2,30	55,00	2,30	55,00
Total 2017 stockpiles			**4,97**	**55,49**	**4,97**	**55,49**
Total 2016 stockpiles			6,06	55,15	6,06	55,15

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

BEESHOEK DEPOSITS MAP



BEESHOEK YEAR-ON-YEAR CHANGE

Measured and Indicated Mineral Resources for Beeshoek Mine decreased from 107,71 million tonnes to 104,12 million tonnes mainly due to mining depletion. Total Reserves also decreased by 7% to 43,73 million tonnes for the same reason.

Historical production at Beeshoek Mine

	RoM	Saleable
Financial year	**Mt**	**Mt**
2012/2013	2,88	2,94
2013/2014	2,06	3,12
2014/2015	3,35	3,43
2015/2016	3,05	3,11
2016/2017	3,39	3,15

ASSMANG continued

Khumani Mine: Iron Ore Mineral Resources and Reserve

	Measured Resources		Indicated Resources		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	52,65	62,92	72,86	63,77	125,51	63,41			47,49	60,28	66,58	62,29	114,07	61,45
Bruce B	70,19	61,92	18,65	61,07	88,84	61,74	2,38	58,71	50,21	61,75	13,73	60,37	63,94	61,46
Bruce C	13,05	62,91			13,05	62,91			6,93	61,33			6,93	61,33
Total for Bruce Pits	**135,89**	**62,40**	**91,51**	**63,22**	**227,40**	**62,73**	**2,38**	**58,71**	**104,63**	**61,05**	**80,31**	**61,96**	**184,94**	**61,45**
King/Mokaning	344,47	62,59	47,14	61,18	391,61	62,42	37,96	59,72	257,17	62,63	9,39	62,85	266,56	62,64
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**
Total 2016	394,78	64,30	176,36	64,28	571,14	64,30	13,40	62,73	342,96	64,35	83,05	64,55	426,01	64,39

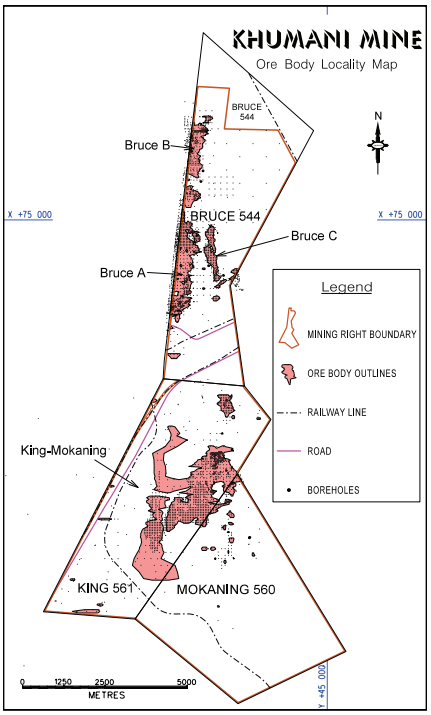
The Measured and Indicated Mineral Resources are inclusive of those modified to produce Mineral Reserves.
Totals are rounded off.

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%
- Mining dilution is built into the regularised block model
- Wash and screen recovery: 87%
- Jig recovery: 74%
- 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 DEPOSITS MAP



Khumani Mine stockpiles

** Mineral Reserves are reported on a 100% basis.*	Proved Reserves		Probable Reserves		Total Reserves	
Area	**Mt**	**Fe%**	**Mt**	**Fe%**	**Mt**	**Fe%**
Bruce			2,20	55,00	2,20	55,00
King			1,70	55,50	1,70	55,50
Total 2017 stockpiles**			3,90	55,22	3,90	55,22
Total 2016 stockpiles			4,45	60,00	4,45	60,00

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

KHUMANI YEAR-ON-YEAR CHANGE

Measured and Indicated Mineral Resource tonnage for Khumani (Bruce and King Pits) increased by 8% to 619,01 million tonnes due to application of a lower cut-off of 55% Fe after accounting for the mining depletion. The grade consequently reduced by 3% to 62,53% Fe. Mineral Reserves also increased (after depletion) by 6% to 451,50 million tonnes due to the lower cut-off grade applied as well as larger pit designs for Bruce A and Bruce B.

Historical production at Khumani Mine

	RoM	Saleable
Financial year	**Mt**	**Mt**
2012/2013	19,33	13,17
2013/2014	19,12	12,93
2014/2015	19,06	12,65
2015/2016	21,38	13,62
2016/2017	20,35	14,07

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.

The 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 OPERATIONS

ASSMANG continued

History
In 1940, Assmang 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 and Richards Bay.

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

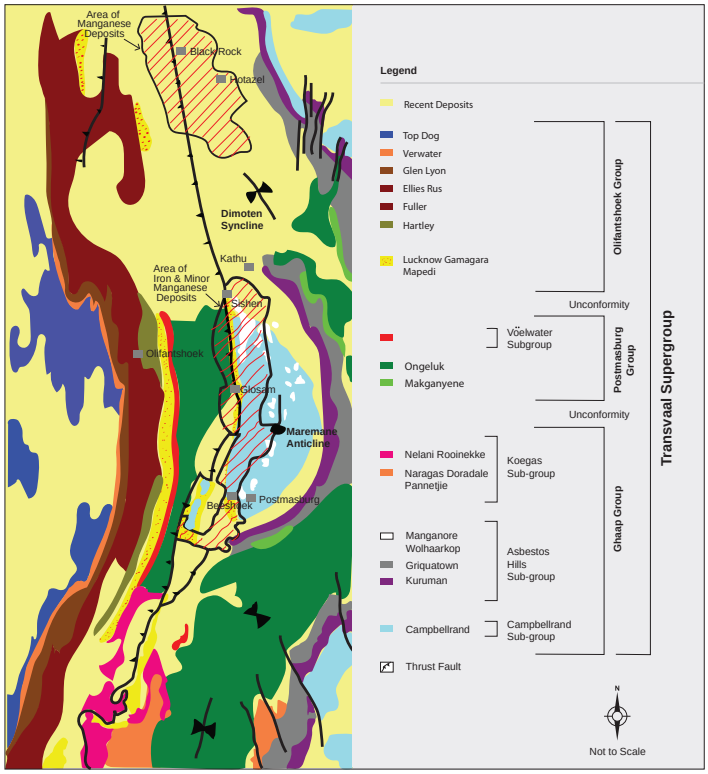
Competent Person	Professional organisation	Membership number	Qualifications	Relevant experience (years)
B Ruzive (Mineral Resources)	SACNASP	400238/07	BSc, BSc Hons (Geology), MSc (Geology), MBA	17
J Smuts (Mineral Reserves)	ECSA	201270097	BTech (Mining Engineering)	6

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

Geology
The manganese ores of the Kalahari Manganese Field are contained within the 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 the basal dolomite and banded ironstone dominated Ghaap, Postmasburg and Olifantshoek Groups. The Postmasburg Group consists of basaltic andesites of the Ongeluk Lava, Banded Iron Stone and Manganese of the Hotazel formation.

REGIONAL GEOLOGICAL MAP OF GRIQUALAND WEST



ASSMANG continued

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 – the Black Rock Koppie, and at the two other down dip interconnected Belgravia 1 and Belgravia 2 shafts. 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.

GENERALISED STRATIGRAPHY OF MANGANESE UNITS IN THE HOTAZEL FORMATION

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

** 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 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 will be submitted in the 2017/2018 financial year. The areas planned for drilling are: Nchwaning 3, Graben and Gloria areas.

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. Limited mining of Nchwaning Seam 2 has been done, while no mining has been undertaken to date on Gloria Seam 2. Gloria Seam 1 is approximately 14 metres thick, but only an optimum cut of 4,0 metres is mined.

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 resource modelling. The geological modelling and the grade estimation was undertaken using Datamine Studio 3 software. The resource models were built on 50 metres x 50 metres x optimal mineable cut. The optimal mineable 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.

Statistical and geostatistical analysis was 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 mineable 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/m^3. 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.

Mineral Resources and Reserves report continued

ASSMANG continued

Mining in the eastern extremity of Nchwaning occurs at a depth of 200 metres while the deepest (current) excavations are at a depth of 519 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 Reserves are reported on a 100% basis.	Mineral Resources				Mineral Reserves		
	Mt	Mn%	Fe%		Mt	Mn%	Fe%
Measured	73,22	44,6	8,9	Proved	29,00	45,3	9,1
Indicated	62,40	41,8	8,5	Probable	47,20	46,4	9,0
Total Resources (Seam 1) 2017	**135,62**	**43,3**	**8,7**	**Total Reserves (Seam 1) 2017**	**76,20**	**46,0**	**9,0**
Total Resources (Seam 1) 2016	129,89	43,3	8,5	Total Reserves (Seam 1) 2016	97,00	43,3	8,5

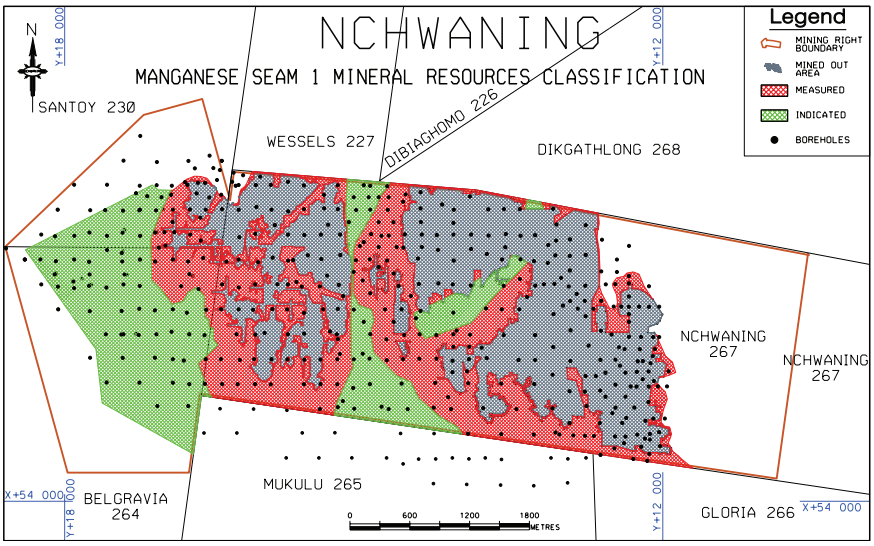
The Measured and Indicated Mineral Resources are inclusive of those modified to produce Mineral Reserves.
Totals are rounded off.

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

Modifying factors for the conversion of Mineral Resources to Reserves include:
- Tramming loss factor: 1%
- Plant recovery: 89%
- 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%).*

NCHWANING MANGANESE SEAM 1 MINERAL RESOURCES CLASSIFICATION



Mineral Resources and Reserves report continued

ASSMANG continued

Nchwaning Mine: Seam 2 Manganese Mineral Resources and Mineral Reserves

* Mineral Resources and Reserves are reported on a 100% basis.	Mineral Resources Mt	Mn%	Fe%		Mineral Reserves Mt	Mn%	Fe%
Measured	108,90	42,5	15,9	Proved	66,40	42,7	15,1
Indicated	89,83	42,1	15,4	Probable	37,40	43,2	15,4
Total Resources (Seam 2) 2017	**198,73**	**42,3**	**15,7**	**Total Reserves (Seam 2) 2017**	**103,80**	**42,9**	**15,2**
Total Resources (Seam 2) 2016	179,78	42,3	16,0	Total Reserves (Seam 2) 2016	124,00	41,5	16,1

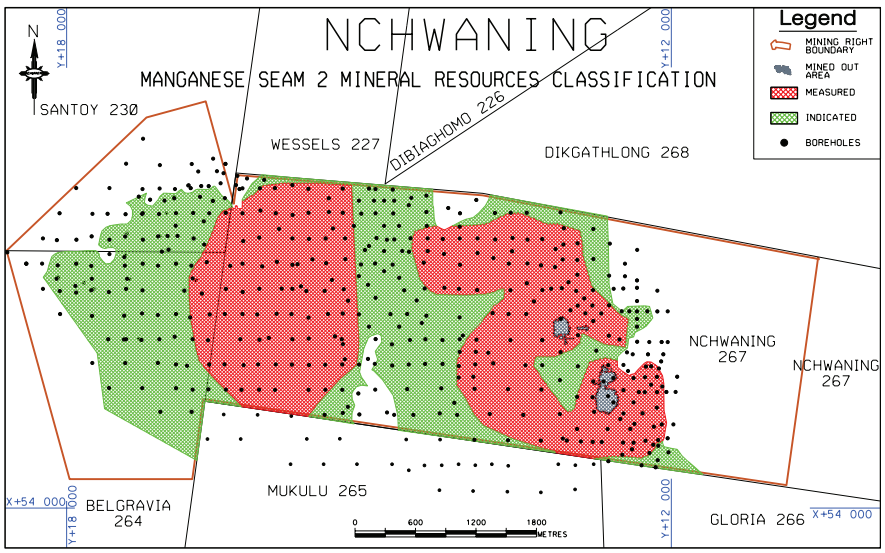
The Measured and Indicated Mineral Resources are inclusive of those modified to produce Mineral Reserves
Totals are rounded off.

Key assumptions for Mineral Resources:
- True thickness cut-off: 4.0m
- Density: 4,3 t/m³

Modifying factors for the conversion of Mineral Resources to Reserves include:
- Tramming loss factor: 1%
- Plant recovery: 89%
- 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%).*

NCHWANING MANGANESE SEAM 2 MINERAL RESOURCES CLASSIFICATION



Historical Manganese production at Nchwaning Mine

Financial year	RoM Mt	Saleable Mt
2012/2013	2,79	2,40
2013/2014	3,15	2,69
2014/2015	3,05	2,48
2015/2016	2,91	2,39
2016/2017	3,00	2,35

Nchwaning year-on-year change

The Mineral Resources for Seam 1 increased by 4,4% from 129,89 to 135,61 million tonnes at 43,3% Mn mainly due to the increase in the optimal cut to 5 m for Nchwaning 3. Nchwaning Seam 2 Mineral Resources increased from 179,78 million tonnes to 198,73 million tonnes at a slightly higher grade of 42,3% Mn due to the remodelling of the seam at a 4 m height.

Mineral Reserves tonnage for Nchwaning Seam 1 decreased from 97,00 million tonnes at 43,3% Mn to 76,20 million tonnes at 46,0% Mn. Mineral Reserves for Nchwaning Seam 2 similarly decreased to 103,80 million tonnes at 42,9% Mn from 124,0 million tonnes at 41,5% Mn. The main reasons for the decrease in the Mineral Reserve are:
- mining depletion
- provision of mining loss close to the major faults in the mining design
- Seam 2 mining excluded at depths below 580 m below surface
- Seam 2 mining excluded where the seam middling with Seam 1 is less than 11 m, for geotechnical reasons
- areas with excessive dips excluded due to limitations of using trackless machinery.

ASSMANG continued

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 are reported on a 100% basis.*	Mt	Mn%	Fe%
Measured	9,03	40,3	18,1
Indicated	34,57	40,7	18,1
Total Resources (Seam 1) 2017	**43,60**	**40,6**	**18,1**
Total Resources (Seam 1) 2016	43,60	40,6	18,1

Totals are rounded off.

Key resources assumptions:

– Density: 4,0 t/m^3

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

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

** Mineral Resources are reported on a 100% basis.*	Mt	Mn%	Fe%
Measured	8,23	37,4	19,8
Indicated	18,58	39,2	19,8
Total Resources (Seam 2) 2017	**26,81**	**38,6**	**19,8**
Total Resources (Seam 2) 2016	26,81	38,6	19,8

Totals are rounded off.

Key Resources assumptions:

– Density: 4,0 t/m^3

**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 Studio 3 software for the geological modelling and for the grade estimation. The geological block model was created for an optimum cut of 4 m for Seam 1 and Seam 2. Block sizes in the X and Y directions were 50 x 50 m allowing for sub-splitting. A relative density was determined as 3,8 t/m^3. The full vertical extent of both Seams 1 and 2 were modelled respectively.

Statistical and geostatistical analysis for the following variables: Mn, Fe, Al_2O_3, BaO, CaO, K_2O, MgO, Na_2O, P, S and SiO_2 was undertaken. Ordinary Kriging interpolation within Studio 3 was used to estimate the grade in the 50 x 50 x 4 m 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 and 250 m. 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 RoM ore.

ASSMANG continued

Gloria Mine: Seam 1 Manganese Mineral Resources and Mineral Reserves

* Mineral Resources and Reserves are reported on a 100% basis.	Mineral Resources Mt	Mn%	Fe%		Mineral Reserves Mt	Mn%	Fe%
Measured	63,90	37,4	4,9	Proved	43,20	37,3	4,7
Indicated	93,83	37,7	4,9	Probable	75,00	37,6	4,8
Total Measured and Indicated (Seam 1) 2017	**157,73**	**37,6**	**4,9**	**Total Reserves (Seam 1) 2017**	**118,20**	**37,5**	**4,8**
Total Measured and Indicated (Seam 1) 2016	149,25	37,4	5,0	Total Reserves (Seam 1) 2016	122,20	36,1	5,1
Inferred 2017	**31,50**	**37,0**	**5,5**				
Inferred 2016	29,02	36,2	6,1				

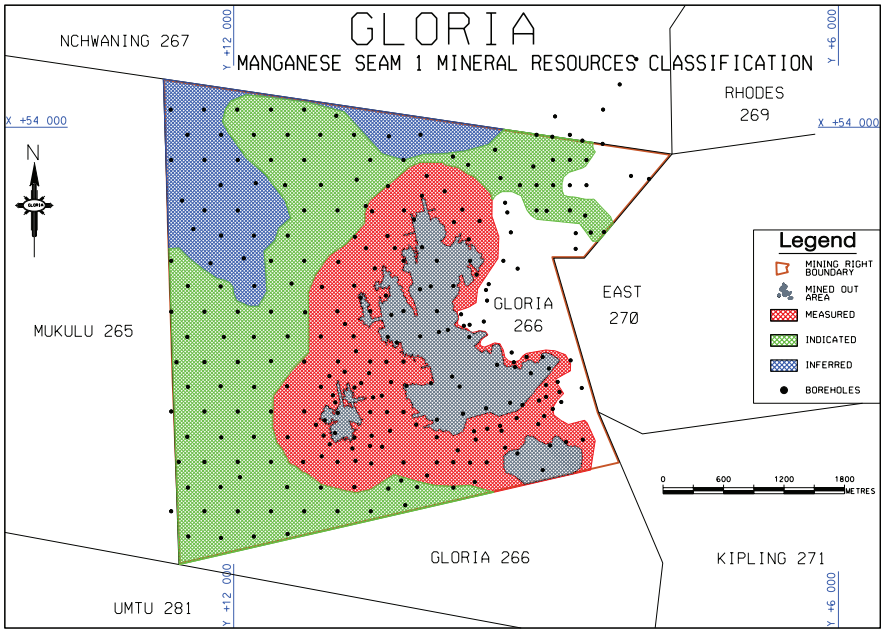
The Measured and Indicated Mineral Resources are inclusive of those modified to produce Mineral Reserves
Totals are rounded off.

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

Modifying factors for the conversion of Mineral Resources to Reserves include:
- Tramming loss factor: 1%
- Plant recovery: 89%
- 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%).*

GLORIA MANGANESE SEAM 1 MINERAL RESOURCES CLASSIFICATION



Mineral Resources and Reserves report continued

ASSMANG continued

Gloria Mine: Seam 2 Manganese Mineral Resources

* Mineral Resources are reported on a 100% basis.	Mt	Mn%	Fe%
Measured			
Indicated	34,81	28,4	9,4
Total Measured and Indicated (Seam 2) 2017	**34,81**	**28,4**	**9,4**
Total Measured and Indicated (Seam 2) 2016	32,04	28,3	9,4
Inferred 2017	**133,46**	**30,0**	**9,7**
Inferred 2016	122,60	30,0	9,6

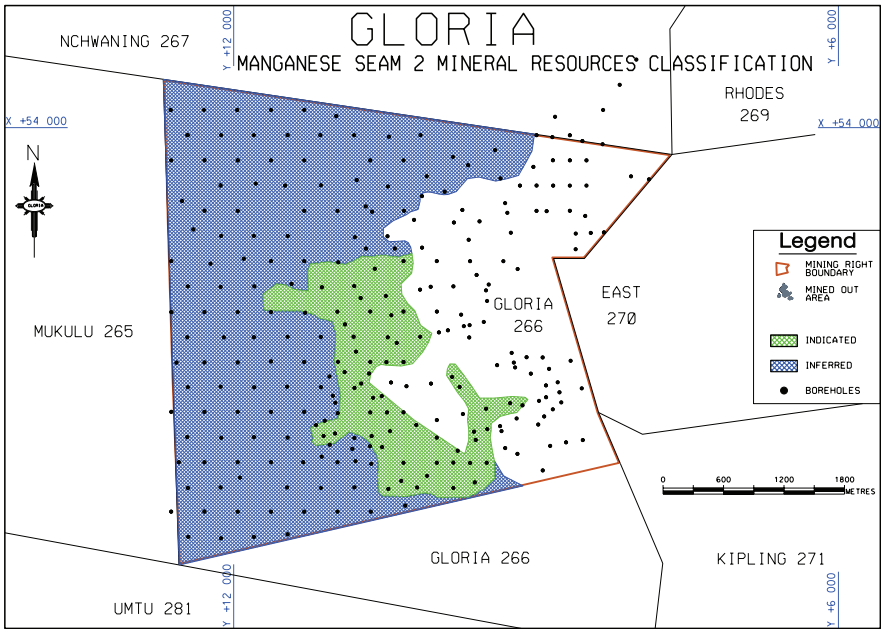
Totals are rounded off.

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%).*

GLORIA MANGANESE SEAM 2 MINERAL RESOURCES CLASSIFICATION



Historical manganese production at Gloria Mine

Financial year	RoM Mt	Saleable Mt
2012/2013	0,82	0,75
2013/2014	0,79	0,67
2014/2015	0,74	0,61
2015/2016	0,56	0,55
2016/2017	0,72	0,72

Gloria year-on-year change

The Gloria manganese seams were remodelled at an optimum mining cut of 4 m, leading to an increase in Mineral Resources. The Mineral Resources (Measured and Indicated) for Seam 1 tonnage increased by 6% from 149,25 million tonnes at 37,4% Mn to 157,73 million tonnes at 37,6% Mn. Gloria Seam 2 Indicated Mineral Resources increased by 9% from 32,04 million tonnes to 34,81 million tonnes at a grade of 28,4% Mn.

Gloria Seam 1 Mineral Reserves at 118,20 million tonnes at a grade of 37,5% Mn are 3% lower than the 2016 Mineral Reserves mainly due:

- mining depletion
- provision of mining loss close to the major faults in the mining design.

ASSORE

DWARSRIVIER CHROME MINE (DCM)

The mine was previously owned by Assmang, jointly owned by African Rainbow Minerals Limited (ARM) (50%) and Assore Limited (Assore) (50%). In July 2016, Assore concluded a deal to purchase the ARM shares, making Assore the 100% owner of DCM.

Locality

DCM is situated on "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 opencast and underground mine designs. Construction of the infrastructure, plant and opencast mine was completed by September 2000.

Current operations

Currently, all the chromite production from DCM is extracted from the underground operations as the opencast 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.

Tenure

Farm	Legal entitlement	Mineral covered by Mining Right	Comment	Period of Mining Right (years)
Dwarsrivier 372 KS	LP179 MRC	Chrome ore inclusive of Platinum Group Minerals (PGM)	The converted Mining Right was executed on 15 May 2013	30

Surface Rights are still owned by Assmang and in the process of being transferred to DCM.

Geology

DCM is situated on the Bushveld Complex (BC), the world's largest source of PGM 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 subdivided into several zones. The economically important units at DCM is 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.

The Middle Group (MG) and Lower Group (LG) units of the CZ are of interest at DCM. 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. Correlation of chromitite seams has been difficult in this area, with distinct changes and variations in dominant mineable seam observed moving from north to south of the eastern limb.

In line with these notable variations, DCM has recently done some extensive work in order to better understand facies variability at DCM and potential opportunities in relation to grade and extraction optimisation. Considering this work, it was opted to refer to the previously used colloquial mine terms which better fits the recent observations.

Geological strike is north-south on the farm with an average of 10º dip towards the west. Steelpoort Chromitite Seam (SCS), is on average between 1,60 and 1,86 m thick and is the main seam currently being exploited by DCM. Both the hangingwall and footwall lithologies of the seam is pyroxenitic, making for very competent ground conditions.

Measuring up to 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 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

No additional borehole information was included since the previous reporting period and boreholes used for resource estimation as well as applied geostatistical parameter has remained as per the preceding year's FY2015/2016 modelling.

A change was done in terms of modelling software used for the modelling and estimation process. Such work was previously done using Datamine (STRAD 3D and Studio 3) and are now done using Leapfrog Geo for Geological modelling and Resource blockmodelling.

A different geological loss was applied from the previous years. Major structures and associated affected ground that influenced the chromite seam, were depleted from the blockmodel and actual tonnes estimated for the geological losses based on the geological model interpretation. This was done as oppose to applying an average loss factor across the resource.

Mineral Resources and Reserves report continued

ASSORE continued

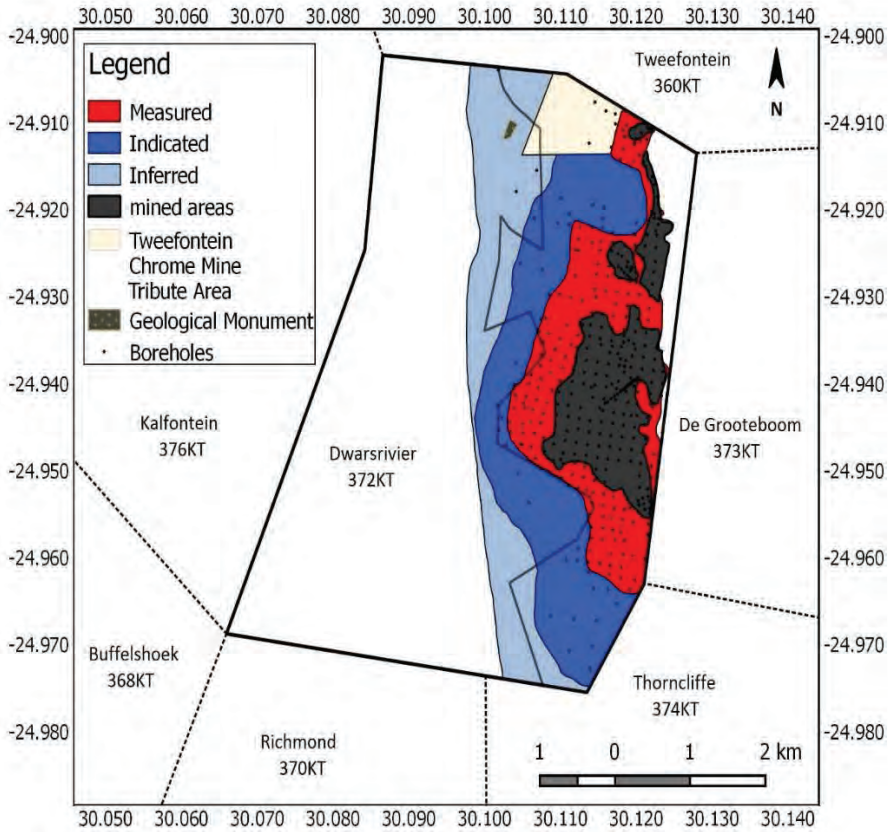
Mineral Resources for Dwarsrivier Chrome Mine at the financial year ended 2017

Resource classification	Mt	CR_2O_3%	FeO%	SiO_2%	MgO%	Al_2O_3%	Density g/cm³
Measured	29,30	37,24	22,39	10,12	11,71	13,59	4,15
Indicated	45,78	37,64	22,54	9,40	11,67	13,51	4,22
Total (Measured and Indicated)	**75,08**	**37,49**	**22,48**	**9,68**	**11,68**	**13,54**	**4,19**
Inferred	31,00	36,86	22,45	9,25	11,65	13,42	4,25

Key assumptions for Mineral Resources:

- Geological loss factor applied: Losses to be encountered when mining through all known geological structures depleted from the model. The loss amounted to 10%. 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



Mining

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

For both the North and South Shaft complexes, the underground workings are accessed through on-reef decline development. 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 tramming for the operations.

Bords are mined on an apparent dip in roughly northern and southern directions respectively. With a direction of advance in a northern and southern direction, there are up and down dip mining in eastern and western directions to create the necessary ventilation holing. The bords are mined at widths of 10 m with designed 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 but this report includes only reserves up to the date for which the Mining Right was awarded. Steady state production for the operations is planned at approximately 200 kt RoM per month (2,4 Mt 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.

ASSORE continued

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.

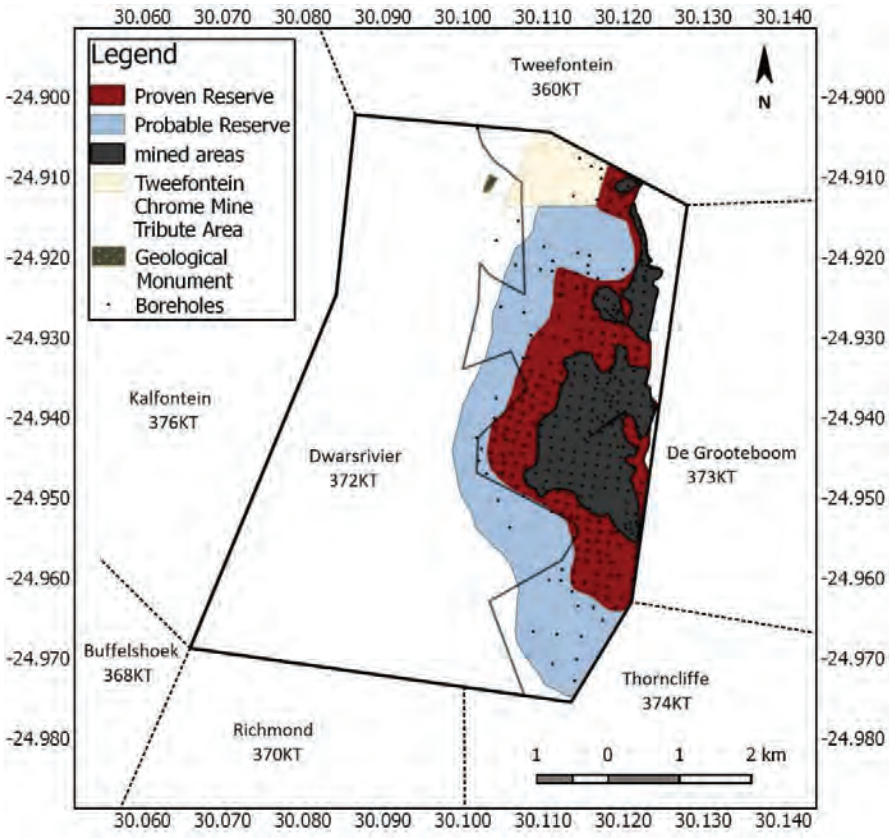
Mineral Reserves for Dwarsrivier Chrome Mine at the financial year ended 2017

Reserve classification	Mt	Cr_2O_3%	FeO%	SiO_2%	MgO%	Al_2O_3%
Proven	16,20	34,28	21,44	13,46	12,86	12,71
Probable	32,07	34,29	21,46	13,6	12,73	12,88
Total Reserves	**48,27**	**34,28**	**21,46**	**13,56**	**12,78**	**12,82**

Applied modifying factors for Mineral Reserves:

- 5% geological loss applied for unknowns
- 2% mining loss (sweepings being done)
- 73% to 82% extraction achieved
- Dilution 12%
- Plant yield 64%
- Market-related long-term prices considered
- Market-related exchange rates considered

DWARSRIVIER CHROME MINE RESERVE CLASSIFICATION



Mineral Resources and Reserves report continued

ASSORE continued

YEAR-ON-YEAR CHANGE

Table 3: Year-on-year change 2016 to 2017 for declared DCM Resources and Reserves

	Mineral Resources				Mineral Reserves		
Resource classification	**Mt**	**CR_2O_3%**	**FeO%**	**Reserve classification**	**Mt**	**CR_2O_3%**	**FeO%**
Total Measured and Indicated 2017	**75,08**	**37,49**	**22,48**	**Total Reserves 2017**	**48,27**	**34,28**	**21,46**
Total Measured and Indicated 2016	69,04	38,06	22,58	Total Reserves 2016	48,34	33,07	20,97
Inferred 2017	**31,00**	**36,86**	**22,45**				
Inferred 2016	29,92	38,32	22,73				

As opposed to previous years, tonnage losses were derived based on measurements within the 3D modelling software packages, as opposed to applying generalised assumptions across the ore body. New software was used in the Resource estimation process, major geological features were depleted from the blockmodel, and additional losses due to unknowns were catered for in the Inferred Resources and under the Reserve estimate. Extraction was determined directly from the mine design in line with the LoM plan. A constant thickness was used for the FHW unit (40 cm) when compared to the variable thickness (average of 52 cm) FHW unit used in the previous statement.

The revised approach has led to Measured Resources increasing by 3,2% to 29,3 million tonnes at 37,24% Cr_2O_3 and Indicated Resources increasing by 12,6% to 45,78 million tonnes at 37,64% Cr_2O_3. The changes in the Mineral Reserves resulted in only a slight decrease of approximately 75,12 kt to 48,27 million tonnes at 34,28% Cr_2O_3 taking into consideration 2,04 million tonnes depleted from the production year.

Historical production at Dwarsrivier Chrome Mine

Production at DCM has shown a steady increase, with the new North Shaft tonnes contributing to the increase as per the 2016/2017 production.

	RoM	Saleable
Financial year	**Mt**	**Mt**
2012/2013	1,60	1,03
2013/2014	1,61	1,07
2014/2015	1,77	1,11
2015/2016	1,96	1,20
2016/2017	2,04	1,31

ASSORE SUBSIDIARY COMPANIES

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.

Subsidiary companies – 2017

	Mineral Resources				Mineral Reserves		
	Measured	Indicated	Inferred	Total	Proved	Probable	Total
	Mt	Mt	Mt	Resource	Mt	Mt	Reserve
Dwarsrivier Chrome Mine	29,3	45,8	31,0	**106,1**	16,2	32,1	**48,3**
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	7,7	9,9	107,2	**124,8**	7,4	9,4	**16,8**

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 2017. 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 19 of the integrated annual report and note 15 of the annual financial statements.

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.

Pyrophyllite

The pyrophyllite deposit at Wonderstone is relatively consistent and mined by an open-cast operation. The utilisation of the pyrophyllite in the processing plant is not based on grade but on the ore's natural characteristics, ie colour, consistency in hardness, absence of cracks, etc. The classification into Measured, Indicated and Inferred Mineral Resources relates to the borehole spacing and the open-cast development. The Reserves consist of stockpiles and *in situ* tonnages after deductions for mining and processing losses.

The mining and exploration activities of the subsidiary companies will continue in the coming year as per the respective LoM Plans. 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.

ASSORE SUBSIDIARY COMPANIES continued

Chromitite

The evaluation method is mainly based on grade and seam thickness intersections obtained via the open-cast and underground mining, exploration trenches and surface boreholes. The individual LG chromitite seams at Rustenburg Minerals Development Company (Proprietary) Limited (RMDC) and Zeerust Chrome Mines Limited (ZCM) show consistent thickness and grade, with geological features such as faults and dykes being the main variables for discounting the Resources and Reserves. The classification into Measured, Indicated and Inferred Mineral Resources relates to geological structures, continuity of the mineralisation as well as chrome intersections at intervals, in plan view, not exceeding 100 m for Measured Resources, between 100 m and 150 m for Indicated Resources and between 150 m and 400 m for Inferred Resources.

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 Mr CAAP Magalhaes (PrMS), an employee of African Mining and Trust Company Limited. He confirms 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.

Mr Magalhaes graduated from Technikon Witwatersrand with a National Diploma – Mine Survey and a National Higher Diploma – Mineral Resource Management. He later completed a Graduate Diploma in Mining Engineering (GDE) at the University of Witwatersrand and the Government Certificate of Competency – Mine Survey, as well as an MBA from Henley Business School. He worked at Impala Platinum and Anglo Platinum in various capacities over a 15-year period. In 2006 he joined African Mining and Trust Company Limited as the Chief Surveyor and was later promoted to Group Surveyor. After four years at African Mining and Trust Company Limited, he was appointed as the Technical Services Manager for the subsidiary companies and was later appointed as the Group Manager – Chrome Division in 2012, and the Group Technical Manager in 2015.

He is registered with the South African Council for Technical and Professional Surveyors (PLATO) as a professional mine surveyor in the field of Mine Surveying and Mineral Resource Management, registration number PMS0201. PLATO is based in Unit 4, Heritage Park, Lower Germiston Road, Yellow Route, Area 26, Rosherville, 2094, South Africa.
Mr Magalhaes is also a member of the South African Institute Mining and Metallurgy (SAIMM) and the Institute of Mine Surveyors of South Africa (IMSSA) and as such is considered to be a Competent Person under section 4.3 of the SAMREC Code.

Ms C van der Merwe, assisted in the estimation of the Mineral Resources and Reserves. She graduated from the University of Johannesburg in both a BSc Geology and Environmental Management as well as a BSc Honours, Geology. She joined African Mining and Trust Company Limited in January 2013 as mine geologist of Assore's subsidiary companies and was later promoted to Senior Geologist.

Ms Van der Merwe is a member of the South African Council of Scientific Professionals (SACNASP) (PrSciNat No 114059) and the Geological Society of South Africa (GSSA).

SACNASP is situated at the Management Enterprise Building, Mark Shuttleworth Street,Innovation Hub, Pretoria, 0087, South Africa.

All Competent Persons have sufficient relevant experience in the type of deposit and in the activity for which they have taken responsibility.

Carlos Magalhaes PrMS
General Manager Technical Services
Assore Limited
15 Fricker Road
Illovo Boulevard
Illovo
Johannesburg
2195
South Africa

30 June 2017 (as per the letter supplied in writing)

ASSORE SUBSIDIARY COMPANIES continued

Assore – Pyrophyllite (Wonderstone) Mine

WONDERSTONE LIMITED (WS)

Assore owns 100% of Wonderstone Limited

Locality

The Wonderstone north-west to south-east striking pyrophyllite outcrop is currently being mined on Portion 44 of the Farm Gestoptefontein 349 IO. It extends south-eastward (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).

WS 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

WS 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-cast 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	Comment	Period of Mining Right (years)
Portion 44 of Gestoptefontein 349 IO	ML: ML1-97 to Converted MR: NW 30/1/2/2/398 MR	Pyrophyllite	The converted Mining Right was executed on 24 April 2013	30

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 1 630° 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 m with thinner lava bands up to 20 m 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 colour and on the 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-cast 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-cast 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 above and below the current survey surface profile and include both sold tonnes and tonnes added to the stockpiles during the financial year. The Indicated Resources are estimated to 30 m below the open-pits extend and current survey surface profile (after the Measured Resource portion was deducted), whereas the Inferred Resources are estimated over the remaining lease area to a depth of 30 m below natural ground level. 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.

Mineral Resources and Reserves report continued

ASSORE SUBSIDIARY COMPANIES continued

Assore – Pyrophyllite (Wonderstone) Mine continued

WS: Mineral Resources and Reserves

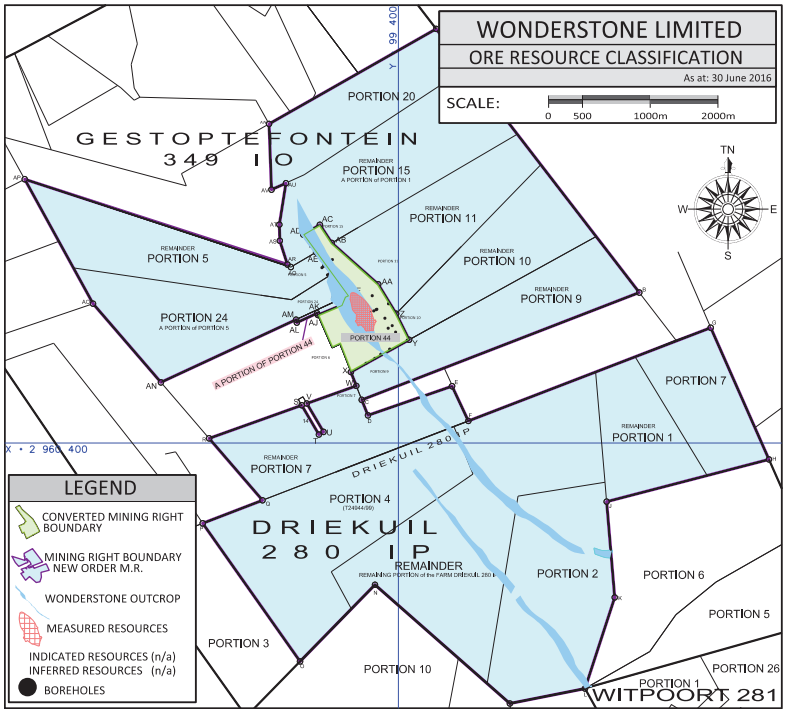
	WS				
	Mineral Resources			Mineral Reserves	
	Measured	Indicated	Inferred	Proved	Probable
Assore attributable interest: 100%	Mt	Mt	Mt	Mt	Mt
Outcrop below NGL to current mining floor	2,0	0,0	0,0	1,9	0,0
Ore dumps	5,8	0,0	0,0	5,5	0,0
Total volume down to 30 m below NGL	0,0	9,9	0,0	0,0	9,4
Prospecting area: Quarry depth 30 m	0,0	0,0	107,2	0,0	0,0
Total Wonderstone 2017	7,7	9,9	107,2	7,4	9,4
Total Wonderstone 2016	3,6	9,9	107,2	3,4	9,4
Summary total 2017	17,6			16,8	
Summary total 2016	13,6			12,9	

Mineral Resources are inclusive of Mineral Reserves.
Totals are rounded off.

Key assumptions for Resources:
- In situ default density: 2,64 t/m³
- Stockpile default density: 1,96 t/m³

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



YEAR-ON-YEAR CHANGE

In total, 85 023 t was mined for the year of which 7 954 t was processed, leaving 77 069 t that was added to the off-cut ore stockpile. Due to no grade difference between stockpiles and *in situ* bulk material, the historic off-cut stockpile was surveyed and added to the Resources resulting in an overall 4,1 Mt increase of the measured resources and an effective 30% increase of the Mineral Reserves.

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-cast 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 were in a capital development phase but have since been suspended as the mine has been placed on care and maintenance. 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 labour 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-cast operations also ceased in August 2016 when the last of the LG6 seam had been extracted at a feasible open cast high wall. The open-cast operations are currently being rehabilitated according to the RMDC Mining Closure Plan while the underground operations are being maintained against time dependent deterioration factors.

Tenure

Farm	Legal Entitlement	Mineral covered by Mining Right	Comment	Period of Mining Right (years)
Portion 1 and 2 of Groenfontein 138 JP	ML: NW 30/5/1/2/2/51 MR	Chrome	The converted Mining Right was executed on 24 April 2008	30
RE of Zandspruit 168 JP	MR: NW 30/5/1/1/2/11 MR	Chrome	The converted Mining Right was executed on 14 October 2005	30
Portion 3 of Vogelstruisnek 173 JP	MR: NW 30/5/1/2/2/50 MR	Chrome	The converted Mining Right was executed on 24 April 2008	30

Geology

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

All the 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° 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-cast 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 included the continuity of the seams and the influence of geological structures such as dykes and faults.

ASSORE SUBSIDIARY COMPANIES continued
Assore – Chromite mines continued

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 has not been included into feasibility studies or the LoM Plan.

RMDC: Mineral Resources and Reserves

RMDC

Assore (AMT) attributable interest: 56% Mampa Investment Holding Proprietary Limited attributable interest: 44%		Mineral Resources			Mineral Reserves	
		Measured	Indicated	Inferred	Proved	Probable
		Mt	Mt	Mt	Mt	Mt
Groenfontein	LG6 opencast to 45 m high wall	0,0	0,0	0,0	0,0	0,0
	LG6 underground	1,4	1,2	2,4	0,0	0,0
	Groenfontein total	1,4	1,2	2,4	0,0	0,0
Zandspruit	LG6 opencast to 45 m high wall	0,0	0,0	0,0	0,0	0,0
	LG6 underground	2,2	0,0	7,4	0,0	0,0
	Zandspruit total	2,2	0,0	7,4	0,0	0,0
Vogelstruisnek	LG6 Opencast to 45 m high wall	0,0	0,0	0,0	0,0	0,0
	LG6 underground	0,0	0,5	0,0	0,0	0,0
	Vogelstruisnek total	0,0	0,5	0,0	0,0	0,0
	RMDC total 2017	3,6	1,7	9,8	0,0	0,0
	RMDC total 2016	3,6	1,7	9,8	0,0	0,0
	Summary total 2017	5,3			0,0	
	Summary total 2016	5,3			0,0	

Mineral Resources are inclusive of Mineral Reserves.
Totals are rounded off.

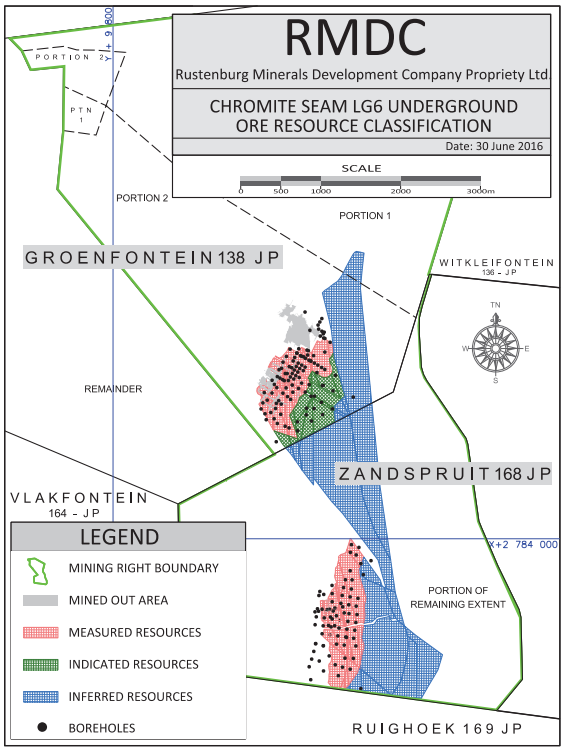
Key assumptions for Resources:
- True thickness of LG6: 80 cm
- Default density: 4 t/m^3
- LG6 *in situ* grade: 44% Cr_2O_3

Modifying factors for the conversion of underground Mineral Resources to Reserves include (prior to care and maintenance):
- Geological loss: ~10%
- Mining loss factor: 10%
- Mining extraction factor: ~75%

Modifying factors for the conversion of open-cast Mineral Resources to Reserves include (prior to care and maintenance):
- Geological loss: ~10%
- Mining loss factor: 5%

ASSORE SUBSIDIARY COMPANIES continued
Assore – Chromite mines continued

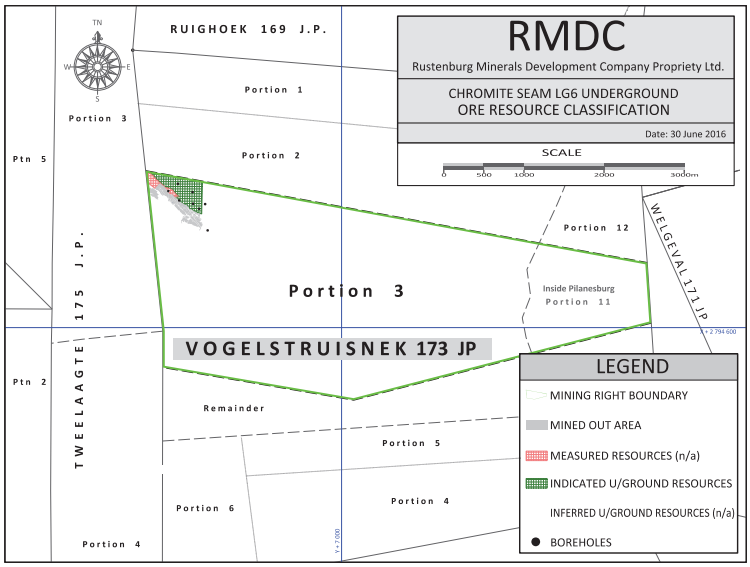
ZANDSPRUIT AND GROENFONTEIN UNDERGROUND RESOURCES



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.

VOGELSTRUISNEK OPEN-CAST 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.

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 ZCM commenced in 1962 and comprised a combination of underground and open-cast operations. The Zeerust chromite operations (located on the MR 314) however, were later limited to open-cast 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 was 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 ZCM's open cast operations became a challenge due to various factors comprising mainly falling commodity prices and increasing operational costs. As it was already a very price-sensitive operation, mining was ceased followed by rehabilitation completion during the 2015/2016 financial year according to the Zeerust Mining Closure Plan.

Mineral Resources and Reserves report continued

ASSORE SUBSIDIARY COMPANIES continued

Assore – Chromite mines continued

Tenure

Farm	Legal entitlement	Mineral covered by Mining Right	Comment	Period of Mining Right (years)
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	The converted Mining Right was granted on 29 May 2012	30

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 ZCM 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-cast 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.

ZCM: Mineral Resources and Reserves

ZCM

	Mineral Resources			Mineral Reserves	
	Measured	Indicated	Inferred	Proved	Probable
Assore (AMT) attributable interest: 100%	**Mt**	**Mt**	**Mt**	**Mt**	**Mt**
LG1 and LG2 open-cast to 18 m high wall	0,3	0,0	0,0	0,0	0,0
LG1, LG2 and LG3 open-cast to 25 m high wall	0,0	0,2	1,7	0,0	0,0
LG1 and LG2 from 25 m to 80 m below surface	0,0	0,9	4,9	0,0	0,0
ZCM total 2017	**0,3**	**1,1**	**6,6**	**0,0**	**0,0**
ZCM total 2016	0,3	1,1	6,6	0,0	0,0
Summary total 2017	**1,4**			**0,0**	
Summary total 2016	1,4			0,0	

Mineral Resources are inclusive of Mineral Reserves (prior to care and maintenance).
Totals are rounded off.

Key assumptions for Resources:
- Average thickness of LG1 and LG2: 27 cm
- Default density: 3,5 t/m^3
- LG1 *in situ* grade: 46% Cr_2O_3
- LG2 *in situ* grade: 45% Cr_2O_3
- LG3 *in situ* grade: 46% Cr_2O_3

Modifying factors for the conversion of Mineral Resources to Reserves include (prior to care and maintenance):
- Geological loss: ~10%
- Mining loss factor: 5%

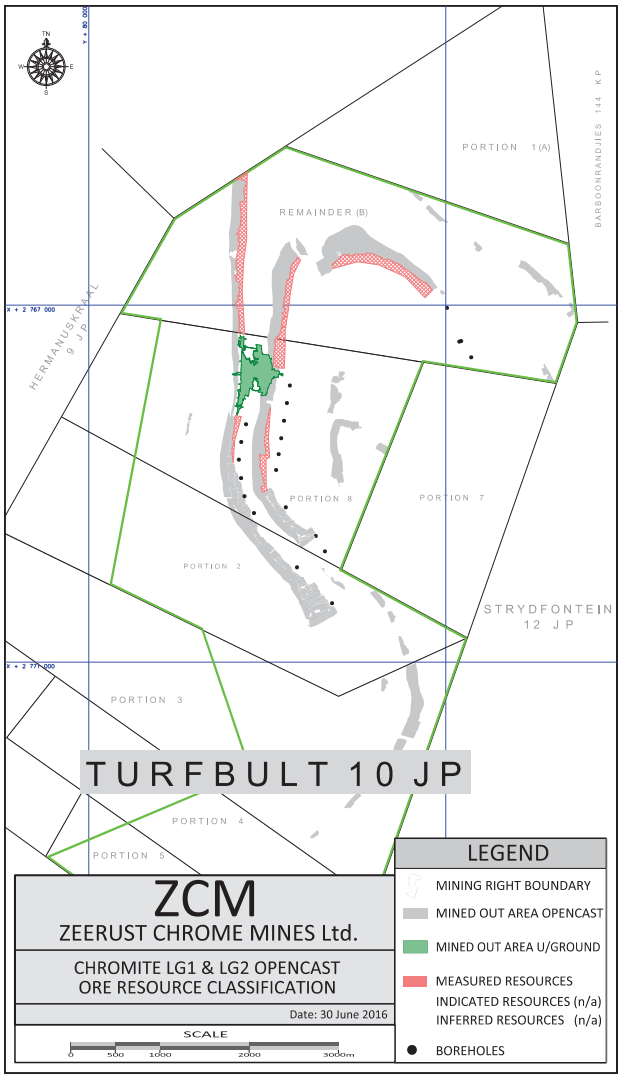
ASSORE SUBSIDIARY COMPANIES continued

Assore – Chromite mines

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.

ZCM OPEN-CAST MEASURED RESOURCES



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