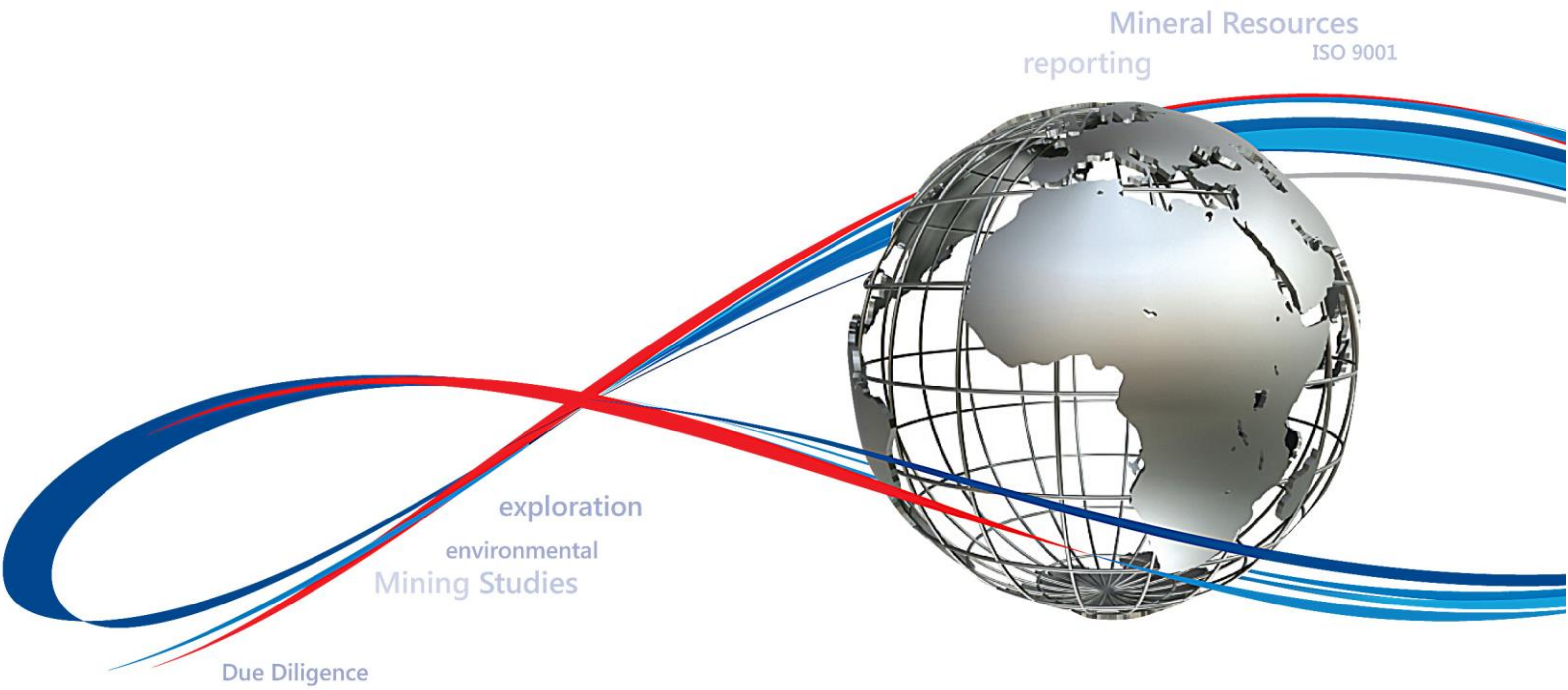
THE MSA GROUP

Specialist Consultants to the Mining Industry

Independent Competent Person's Report
On the Makhado Coal Project of Coal of Africa Limited



www.msagroupservices.com

J3283

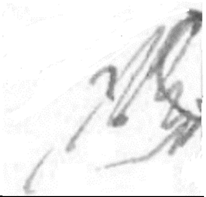
Submitted on 29 January 2016

Report prepared by The MSA Group (Pty) Ltd on behalf of: Coal of Africa Limited and their nominated advisor Peel Hunt LLP

Author(s):	Philip Mostert	Principal Coal Consultant	Pr.Sci.Nat.

Date: 29 January 2016

Project Code: J3283



Primary Author
Philip Mostert

Reviewed by
Andre van der Merwe

This document has been prepared for the exclusive use of **Coal of Africa Limited** on the basis of instructions, information and data supplied by them For the purposes of the AIM Rules for Companies, MSA is responsible for this Abridged CPR as part of the Admission Document and declares that it has taken all reasonable care to ensure that the information contained in this Abridged CPR is, to the best of its knowledge, in accordance with the facts and contains no omission likely to affect its import. MSA consents to the inclusion of this Abridged CPR, and reference to any part of this Abridged CPR and/or the full CPR, in the Admission Document.

Executive Summary

Introduction

Coal of Africa Limited ("CoAL") appointed The MSA Group ("MSA") to prepare an Independent Competent Person's Report and Valuation in respect of CoAL's Makhado Project in South Africa. The CPR is being prepared in connection with CoAL's application for readmission of its shares to trading on the AIM market of the London Stock Exchange ("AIM"), which is being made as a consequence of its takeover offer for Universal Coal plc.

This report (the "Abridged CPR") is an abridged version of the full CPR. MSA understands that the full CPR has been made available on CoAL's website, www.coalofafrica.com

MSA understands that this Abridged CPR will be included as part of an AIM admission document to be published by CoAL (the "Admission Document").

Both the full CPR and this Abridged CPR have been prepared:

- in accordance with the AIM Note for Mining and Oil & Gas Companies (2009) published by the London Stock Exchange;
- in compliance with and to the extent required by the Australian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (2012) published by the Joint Ore Reserves Committee of the Australasian Institute of Mining and Metallurgy, the Australian Institute of Geoscientists and Minerals Council of Australia (the "JORC Code"); and
- in respect of the valuation of reserves, the Australasian Code for the Technical Assessment and Valuation of Mineral and Petroleum Assets and Securities for Independent Export Reports (2005 Edition) (the "VALMIN Code").

For the purposes of the AIM Rules for Companies, MSA is responsible for this Abridged CPR as part of the Admission Document and declares that it has taken all reasonable care to ensure that the information contained in this Abridged CPR is, to the best of its knowledge, in accordance with the facts and contains no omission likely to affect its import. MSA consents to the inclusion of this Abridged CPR, and reference to any part of this Abridged CPR and/or the full CPR, in the Admission Document.

This report replaces the previous Competent Person's Report dated 27 June 2013. No additional geological information or boreholes were added since then, and the geological model was not changed in any way. All Coal Resources and Reserves reported are identical to previous estimations.

A site visit was conducted on 19 August 2015 by Mr Philip Mostert, as part of the high-level due diligence review of the geology and Coal Resources.

Neither MSA nor any of its employees and associates employed in the preparation of this report has any beneficial interest in the assets of Coal of Africa Limited or any of its business partners.

The competent person with overall responsibility for reporting of Mineral Resources is Philip Mostert Pr.Sci.Nat, B.Sc Hons (Geology), MGSSA, who is a full time Principal Coal Consultant at The MSA Group. Mr Mostert is a geologist with 14 years' experience in the mining industry.

The competent person with overall responsibility for reporting of Mineral Asset Valuation is André van der Merwe Pr.Sci.Nat, B.Sc Hons (Geophysics), FGSSA, MAUSIMM, MSEG who is the full time Head of Mining Studies at The MSA Group. Mr van der Merwe is a geophysicist with 28 years' experience in the mining industry.

Project

The Makhado Project represents CoAL's first project in the Soutpansberg Coalfield, Limpopo Province, South Africa. It is a thermal and coking coal project expected to mine at an average steady state rate of 12.6 million tonnes per annum (Mtpa) (Run of Mine (ROM)) to produce an average product of 2.3 Mtpa of hard coking coal (including fines) and 3.2 Mtpa of thermal coal.

The project is situated in the Limpopo Province 35 km north of the town Makhado (Louis Trichardt). The town of Musina is located approximately 50 km north of the Makhado Project are. The village of Mudimeli is located within the Makhado Project area on the farm Fripp 645MS.

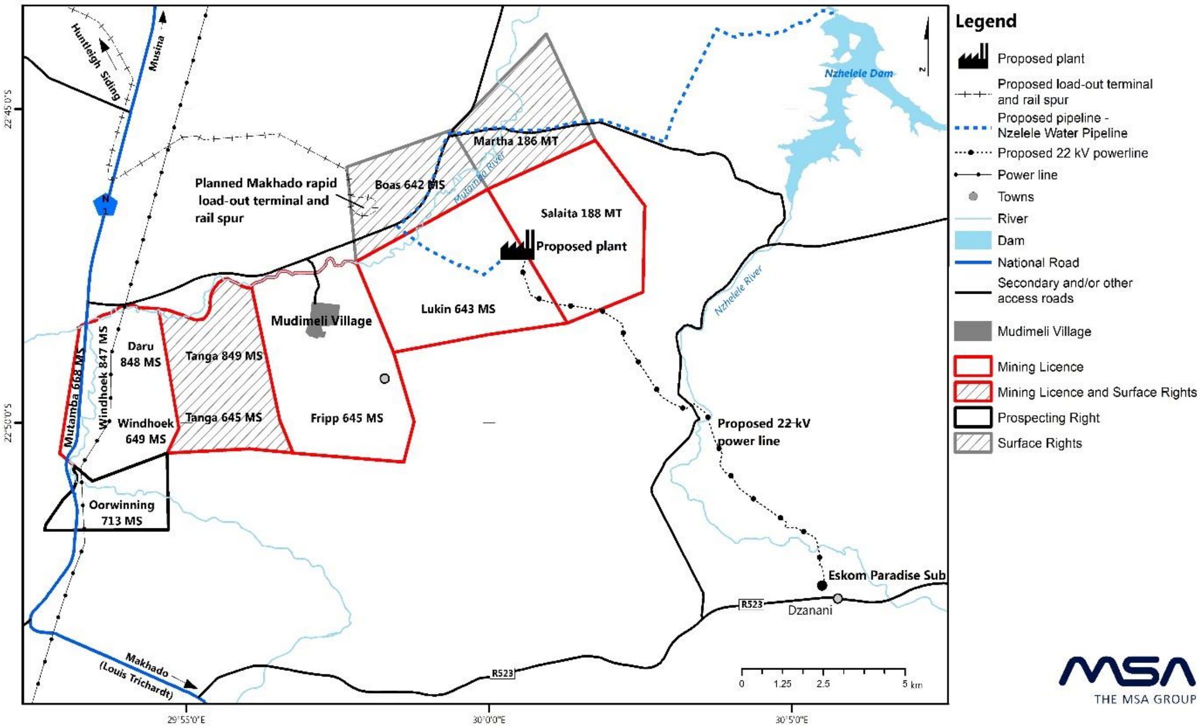
Ownership & Mineral Tenure

The Makhado Project is housed under Boabab Mining and Exploration, which is 100% owned by Coal of Africa Ltd (CoAL) a company listed on various stock exchanges namely: ASX in Australia, AIM in the UK and JSE in South Africa.

CoAL holds an New Order Prospecting Right (NOPR) (LP 30/5/1/1/2/38 PR) over all or sections of the farms Overwinning 713MS, Mutamba 668MS, Windhoek 649MS, Daru 848MS, Tanga 849MS, Fripp 645MS and Lukin 643MS. The right was initially granted until October 2011. CoAL submitted a renewal application in July 2011 to extend the Right for a further three years. A notarial deed of amendment or variation of a prospecting right executed by CoAL and DMR on 19 January 2011 records that CoAL applied to amend 38 PR by relinquishing the farms Albert 686 MS, Bekaf 650 MS, Castle Koppies 652 KS, Chase 576 MS, Enfield 521 MS, Fanie 578 MS, Joffre 584 MS, Kleinberg 636 MS, Wildgoose 577 MS and by adding Portion 2 and the Remaining Extent of Mount Stuart 153 MT, Portion 1 and the Remaining Extent of Terblanche 155 MT, Septimus 156 MT, Nakab 184 MT, Lukin 643 MS, Remaining Extent and Portion 1 of Overwinning 713 MS, Remaining Extent, Portions 1 and 2 of Windhoek 649 MS, measuring 15 569.9679 hectares.CoAL, through its subsidiary Regulus Investment Holdings (Pty) Ltd (Regulus), holds an NOPR (LP 30/5/1/1/2/161 PR) over the farm Salaita 188MT which expired on 8th April 2013. This NOPR has been renewed.

The DMR accepted an NOMR application by CoAL on the farms Mutamba 668MS, Windhoek 649MS, Daru 848MS, Tanga 849MS, Fripp 645MS, Lukin 643MS and Salaita 188MT on the 25th February 2011, and granted in 15 May 2015. The application covers a Mining Right Area of 7,634 ha. This right will supersede the current NOPRs and the required renewals thereof. The Integrated Water Use License has been granted by the Department of Water and Sanitation.

Farm Boundaries, Surface Rights and Mineral Tenure



Summary of the Mineral Right approved for the Makhado Project

Asset	Holder	Interest %	Status	Licence expiry date	Farm Name & no	Licence area (ha)	Comments
South Africa Makhado	Boabab Mining Exploration (Pty) Ltd	74%	Development	To be advised on execution of the NOMR	Mutamba 688MS	674	License no: LP 30/5/1/2/2/204 MR
					Windhoek 847MS	549	
					Daru 848MS	832	
					Tanga 849MS	1255	
					Fripp 645MS	1932	
					Lukin 643MS	1650	
					Salaita 188MT	1506	

A Definitive Feasibility Study (DFS) was completed on the project by CoAL and its external consultants in May 2013.

Legal Issues

CoAL has informed MSA of land claims on the farms Fripp 645 MS, Tanga 648 MS, Lukin 643 MS and Salaita 188 MS. The land claims on the various properties have been gazetted by the Department of Rural Development and Land Reform (DRDLR). CoAL recognises land claimants as key stakeholders, and the company's engagement is governed by the company's stakeholder engagement strategy that ensures regular, meaningful and transparent engagement. CoAL recognises the legislative framework of the land claims process and will work within that framework.

Accessibility, Physiography, Climate, Local Resources and Infrastructure

The topography of the Makhado Project comprises a relatively flat plain towards the north, whilst the southern portion of the Project area abuts the northern foothills of the Soutpansberg mountain range. More specifically, the Mapaliome, Donwa and the Pfumembe mountains lie to the south of the mining area. Slopes of up to 12° are encountered on the hillsides. The average elevation is 750 mamsl (metres above mean sea level), with the Soutpansberg Mountains, bordering the project area to the south, reaching a maximum elevation of 1,747 mamsl.

The Makhado Project area experiences a warm to hot, semi-arid climate. It typically has four seasons with summer extending from November to February, and winter from May to August. The nearest weather station, Tshipise No. 07662771, is situated approximately 32 km northeast of the project area. Temperatures average an annual minimum of 16° C in winter and an average maximum of 30° C in summer. The lowest temperature measured at Tshipise between 1994 and 2006 is -1° C in July and the highest recorded temperature is 43° C in December.

Geological Setting

The Makhado Project area is located in the Tshipise South subdivision of the greater Soutpansberg Coalfield. The Project is characterised by a number of seams which occur within a 30 to 40 metre thick carbonaceous zone of the Madzaringwe Formation.

All seams comprise interbedded carbonaceous mudstones and coal. The coal component is usually bright and brittle and contains a high proportion of vitrinite. The seams dip northwards at approximately 12°.

Six potential mining horizons or seams which were identified by CoAL namely: Upper Seam, Middle Seam, Middle Lower Seam, Bottom Upper Seam, Bottom Middle Seam and Bottom Lower Seam. The Bottom Middle Seam usually comprises predominantly mudstone and for this reason it has not been included in the Resource estimate; however, in certain areas it has sufficient coal to be considered a potential mining target.

A major northwest-southeast trending fault referred to as the Siloam Fault has been identified on the farm Lukin 643MS, which has displaced the Coal Zone and offsets the sub-outcrop. The fault has been considered when positioning the infrastructure layout such that the access roads have been positioned along the fault line, thereby reducing potential sterilisation of Coal Resources.

Other significant faults mark the western and eastern limits of the Resource area along strike. The frequency of smaller scale faulting will be investigated through closely spaced drilling ahead of the mining face.

A dolerite sill of up to 50 m in thickness has been identified through drilling which has resulted in devolatilised coal in close proximity to the sill. This sill is located above the Coal Zone on the farms Tanga 849 MS and Lukin 643 MS and vertically transgresses below the Coal Zone on the farm Fripp 645 MS. The economic effect of devolatilisation is that it effectively destroys the coking properties of coal. In areas where the sill is above and below coal measures is has had no impact on the coal and it is only in the limited areas where the sill transgresses the coal measures that it has impacted on the coal quality. The coal that has been affected by the dolerite sill transgression has been excluded from the Resource, and mine planning and scheduling that formulated the reserve determinations.

Exploration

Prior to the involvement of CoAL's involvement in the project all historic exploration activities was undertaken by Iscor and Rio Tinto, and it can be expected that best practices were followed and that the data can be regarded as acceptable for Coal Resource estimation. The source data that provided input into the Coal Resource include the following:

- 316 NQ-size diamond core holes drilled by Iscor before. 2007 No wireline logging was completed on these boreholes.
- 4 PQ3-size diamond core holes drilled by Rio Tinto between 2006 and 2007 with wireline logging data. These boreholes were excluded from the estimation.
- 172 PQ3-size triple tubed diamond cores holes and 24 LDD holes drilled by CoAL between 2008 and 2010. Both diamond core holes and the LDD have wireline logging data.
- 13 percussion holes drilled by CoAL in 2010 which have wireline logging information.

The CoAL exploration drilling was undertaken by Geomechanics (Pty) Ltd and Ludikcore Exploration Services (Pty) Ltd. Drilling since 2009 has been conducted by South African Drilling Services (Pty) Ltd and Geomechanics. The CoAL drilling procedure has been independently supervised or verified by other reputable consulting companies and MSA is satisfied that best practice standards have been employed by the company. The core size was changed from HQ3 to PQ3 after the initial 25 exploration boreholes in order to obtain more sample material and maximise core recovery. The CoAL drilling contracts required a minimum recovery of 98% within coal horizons and 95% in non-coal sediments.

Samples from the Rio Tinto drilling campaign were analysed at ALS Brisbane (ISO 17025 accredited) and products were returned to South Africa for petrographic analysis. The samples from the first 25 boreholes drilled by CoAL were sent to the SABS laboratory in Secunda. SABS is accredited (No. T0230) through the South African National Accreditation System (SANAS) and SABS/ISO/IEC 17025:2005. However, due to delays in the reporting of analytical results, CoAL relocated all unprocessed samples from SABS to Inspectorate which is also a SANAS accredited laboratory (No. T0313).

Since July 2009, two laboratories have been used by CoAL, namely:

- Core exploration samples have been sent to the CAM Laboratory in Polokwane. CAM is accredited (No. T0476) through SANAS.
- Large diameter core samples were analysed at the ACT Laboratory in Pretoria. ACT is not yet SANAS accredited but is utilised by many South African and international coal mining companies particularly with regard to coking coal. It has been subjected to laboratory audits and regularly participates in recognised 'round robin' quality control procedures with the results and certificates openly available.

Coal Resource Statement and Classification

All Mineral Resources and Ore Reserves, quoted in this CPR, are based upon information compiled by a Competent Person who is a Member or Fellow of The Australasian Institute of Mining and Metallurgy or the Australian Institute of Geoscientists or a Recognised Overseas Professional Organisation (ROPO). The Competent Persons are required to have a minimum of five years of experience which is relevant to the style of mineralisation and type of deposit under consideration. These Competent Persons are in the full-time employ of CoAL.

The following cut-offs or limits are applied, by CoAL, to the Resources:

- the Resource blocks are limited according to the boundaries of the respective NOPRs;
- the Resource blocks are limited to the seam sub-crop;
- the Resource blocks are limited to the Resource extrapolation limits;
- a minimum seam thickness limit of 0.5 m is applied prior to the reporting of GTIS;
- a limit of oxidation of 30 m, based on the actual results from the bulk sampling pit indicate 18m;
- limit of 20% volatile matter. All material less than 20% volatiles were excluded;
- a limit of 50 m around all known geological structures and dykes;
- maximum depth of 200 m for opencastable Resources in the calculation of MTIS; and
- geological losses of 10%, 15% and 20% are applied to Measured, Indicated and Inferred Resources, respectively, prior to the reporting of TTIS. These losses take into account any unforeseen geological features, such as dykes and faults, which have not been identified in the drilling and which may have a negative impact on the Coal Resources. The percentages applied increase with decreasing borehole spacing.

The JORC compliant Coal Resource for the Makhado Project, and inclusive of Reserves, is summarised in the table to follow. These were estimated and signed off by CoAL's Competent Person, Mr J Sparrow (Pr.Sci.Nat.), CoAL's chief consulting geologist. MSA reviewed the estimation procedures and independently validated the results. MSA agrees with the Coal Resource and classification as declared by CoAL. The table below summarises the Makahdo Coal Project Coal Resources as at 4 December 2015. To the best of the knowledge of MSA, there have been no material changes since 4 December 2015 being the date of the Resources, and the date of this document.

Project	Resource Category	Seam	Gross Tonnes In Situ (GTIS) (ad)	Geological Loss (%)	Total Tonnes In situ (TTIS) (ad)	Mineable Tonnes In Situ (MTIS) (ad)	MTIS Attributable to CoAL (74%)
Makhado	Measured	Upper	49 739 069	10%	44 765 162	34 617 700	25 617 098
		Middle Upper	99 369 366	10%	89 432 429	61 795 200	45 728 448
		Middle Lower	50 245 151	10%	45 220 636	35 721 100	26 433 614
		Bottom Upper	94 803 401	10%	85 323 061	61 067 900	45 190 246
		Bottom Lower	108 623 583	10%	97 761 225	71 822 600	53 148 724
	Total / Ave Measured Resource		**402 780 570**	**10%**	**362 502 513**	**265 024 500**	**196 118 130**
	Indicated	Upper	46 302 051	15%	39 356 743	15 854 000	11 731 960
		Middle Upper	72 677 731	15%	61 776 071	16 015 000	11 851 100
		Middle Lower	30 373 388	15%	25 817 380	9 242 000	6 839 080
		Bottom Upper	72 647 666	15%	61 750 516	15 682 000	11 604 680
		Bottom Lower	76 594 050	15%	65 104 943	19 950 000	14 763 000
	Total / Ave Indicated Resource		**298 594 886**	**15%**	**253 805 653**	**76 743 000**	**56 789 820**
	Inferred	Upper	35 934 884	20%	28 747 907	2 560 000	1 894 400
		Middle Upper	20 372 039	20%	16 297 631	94 000	69 560
		Middle Lower	5 883 777	20%	4 707 022	80 000	59 200
		Bottom Upper	16 302 194	20%	13 041 755	4 000	2 960
		Bottom Lower	15 739 238	20%	12 591 390	260 000	192 400
	Total / Ave Inferred Resource		**94 232 132**	**20%**	**75 385 706**	**2 998 000**	**2 218 520**
Total Resource Makhado			**795 607 588**		**691 693 872**	**344 765 500**	**255 126 470**

Mining

No commercial mining has taken place at the Makhado Project to date as the NOMR is still to be granted.

A DFS has assessed the mining of the Makhado Project using opencast mining methods. The DFS details the planned mining design, mining methods, mine scheduling and the proposed processing methodologies for Makhado Project. The LOM for the proposed opencast mining operations is estimated to be approximately 15 years. The LOM schedules, LOM plans, capital costs and operating costs had been provided by CoAL, Caterpillar and VBKom Consulting Engineers (Pty) Limited (VBKom) in January 2013. The results of these studies are summarised in this section.

The project will mine the coal from three opencast pits (referred to as the West Pit, Central Pit and East Pit) located east of the N1 National Road and to the south of Provincial Road D745. Intermediate crushers will be located to the south of each of these pits. The coal processing plant will be located to the south of the East Pit, so as to minimise the haulage distances. The East Pit will be the largest pit with the greatest portion of the Coal Reserves.

The planned opencast mine is to mine at a ROM production rate averaging approximately 12.6 Mtpa ROM to produce approximately 2.3 Mtpa of primary product (10% Ash coking coal, including fines) of which 1 Mtpa has been earmarked for the local market and the remainder for export. In addition to coking coal, the Makhado Project will also produce 3.2 Mtpa of middlings secondary product (maximum 30% ash, thermal coal) for power generation. This is anticipated for sale domestically as a domestic thermal coal product.

Processing

DRA Mineral Projects (Pty) Ltd (DRA) was contracted by CoAL to carry out the portion of the feasibility study covering the coal handling and processing plant (CHPP) for the Makhado Coal Project. The plant needs to be efficient in terms of energy and water usage and should apply technology that is proven in the coal processing industry.

The plant is designed to accommodate different yielding material with the West Pit yielding the lowest product and the East, the highest. According to the latest production schedule document received, the plant will receive a blend of ore from the East, West and Central Pits for the major duration of the life of mine. The ore from these three sources is treated according to the mining production schedule where the East coal is first treated for the first two years, followed by a blend of the East and Central coal and finally a blend of all three pits for the last six years of the life of mine. The average annual ROM supply from the pits to the processing plant is 12,330,442 t (calculated from taking an average of the different ROM figures for each year), and the maximum annual ROM supply is read from the same production schedule as 12,600,000 t. Therefore, if during actual mining it happens that more of the material from the West is frequently sent to the plant, the plant will frequently operate at the higher throughput limit compared to when say more of the East material is sent to the plant.

The process was designed employing cost-effective and well-proven technologies while conforming to the required operational capability.

Coal Reserve Statement and Classification

Coal Reserves were estimated and signed off by CoAL's Competent Person, Mr C Bronn, CoAL's Mining Engineer and Optimisation Manager, and in accordance with the JORC Code. The Reserve Statement is presented in the table below. This excludes the estimated 4% of additional tonnage for fines (-0.5mm) recovery. The Coal Reserves were based upon the block model prepared by Mr B Bruwer, VBKom's Senior Mining Engineer, the information to which was originally sourced from the Minex model dated 31st August 2011. MSA reviewed the estimation procedures and independently validated the results. MSA agrees with the Coal Reserve and classification as declared by CoAL.

The minimum requirements for the conversion of Coal Resources to Coal Reserves and the resultant declaration and signoff of a Reserve statement requires that a mine plan has been prepared and that the modifying factors have been considered and applied to the Resource for the conversion process. The modifying factors include consideration of the mining, processing, metallurgical, infrastructure, economic, marketing, legal, environment, social and government factors in order to derive an ore Reserve which is demonstrated to be economically extractable in present day conditions. The Coal Reserves were declared on the basis of the recently completed DFS on Makhado Project.

In the case of Makhado, the Competent Person has classified all the Makhado Reserves into the Probable category, although 85% of the Resources from which they are derived, are classified as Measured Resources. The reason for this classification relates to the uncertainty around the yields. The yields estimated across the orebody model have been estimated based on slim-line drilling only and using crushing. Recent bulk sampling results at isolated locations across the deposit have suggested that higher yields may be obtained using this different drilling methods and crushing methods, and indeed when the deposit is mined and processed. There is currently insufficient data currently available to accurately prove statistically or geostatistically that the yield across the deposit would be higher than currently estimated and therefore the classification of Probable Reserves have been decided.

The modifying factors applied to derive the Makhado Ore Reserves are as follows:-

- an export/ domestic hard coking coal price of USD225 per tonne for the primary product, at an exchange rate of ZAR7 to the USD. A domestic thermal coal price of ZAR250 per tonne for the middlings product was not considered in the evaluation during the Whittle Pit Optimisation to define the pit size as this exercise was carried out prior to the decision to produce the middlings fraction. The inclusion of the middlings fraction would result in upside potential to the project. Commodity prices and exchange rates used to estimate the economic viability of Coal Reserves are based on long term forecasts applied at the time the estimate was completed. Even though the forecast coal prices have retreated in the short term, the significant depreciation of the South African Rand to ~ZAR14.1 to the USD results in no material changes ;
- an average total cash operating cost of ZAR244 per ROM tonne was utilised;
- processing plant efficiency of 90%;
- an average primary product practical yield of 15% and an average middlings product practical yields of 26% was estimated based on the results from the slim line borehole results. It should be noted that these yields exclude the recoveries for the coal fines and the result of the recent large diameter boreholes results and therefore yields may be higher;
- mining recovery efficiency factor of 92% and geological losses of 5% on the opencast Coal Reserves;
- surface/residual moisture of ~3.0% and inherent moisture of 1.6%;
- assumed contamination of 5% for the opencast Coal Reserves. This figures was based upon industry averages;
- in the estimation of Coal Reserves, MSA assumed that all regulatory applications will be approved and the current approvals will continue to be valid; and
- primary product yield percentages excludes fines recovery. CoAL plans to implement a full fines recovery system in the plant for the -0.500 mm to +0.075 mm fraction. The estimated fines (-5 mm) recovery for the 10% ash primary product are 4.07% of ROM tonnes.

Saleable Coal Reserves are reported on an as sold and air dried basis. No superficial moisture is added as the Saleable Reserves are sold on an air dried basis. For logistical purposes relating to coal transport, the addition of 3% moisture to the Saleable Tonnes is required to account for superficial moisture.

The table below summarises the Makahdo Coal Project Coal Reserves as at 4 December 2015. To the best of the knowledge of MSA, there have been no material changes since 4 December 2015 being the date of the Reserves, and the date of this document.

Mining Block	Reserve Category	Mineable Tonnes In Situ (MTIS) Reserve (ad)	Geological Loss (%)	Extractable Reserves (t)	Contamination	Mine Recovery Factor	ROM Reserves (t)	ROM Reserves Attributable to CoAL (74%)	Primary Marketable Reserves (t)	Middlings Marketable Reserves (t)
East Pit	Probable	94 585 936	5%	89 856 639	5%	92%	86 801 000	64 232 740	14 773 000	24 330 000
Central Pit		53 472 256	5%	50 798 643	5%	92%	49 071 000	36 312 540	6 747 000	10 560 000
West Pit		40 192 263	5%	38 182 650	5%	92%	36 884 000	27 294 160	4 116 000	9 645 000
Total Makhado Reserves		**188 250 455**	**5%**	**178 837 932**	**5%**	**92%**	**172 756 000**	**127 839 440**	**25 636 000**	**44 535 000**

Valuation of the Makhado Project

Discounted Cashflow Analysis

Principal Sources of Information

The principal source of information in this section of the report is an Excel spreadsheet detailing the operations of the Project. The spreadsheet was provided by CoAL, Celeste Riekert (Group Finance Manager), dated 9 November 2015.

Introduction

The financial evaluation has been performed in real terms and has been undertaken on an after-tax, un-leveraged, real rate of return basis. The inflate/deflate methodology has been incorporated in order that the quantum and timing of tax and royalty payments is correct

The base date for the NPV and IRR calculations for the financial model is 9 November 2015. All production, costs and revenues are based on financial years and all cash inflows and outflows are assumed to occur in the middle of each year, i.e. 1st July of each year. To the best of the knowledge of MSA, there have been no material changes since 4 December 2015 being the date of the financial analysis and the date of this document.

Review of Cash Flow Forecast

The spreadsheet model was checked for formula consistency and for the correct flow-through of data between the various sections of the spreadsheet. A few errors were found and corrected.

The input parameters were also reviewed and a number of changes made as outlined below.

Changes made to the Model

Foreign Exchange Rate

A foreign exchange rate of ZAR13.00 for USD1.00 is considered to be low in the light of current economic circumstances and a more appropriate rate of ZAR14.00:USD1.00 was implemented. Over the last 6 months, the rand has averaged R13:00 to the USD but the general consensus of investment analysts is that the Rand will continue its downward trend and Rand Merchant Bank is forecasting ZAR15.42 to the USD in 12 months' time. Another commentator has forecast a rate of R15.90 to the USD in the next 12 months.

The exchange rate was allowed to change according to the purchasing power parity ("PPP") between the two currencies. The inflation rate for South Africa is forecast to be 6% per annum and the US inflation is forecast to be 2.5% per annum giving a PPP of 3.41% per annum. A sensitivity analysis of exchange rate vs coking coal price is included.

Discount Rate

The valuation must comply with the AIM rules of using a real discount rate of 10%. The NPVs will be in real terms determined after the inflate/deflate methodology has been implemented. With a South African inflation rate estimated at 6%$ per annum, a 10% discount rate equates to a 16.71% nominal discount rate.

Other

Other inputs covering tax and royalties were checked and found to be correct. All other inputs are considered to be acceptable.

Methodology Applied

The costs and revenues were originally in 2013 money terms for the Definitive Feasibility Study completed in June 2013. These costs and revenues have been adjusted to mid-2015 money terms by applying appropriate escalation factors. Inflation is applied from 2016 onwards and then deflated back to 2016, thus preserving the mid-2015 money terms.

The inflation applied to the East Pit capital expenditure was based on a combined SEIFSA Weighted Indices Forecast up to 2020 which covers the capital expenditure for the East Pit. The average SEIFSA index year on year was 5.3% from 2016 to 2020; this has been applied to capital expenditure beyond 2020 for the Central and West Pits.

Results of Financial Model

Table 1-1 Base Case Variables

Discount rate (real)	10.0%
Discount Rate (nominal)	16.7%
ZAR:US$ Exchange Rate	R14.00:US$1.00
Average price per tonne Hard Coking Coal	US$135.00
Overall Yield (hard coking coal)	19.7%
Overall Yield (thermal coal)	24.7%
Life of Mine	15 years

Summary of selected financial inputs and corresponding results (Real)– post tax valuation		
Item	**ZAR**	**US$**
Post Tax Valuation		
Capital investment	6.39bn	456.6m
Cash flow before Tax and Royalty	31.91bn	2,279.5m
Project cash flow (real) (including royalty)	21.59bn	1,542.4m
Maximum funding required	2.4bn	171m
Payback period from Project start (years)	4.3	
Payback period from start of production (years)	3.3	
Post-tax NPV @ 10 % (real discount rate)	6.96bn	497.0m
Post-tax IRR (Real)	30.4%	

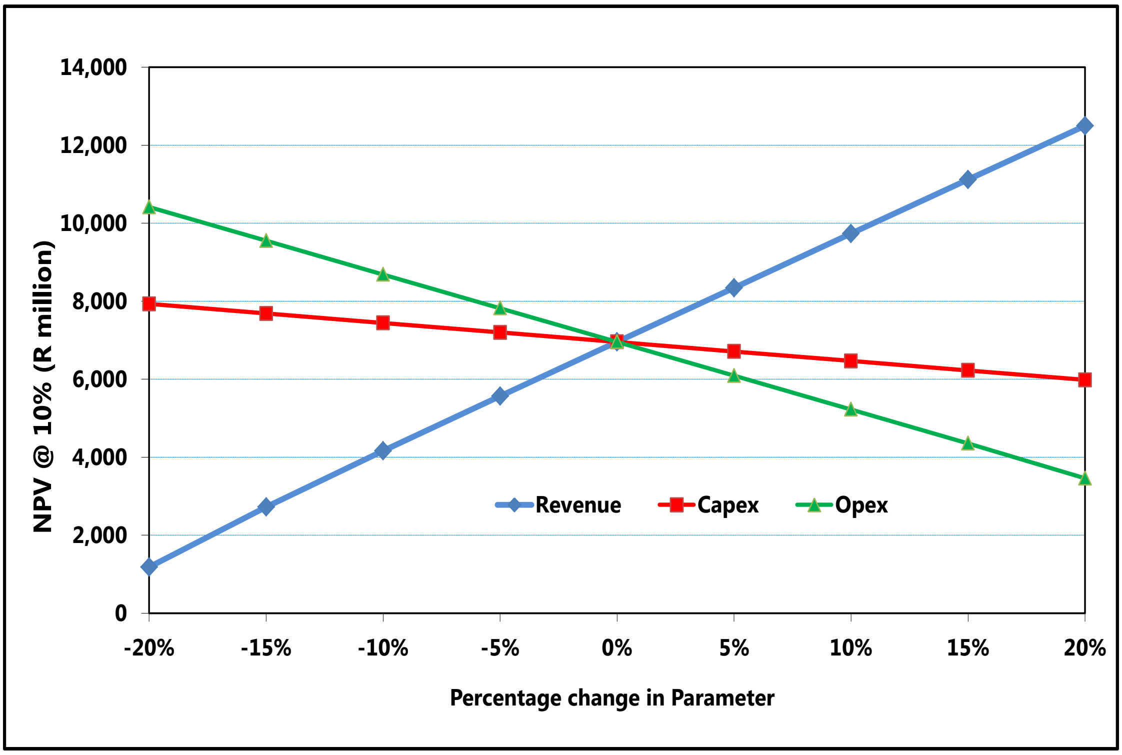
The table below shows the NPVs in real terms as well as the internal rate of return (IRR) at various discount rates based on the assumptions and inputs as outlined above.

NPVs of the Makhado Project			
		Net Present Values (Real)	
Discount rate (nominal	**Discount rate (real)**	**NPV (ZAR mill)**	**NPV (US$ mill)**
0.0%	0.0%	21,594	1,542
11.4%	5.0%	12,174	870
15.1%	8.5%	8,229	588
16.7%	10.0%	6,955	497
19.4%	12.5%	5,233	374
22.0%	15.0%	3,898	278
27.3%	20.0%	2,024	145
	IRR =	30.44%	30.44%

Sensitivity Analysis

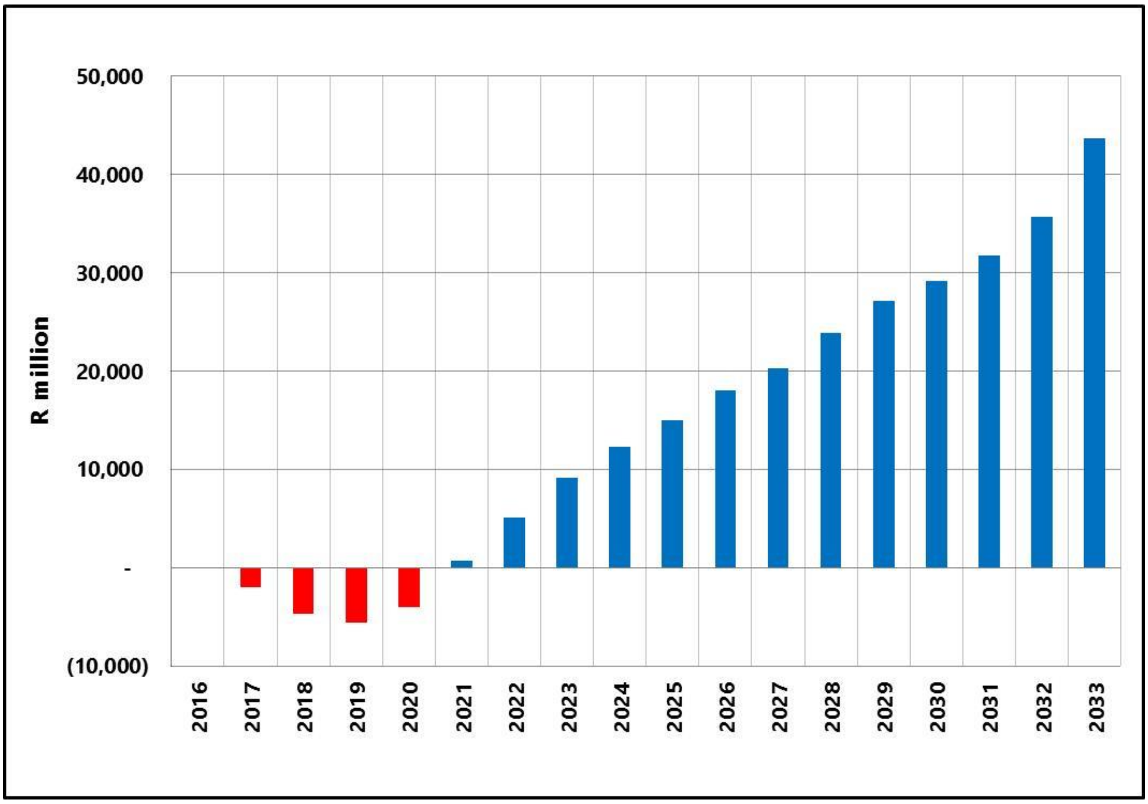
The sensitivity chart, Figure 9-1 below, shows the real NPV @ 10% variation for the Base Case due to changes in revenue, capital and operating costs, holding all other inputs constant. The Project is most sensitive to the coal prices and more sensitive to Opex than Capex. The revenue sensitivity assumes that all coal prices change by the same percentage.

NPV @ 10% (Real) Sensitivity Analysis



Maximum negative cash flow of ZAR2.4 billion occurs in 2019 as shown in the cumulative cash flow graph below

Cumulative Annual Cash Flow (Real)



The Table below shows the matrices of the NPV for percentage variations in revenue, capital and operating expenditure.

Sensitivity of NPV (Real) to changes in Coal prices, Capex and Opex

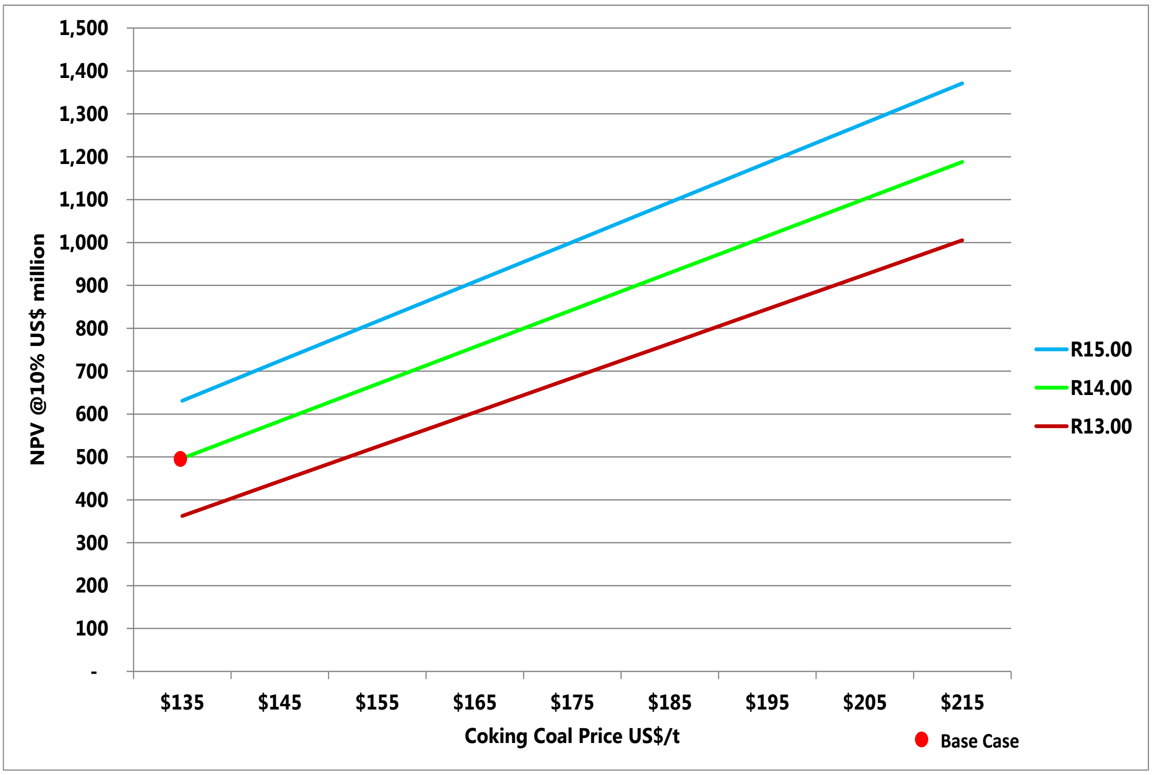
		Revenue						
	Change	NPV R million						
PERCENTAGE CHANGE IN REVENUE		0.0%	5.0%	8.0%	10.0%	12.0%	15.0%	20.0%
	20%	35,622	20,735	15,257	12,501	10,274	7,680	4,715
	15%	32,114	18,595	13,619	11,116	9,093	6,736	4,044
	10%	28,609	16,457	11,983	9,732	7,912	5,792	3,373
	5%	25,098	14,314	10,341	8,343	6,727	4,845	2,699
	0%	21,593	12,174	8,702	6,955	5,543	3,898	2,024
	-5%	18,088	10,032	7,061	5,566	4,358	2,951	1,350
	-10%	14,589	7,883	5,410	4,165	3,159	1,989	660
	-15%	10,954	5,664	3,709	2,724	1,928	1,003	(45)
	-20%	7,087	3,295	1,892	1,184	613	(50)	(797)

	Change	Opex						
		NPV R million						
PERCENTAGE CHANGE IN OPEX		**0.0%**	**5.0%**	**8.0%**	**10.0%**	**12.0%**	**15.0%**	**20.0%**
	20%	12,533	6,715	4,552	3,457	2,570	1,532	347
	15%	14,862	8,114	5,615	4,353	3,331	2,138	777
	10%	17,102	9,468	6,646	5,224	4,072	2,729	1,197
	5%	19,345	10,821	7,674	6,090	4,808	3,314	1,612
	0%	**21,593**	**12,174**	**8,702**	**6,955**	**5,543**	**3,898**	**2,024**
	-5%	23,838	13,524	9,728	7,819	6,277	4,482	2,437
	-10%	26,088	14,877	10,755	8,684	7,012	5,065	2,850
	-15%	28,338	16,230	11,783	9,549	7,746	5,649	3,262
	-20%	30,588	17,583	12,811	10,414	8,481	6,233	3,675

	Change	Capex						
		NPV R million						
PERCENTAGE CHANGE IN CAPEX		**0.0%**	**5.0%**	**8.0%**	**10.0%**	**12.0%**	**15.0%**	**20.0%**
	20%	20,297	11,064	7,679	5,981	4,613	3,027	1,234
	15%	20,621	11,342	7,934	6,224	4,846	3,245	1,432
	10%	20,945	11,619	8,190	6,468	5,078	3,463	1,629
	5%	21,269	11,896	8,446	6,711	5,310	3,681	1,827
	0%	**21,593**	**12,174**	**8,702**	**6,955**	**5,543**	**3,898**	**2,024**
	-5%	21,918	12,451	8,958	7,198	5,775	4,116	2,222
	-10%	22,242	12,728	9,214	7,442	6,008	4,334	2,419
	-15%	22,566	13,006	9,470	7,685	6,240	4,552	2,617
	-20%	22,890	13,283	9,726	7,929	6,473	4,770	2,814

Figure 1-1

Sensitivity Analysis: NPV10% (US$),Coal Price, ZAR/US$ Exchange Rate



Cash Flow Model– Makhado Project

DESCRIPTION	UNIT	TOTAL	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
MINING																				
Waste mined	t	99,710,514	-	-	-	814,307	3,551,169	6,128,097	7,028,539	7,060,098	7,467,096	7,692,018	7,450,938	7,378,820	7,293,721	7,310,203	7,486,594	7,296,941	7,317,250	8,434,723
Strip ratio	W:O	1.65																		
ROM tonnes	t	164,530,897	-	-	-	1,461,402	6,719,977	10,652,345	12,000,000	12,000,000	12,000,000	12,000,000	12,000,000	12,000,000	12,000,000	12,000,000	12,000,000	12,000,000	12,000,000	13,697,173
SALEABLE PRODUCT																				
Saleble Coking Tonne	t	25,637,839	-	-	-	284,672	1,252,909	1,820,576	2,192,402	2,123,037	1,811,772	1,728,695	1,859,357	1,781,241	1,823,062	1,685,760	1,658,220	1,832,078	1,758,423	2,025,635
Saleble Coking Tonne - 4% fines	t	32,334,247	-	-	-	344,151	1,526,412	2,254,127	2,680,802	2,611,437	2,300,172	2,217,095	2,347,757	2,269,641	2,311,462	2,174,160	2,146,620	2,320,478	2,246,823	2,583,110
Saleble Thermal	t	40,712,682	-	-	-	376,015	1,978,396	2,802,739	2,890,660	2,928,464	2,832,732	2,690,887	2,801,306	2,951,539	2,994,817	3,115,637	2,966,786	2,982,581	3,035,926	3,364,199
TOTAL SALEABLE TONNES	**t**	**98,684,768**	**-**	**-**	**-**	**1,004,838**	**4,757,716**	**6,877,442**	**7,763,863**	**7,662,939**	**6,944,676**	**6,636,677**	**7,008,419**	**7,002,421**	**7,129,341**	**6,975,557**	**6,771,625**	**7,135,137**	**7,041,173**	**7,972,943**
OPERATING INCOME (NOMINAL)																				
Sales	ZARm	206,490	-	-	-	1,300	6,529	10,051	12,000	12,571	12,169	12,362	13,784	14,618	15,757	16,391	16,890	18,779	19,675	23,614
Less royalty	ZARm	3,386	-	-	-	6	26	40	237	392	267	199	257	259	304	219	69	94	287	729
NET REVENUE (NOMINAL)	**ZARm**	**203,104**	**-**	**-**	**-**	**1,294**	**6,503**	**10,010**	**11,762**	**12,179**	**11,902**	**12,162**	**13,527**	**14,360**	**15,453**	**16,172**	**16,821**	**18,684**	**19,389**	**22,886**
OPERATING EXPENDITURE (NOMINAL)																				
Mining opex	ZARm	87,497	-	-	292	1,018	1,922	2,340	2,735	3,826	4,836	5,665	6,126	6,430	6,835	8,072	10,113	10,884	9,272	7,131
Plant Opex	ZARm	7,825	-	-	-	181	277	325	366	396	428	463	501	542	587	635	688	746	808	883
Engineering Opex	ZARm	69	-	-	-	2	3	4	4	4	4	5	5	5	5	6	6	6	7	2
Distribution	ZARm	36,876	-	-	-	191	1,233	1,956	2,196	2,213	2,165	2,213	2,405	2,623	2,744	2,923	3,027	3,227	3,561	4,197
Overheads (fixed)	ZARm	2,341	-	-	-	154	131	153	141	136	160	150	121	189	183	152	148	159	176	188
TOTAL CASH OPERATING COSTS (NOMINAL)	**ZARm**	**134,608**	**-**	**-**	**292**	**1,547**	**3,567**	**4,778**	**5,443**	**6,575**	**7,594**	**8,496**	**9,158**	**9,788**	**10,354**	**11,787**	**13,983**	**15,022**	**13,824**	**12,401**
CAPITAL EXPENDITURE (NOMINAL)																				
East Pit	ZARm	4,829	-	1,783	2,408	573	64	-	-	-	-	-	-	-	-	-	-	-	-	-
Central Pit	ZARm	1,094	-	-	-	-	920	54	38	-	33	49	-	-	-	-	-	-	-	-
West Pit	ZARm	1,851	-	-	-	-	-	4	40	42	44	14	117	1,444	30	-	117	-	-	-
Commitment and Working Cap - East Pit	ZARm	345	-	212	24	77	32	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL CAPEX (NOMINAL)	**ZARm**	**8,119**	**-**	**1,996**	**2,433**	**649**	**1,017**	**57**	**78**	**42**	**78**	**62**	**117**	**1,444**	**30**	**-**	**117**	**-**	**-**	**-**
PRE-TAX CASH FLOW (NOMINAL)																				
Net operating income	ZARm	203,104	-	-	-	1,294	6,503	10,010	11,762	12,179	11,902	12,162	13,527	14,360	15,453	16,172	16,821	18,684	19,389	22,886
Less cash costs	ZARm	134,608	-	-	292	1,547	3,567	4,778	5,443	6,575	7,594	8,496	9,158	9,788	10,354	11,787	13,983	15,022	13,824	12,401
EBITDA	**ZARm**	**68,496**	**-**	**-**	**-292**	**-253**	**2,936**	**5,233**	**6,320**	**5,605**	**4,308**	**3,666**	**4,369**	**4,571**	**5,099**	**4,385**	**2,838**	**3,663**	**5,565**	**10,485**
Less taxation	ZARm	16,690	-	-	-	-	-	265	1,760	1,565	1,187	1,005	1,185	871	1,409	1,221	747	1,003	1,542	2,932
PROFIT AFTER TAX	**ZARm**	**51,806**	**-**	**-**	**(292)**	**(253)**	**2,936**	**4,968**	**4,560**	**4,040**	**3,121**	**2,661**	**3,184**	**3,701**	**3,690**	**3,164**	**2,091**	**2,660**	**4,023**	**7,553**
Less capital expenditure	ZARm	8,119	-	1,996	2,433	649	1,017	57	78	42	78	62	117	1,444	30	-	117	-	-	-
Less change in working capital	ZARm	-	-	-	(24)	4	264	190	106	(46)	(117)	(58)	62	17	47	(66)	(139)	70	172	(481)
POST TAX CASH FLOW NOMINAL	**ZARm**	**43,687**	**-**	**(1,996)**	**(2,701)**	**(905)**	**1,655**	**4,720**	**4,377**	**4,044**	**3,160**	**2,657**	**3,005**	**2,240**	**3,613**	**3,230**	**2,113**	**2,590**	**3,851**	**8,034**
POST TAX CASH FLOW REAL	**ZARm**	**21,594**	**-**	**(1,881)**	**(2,400)**	**(758)**	**1,307**	**3,513**	**3,070**	**2,674**	**1,970**	**1,561**	**1,664**	**1,169**	**1,778**	**1,498**	**924**	**1,067**	**1,496**	**2,942**

Disc Rate (Nominal)	Disc Rate (Real)	ZAR mill	US$ mill
0.0%	0.0%	R 21,594	R 1,542
11.4%	5.0%	R 12,174	R 870
15.1%	8.5%	R 8,229	R 588
16.7%	**10.0%**	**R 6,955**	**R 497**
19.4%	12.5%	R 5,233	R 374
22.0%	15.0%	R 3,898	R 278
27.3%	20.0%	R 2,024	R 145
	IRR=	30.4%	30.4%

NPVs as at 1 January 2015 in July 2015 Money Terms

Market-based Aproach

The Makhado Project hosts hard coking and thermal coal which is expected to provide reasonable yields from washing. The average depths below surface indicate that eventual extraction is likely to be by both opencast and underground mining methods. The range of values selected from the researched transactional values reflects these realities, as shown in Table 9-6.

Table 1-2
Range of selected values – Makhado Project

Coal Resource Reserve Classification	Coal Reserves / Resources[1] (Mt)	Value in situ (ZAR/t)		Value (100 % Interest) (ZAR million)		
		Lower	**Higher**	**Lower**	**Higher**	**Preferred**
Probable Reserve	172.8	8.00	12.00	1,380	2,070	1,720
Inferred Resource	75.4	0.50	1.00	40	75	55
TOTAL				**1,420**	**2,145**	**1,775**

Valuation Summary

MSA took into consideration the AIM Rules and with specific reference to the AIM June 2009 - Note for Mining and Oil & Gas Companies, which prescribes a valuation based on NPV (post-tax) at a discount rate of 10%. MSA thus considers the results of the Income approach to be most applicable, due to the high level of techno-economic study that was completed recently. MSA then estimates a Value of ZAR 6,960 million (USD497 million) for CoAL interest in the Makhado Project.

Table of Contents

List of Tables

List of Figures

1 INTRODUCTION

Coal of Africa Limited ("CoAL") appointed The MSA Group ("MSA") to prepare an Independent Competent Person's Report and Valuation in respect of CoAL's Makhado Project in South Africa. The CPR is being prepared in connection with CoAL's application for readmission of its shares to trading on the AIM market of the London Stock Exchange ("AIM"), which is being made as a consequence of its takeover offer for Universal Coal plc.

This report (the "Abridged CPR") is an abridged version of the full CPR. MSA understands that the full CPR has been made available on CoAL's website, www.coalofafrica.com

MSA understands that this Abridged CPR will be included as part of an AIM admission document to be published by CoAL (the "Admission Document").

Both the full CPR and this Abridged CPR have been prepared:

- in accordance with the AIM Note for Mining and Oil & Gas Companies (2009) published by the London Stock Exchange;
- in compliance with and to the extent required by the Australian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (2012) published by the Joint Ore Reserves Committee of the Australasian Institute of Mining and Metallurgy, the Australian Institute of Geoscientists and Minerals Council of Australia (the "JORC Code"); and
- in respect of the valuation of reserves, the Australasian Code for the Technical Assessment and Valuation of Mineral and Petroleum Assets and Securities for Independent Export Reports (2005 Edition) (the "VALMIN Code").

For the purposes of the AIM Rules for Companies, MSA is responsible for this Abridged CPR as part of the Admission Document and declares that it has taken all reasonable care to ensure that the information contained in this Abridged CPR is, to the best of its knowledge, in accordance with the facts and contains no omission likely to affect its import. MSA consents to the inclusion of this Abridged CPR, and reference to any part of this Abridged CPR and/or the full CPR, in the Admission Document.

This report replaces the previous Competent Person's Report dated 27 June 2013. No additional geological information or boreholes were added since then, and the geological model was not changed in any way. All Coal Resources and Reserves reported are identical to previous estimations.

A site visit was conducted on 19 August 2015 by Mr Philip Mostert, as part of the high-level due diligence review of the geology and Coal Resources.

Neither MSA nor any of its employees and associates employed in the preparation of this report has any beneficial interest in the assets of Coal of Africa Limited or any of its business partners.

The competent person with overall responsibility for reporting of Mineral Resources is Philip Mostert Pr.Sci.Nat, B.Sc Hons (Geology), MGSSA, who is a full time Principal Coal Consultant at The MSA Group. Mr Mostert is a geologist with 14 years' experience in the mining industry.

The competent person with overall responsibility for reporting of Mineral Asset Valuation is André van der Merwe Pr.Sci.Nat, B.Sc Hons (Geophysics), FGSSA, MAUSIMM, MSEG who is the full time Head of Mining Studies at The MSA Group. Mr van der Merwe is a geophysicist with 28 years' experience in the mining industry.

Declarations

MSA will be paid a fee for the preparation of this Report in accordance with normal consulting practice. MSA's remuneration is not linked to the readmission of CoAL or the value of CoAL or its projects. Neither MSA nor any of its employees and associates employed in the preparation of this CPR has any pecuniary or beneficial interest in CoAL, Universal Coal plc or in the Makhado Coal Project. MSA considers itself to be independent.

The CPR was reviewed internally to MSA, by suitably qualified geologists and mining engineers.

Consent

MSA consents to the issuing of this report in the form and content in which it is to be included in documentation distributed to the directors of CoAL, and in the Admission Document. Neither the whole nor any part of this report nor any reference thereto may be included in any other document without the prior written consent of MSA as to the form and context in which it appears.

2 DESCRIPTION OF PROJECT UNDER REVIEW

2.1 History and Location

The Makhado Project is housed under Boabab Mining and Exploration, which is 100% owned by Coal of Africa Ltd (CoAL) a company listed on various stock exchanges namely: ASX in Australia, AIM in the UK and JSE in South Africa.

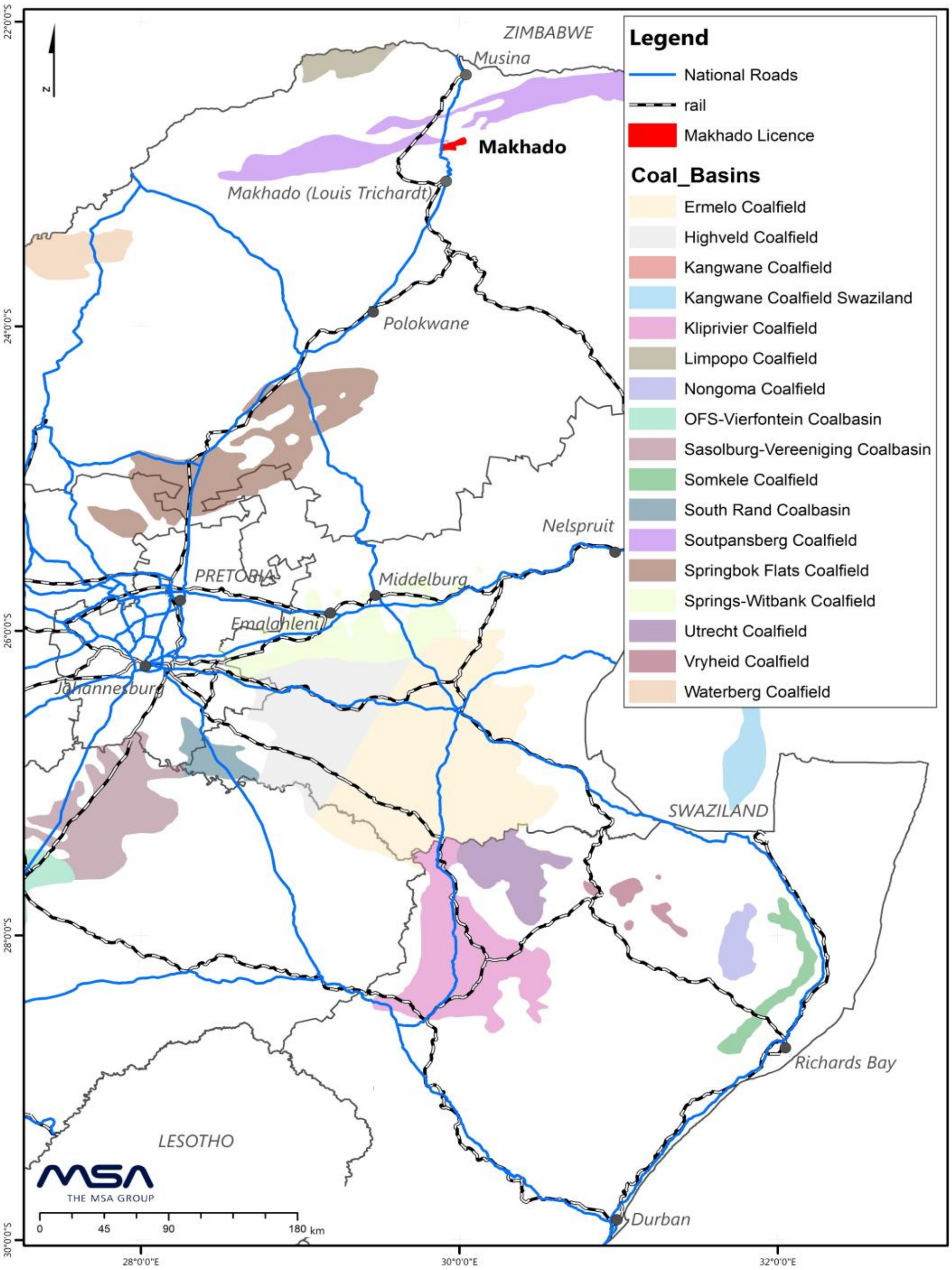
The Makhado Project represents CoAL's first project in the Soutpansberg Coalfield, Limpopo Province, South Africa. It is a thermal and coking coal project expected to mine at an average steady state rate of 12.6 Mtpa (Run of Mine (ROM)) to produce an average product of 2.3 Mtpa of hard coking coal (including fines) and 3.2 Mtpa of thermal coal.

The project is situated in the Limpopo Province 35 km north of the town Makhado (Louis Trichardt). The town of Musina is located approximately 50 km north of the Makhado Project area (Figure 2-1). The village of Mudimeli is located within the Makhado Project area on the farm Fripp 645MS.

The Makhado Project is defined as being the area included in the New Order Mining Right (NOMR) application. This area was initially comprised of five adjacent farms, elongated in a west-southwesterly to east-northeasterly direction. These farms, which lie subparallel to the Soutpansberg Mountain Range, were Windhoek 649MS, Tanga 648MS, Fripp 645MS, Lukin 643MS, and Salaita 188MT. The boundaries of the farms have been amended and the areas for which the application for the NOMR has been made, by virtue of the amendments, now includes seven farms. These seven farms are Mutamba 668MS, Windhoek 847MS, Daru 848MS, Tanga 849MS, Fripp 645MS, Lukin 643MS and Salaita 188MT.

A Definitive Feasibility Study (DFS) was completed on the project by CoAL and its external consultants in May 2013.

Figure 2-1
Locality map for the Makhado Project



2.2 Mineral Tenure

CoAL holds an New Order Prospecting Right (NOPR) (LP 30/5/1/1/2/38 PR) over all or sections of the farms Overwinning 713MS, Mutamba 668MS, Windhoek 649MS, Daru 848MS, Tanga 849MS, Fripp 645MS and Lukin 643MS. The right was initially granted until October 2011. CoAL submitted a renewal application in July 2011 to extend the Right for a further three years. A notarial deed of amendment or variation of a prospecting right executed by CoAL and DMR on 19 January 2011 records that CoAL applied to amend 38 PR by relinquishing the farms Albert 686 MS, Bekaf 650 MS, Castle Koppies 652 KS, Chase 576 MS, Enfield 521 MS, Fanie 578 MS, Joffre 584 MS, Kleinberg 636 MS, Wildgoose 577 MS and by adding Portion 2 and the Remaining Extent of Mount Stuart 153 MT, Portion 1 and the Remaining Extent of Terblanche 155 MT, Septimus 156 MT, Nakab 184 MT, Lukin 643 MS, Remaining Extent and Portion 1 of Overwinning 713 MS, Remaining Extent, Portions 1 and 2 of Windhoek 649 MS, measuring 15 569.9679 hectares.

CoAL, through its subsidiary Regulus Investment Holdings (Pty) Ltd (Regulus), holds an NOPR (LP 30/5/1/1/2/161 PR) over the farm Salaita 188MT which expired on 8th April 2013. This NOPR has been renewed.

The DMR accepted an NOMR application by CoAL on the farms Mutamba 668MS, Windhoek 649MS, Daru 848MS, Tanga 849MS, Fripp 645MS, Lukin 643MS and Salaita 188MT on the 25th February 2011, as summarised in Table 2-1 and granted in 15 May 2015.This is graphically presented in Figure 2-2. The application covers a Mining Right Area of 7,634 ha. This right will supersede the current NOPRs and the required renewals thereof. The Integrated Water Use License has been granted by the Department of Water and Sanitation.

Figure 2-2
Farm Boundaries, Surface Rights and Mineral Tenure

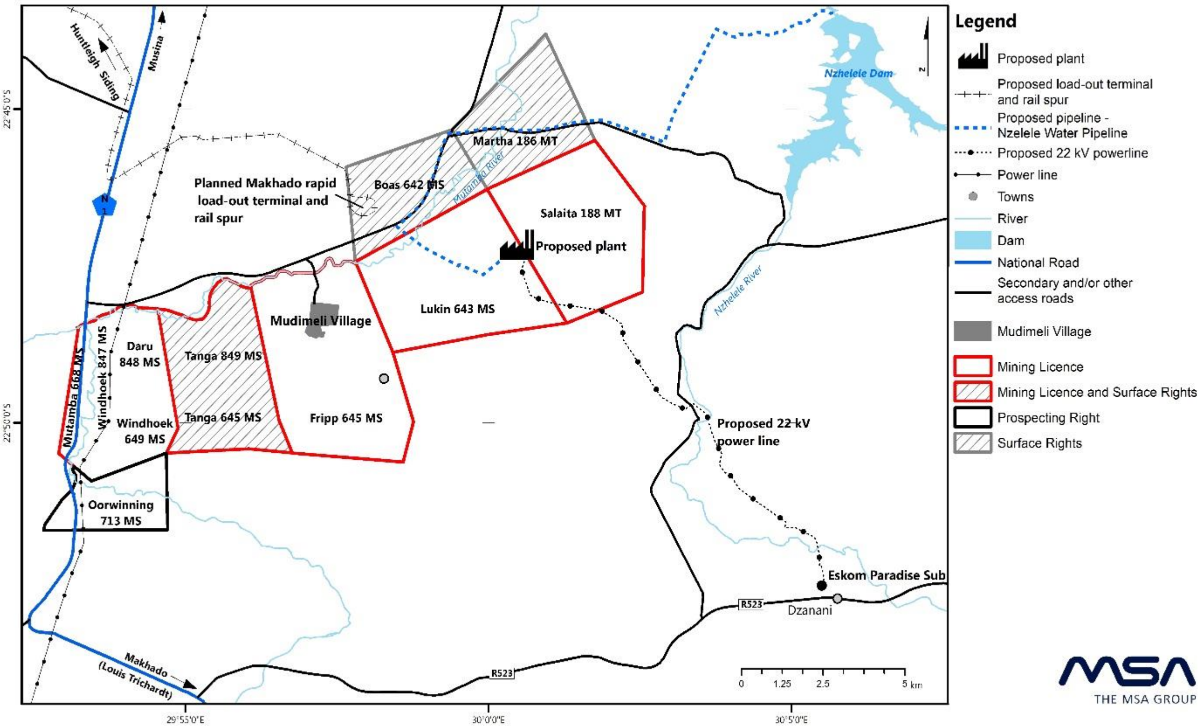


Table 2-1
Summary of Mineral Tenure

Asset	Holder	Interest %	Status	Licence expiry date	Farm Name & no	Licence area (ha)	Comments
South Africa Makhado	Boabab Mining Exploration (Pty) Ltd	74%	Development	To be advised on execution of the NOMR	Mutamba 688MS	674	License no: LP 30/5/1/2/2/204 MR
					Windhoek 847MS	549	
					Daru 848MS	832	
					Tanga 849MS	1255	
					Fripp 645MS	1932	
					Lukin 643MS	1650	
					Salaita 188MT	1506	

2.3 Legal Issues

CoAL has informed MSA of land claims on the farms Fripp 645 MS, Tanga 648 MS, Lukin 643 MS and Salaita 188 MS. The land claims on the various properties have been gazetted by the Department of Rural Development and Land Reform (DRDLR). CoAL recognises land claimants as key stakeholders, and the company's engagement is governed by the company's stakeholder engagement strategy that ensures regular, meaningful and transparent engagement. CoAL recognises the legislative framework of the land claims process and will work within that framework.

2.4 Accessibility, Climate, Local Resources, Infrastructure and Physiography

The topography of the Makhado Project comprises a relatively flat plain towards the north, whilst the southern portion of the Project area abuts the northern foothills of the Soutpansberg mountain range (Figure 2-1). More specifically, the Mapaliome, Donwa and the Pfumembe mountains lie to the south of the mining area. Slopes of up to 12° are encountered on the hillsides. The average elevation is 750 mamsl (metres above mean sea level), with the Soutpansberg Mountains, bordering the project area to the south, reaching a maximum elevation of 1,747 mamsl.

The surrounding areas are drained by the perennial Nzhelele and Sand Rivers, which flow in a north-westerly direction, eventually reaching the Limpopo River. The non-perennial Mutamba River drains the project area and is situated along its northern limit. The Mutamba River receives flow from the rivulets draining the northern slopes of this mountainous area. Although the Mutamba River is non-perennial, it is prone to flash flooding. The 100 year flood line, has been considered during the positioning of the mining pits and therefore in the estimates of the Makhado Project Coal Reserves.

The Makhado Project area experiences a warm to hot, semi-arid climate. It typically has four seasons with summer extending from November to February, and winter from May to August. The nearest weather station, Tshipise No. 07662771, is situated approximately 32 km northeast of the project area. Temperatures average an annual minimum of 16° C in winter and an average maximum of 30° C in summer. The lowest temperature measured at Tshipise between 1994 and 2006 is -1° C in July and the highest recorded temperature is 43° C in December.

The dominant wind direction, as measured at Thohoyandou, is from the southeast with an average speed of 7-11 knots. Winds from the east are less common but tend to be stronger and may reach 15 knots.

Rainfall is highly variable and usually falls during the summer months (October to March). The Soutpansberg mountain range acts as a barrier to moist weather, with a rain shadow occurring towards the north. Mean annual rainfall is of approximately 389 mm for the plains to the north of the Soutpansberg, whilst the rainfall for the mountainous terrain to the south is measured to be 60% greater than this at 622 mm per annum. The Mutamba River drains the northern slopes of this mountainous area.

The evaporation rate for this area is significantly greater than the rainfall. The mean annual evaporation was measured at 1,450 mm for the mountainous southern area, whilst this figure was measured at 1,750 mm towards the north.

Operations can occur all year around and the climatic conditions generally do not prevent exploration or mining. The area lies within reach of the impact zones of tropical cyclones and therefore can experience high intensity rainfalls. These events are not common, however, with four occurring in the last fifty years. During times of heavy downpours, temporary delays in exploration and mining may be experienced.

The Makhado Project is situated between the regional centres of Makhado and Musina which provide modern conveniences, including accommodation and services. The towns are also sources of fuel and labour. The Project is well situated with respect to the major infrastructural aspects of rail, road and power (Figure 2-2). The site is located immediately to the east of the N1 highway that links South

Africa to Zimbabwe and the rest of Africa through the Beitbridge border post. A gravel local distributor road, Road D745 provides access to the various farms comprising the mining precinct. The railway linking Gauteng (in South Africa) and Zimbabwe also traverses the area with the nearest rail siding on the main line located at Huntleigh.

In this CPR, the off-site infrastructure considers the obtaining of road, rail, water and power access to site for the development and operation of the Makhado Project. Various detailed studies have been undertaken by CoAL and their consultants on each of these aspects, as part of the DFS.

A high level rail review of the DFS was carried out by WorleyParsonsTWP Projects (WorleyParsonsTWP) and a gap analysis identified issues to be investigated further, once go-ahead for project development is obtained.

There were no major risks identified by WorleyParsonsTWP apart from the issue of finalising the detailed geotechnical investigations and obtaining final off-take agreements with Eskom in terms of agreeing power station destination/s. The provision of rolling stock and Transnet Freight Rail infrastructure upgrades to meet the service level requirements remains a risk to the project, and this needs to be managed by CoAL in conjunction with TFR, as the project proceeds.

2.5 Geology

The Makhado Project area is located in the Tshipise South subdivision of the greater Soutpansberg Coalfield. The Project is characterised by a number of seams which occur within a 30 to 40 metre thick carbonaceous zone of the Madzaringwe Formation (Figure 2-3).

All seams comprise interbedded carbonaceous mudstones and coal. The coal component is usually bright and brittle and contains a high proportion of vitrinite. The seams dip northwards at approximately 12°.

Six potential mining horizons or seams which were identified by CoAL namely: Upper Seam, Middle Seam, Middle Lower Seam, Bottom Upper Seam, Bottom Middle Seam and Bottom Lower Seam. The Bottom Middle Seam usually comprises predominantly mudstone and for this reason it has not been included in the Resource estimate; however, in certain areas it has sufficient coal to be considered a potential mining target.

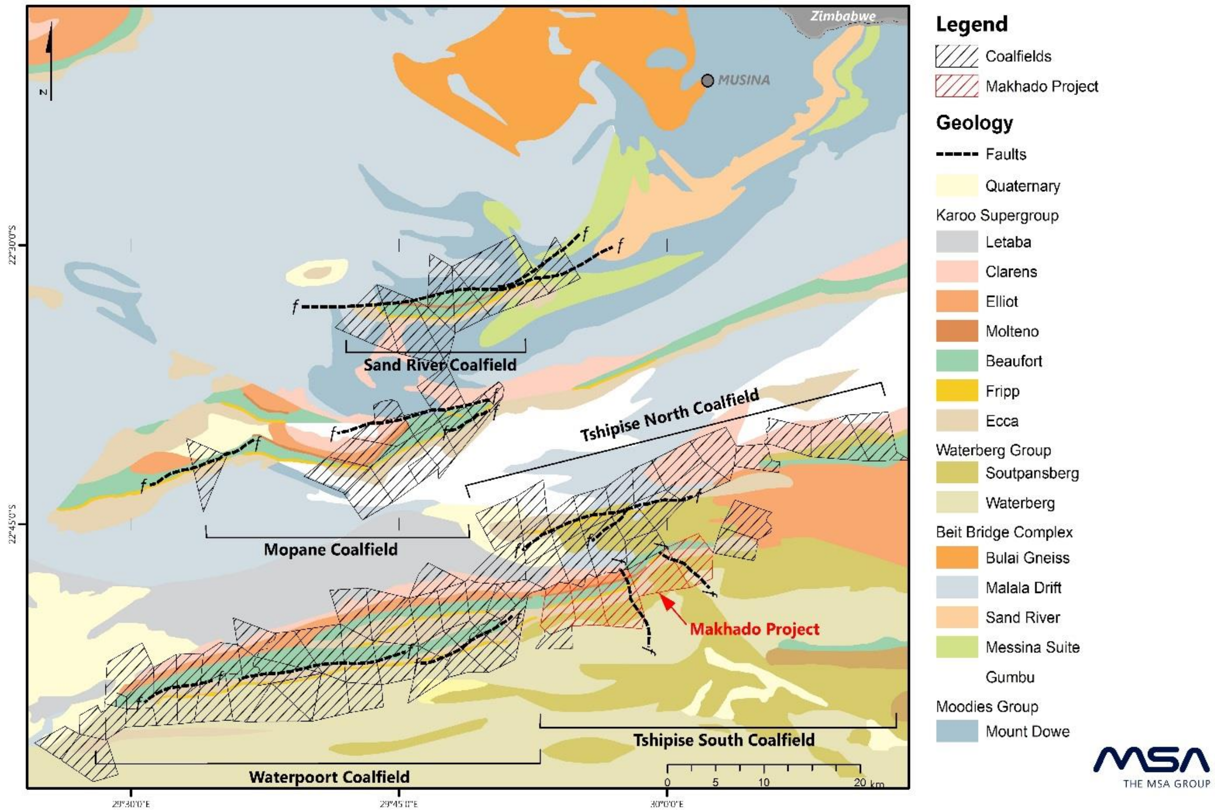
A major northwest-southeast trending fault referred to as the Siloam Fault has been identified on the farm Lukin 643MS, which has displaced the Coal Zone and offsets the sub-outcrop. The fault has been considered when positioning the infrastructure layout such that the access roads have been positioned along the fault line, thereby reducing potential sterilisation of Coal Resources.

Other significant faults mark the western and eastern limits of the Resource area along strike. The frequency of smaller scale faulting will be investigated through closely spaced drilling ahead of the mining face.

A dolerite sill of up to 50 m in thickness has been identified through drilling which has resulted in devolatilised coal in close proximity to the sill. This sill is located above the Coal Zone on the farms Tanga 849 MS and Lukin 643 MS and vertically transgresses below the Coal Zone on the farm Fripp 645 MS. The economic effect of devolatilisation is that it effectively destroys the coking properties of coal. In areas where the sill is above and below coal measures is has had no impact on the coal and it is only in the limited areas where the sill transgresses the coal measures that it has impacted on the coal quality. The coal that has been affected by the dolerite sill transgression has been excluded from the Resource, and mine planning and scheduling that formulated the reserve determinations.

The frequency of dolerite dykes is unknown; however, examination of aeromagnetic data suggests there are relatively few magnetic dykes within the potential open pit area. GAP Geophysics has interpreted that identified dykes are about 2 to 5 metre in thickness and steeply dipping. A thin, discontinuous dyke can be observed in the highwall of the former Iscor bulk sample pit on the farm Fripp 645 MS. It should be noted that due to the fact that the intrusion occurred in an extensional environment the bounding zone of devolatisation around the dolerite intrusions is usually thin and limited to less than one third of the width of the dolerite intrusion.

Figure 2-3
Geological Map and Stratigraphic Column for the Makhado Project



3 GEOLOGY AND COAL RESOURCES

3.1 Introduction and supplied data

A site visit was conducted on 19 August 2015 as part of the high-level due diligence review of the geology and Coal Resources. The MSA team (Mr Philip Mostert and Mr Robin Bolton) was met by the relevant disciplines on site.

A dataset for the project was provided during meetings held at CoAL's head office in Johannesburg as well through FTP and Dropbox sites, the latter being set up by CoAL.

The following data and reports were used for the review:

- Mineral Experts Report (MER) on the Resources of the Vele, Mooiplaats and Makhado Coal Projects in South Africa, The Mineral Corporation Consultancy (Pty) Ltd (MINCORP). September 2010.
- Independent Competent Persons Report (CPR) on the Makhado Project of Coal of Africa Limited. Venmyn Deloitte (Pty) Ltd (Venmyn). May 2013.
- Makhado Feasibility Report. Geology and Mineral Resources: Chapter 4. Coal of Africa Limited. January 2013.
- Coal Exploration Best Practice Guideline for the Greater Soutpansberg Projects. Venmyn Rand (Pty) Ltd (Venmyn). June 2012.
- DXF files with the infrastructure and geological structure for the project, including, amongst others, roads, rivers, dykes and faults.
- Personal contact and interview with John Sparrow, and
- Topography files as a .csv export of the topography grid files used in estimation.
- Raw and WASH grid files supplied in .csv format for all the seams.
- Floor, roof and thickness grids for all seams in .csv format.
- Product grid files used for the Coal Resource reporting in .csv format covering an area larger than the delineated Resource Area.
- Database exports out of SABLE in .csv format
- Borehole logs and analyses for five boreholes.

MSA has accepted the information and data provided by CoAL in good faith and places reliance on CoAL that all technical information provided to MSA is both valid and appropriate for the purpose of undertaking this review and compiling this report.

The review also consisted of importing the Minex grids as .csv files for comparison with the reported Coal Resource estimate.

3.2 Source Data

The source data that provided input into the Coal Resource include the following:

- 316 NQ-size diamond core holes drilled by Iscor before. 2007 No wireline logging was completed on these boreholes.

- 4 PQ3-size diamond core holes drilled by Rio Tinto between 2006 and 2007 with wireline logging data. These boreholes were excluded from the estimation.
- 172 PQ3-size triple tubed diamond cores holes and 24 LDD holes drilled by CoAL between 2008 and 2010. Both diamond core holes and the LDD have wireline logging data.
- 13 percussion holes drilled by CoAL in 2010 which have wireline logging information.

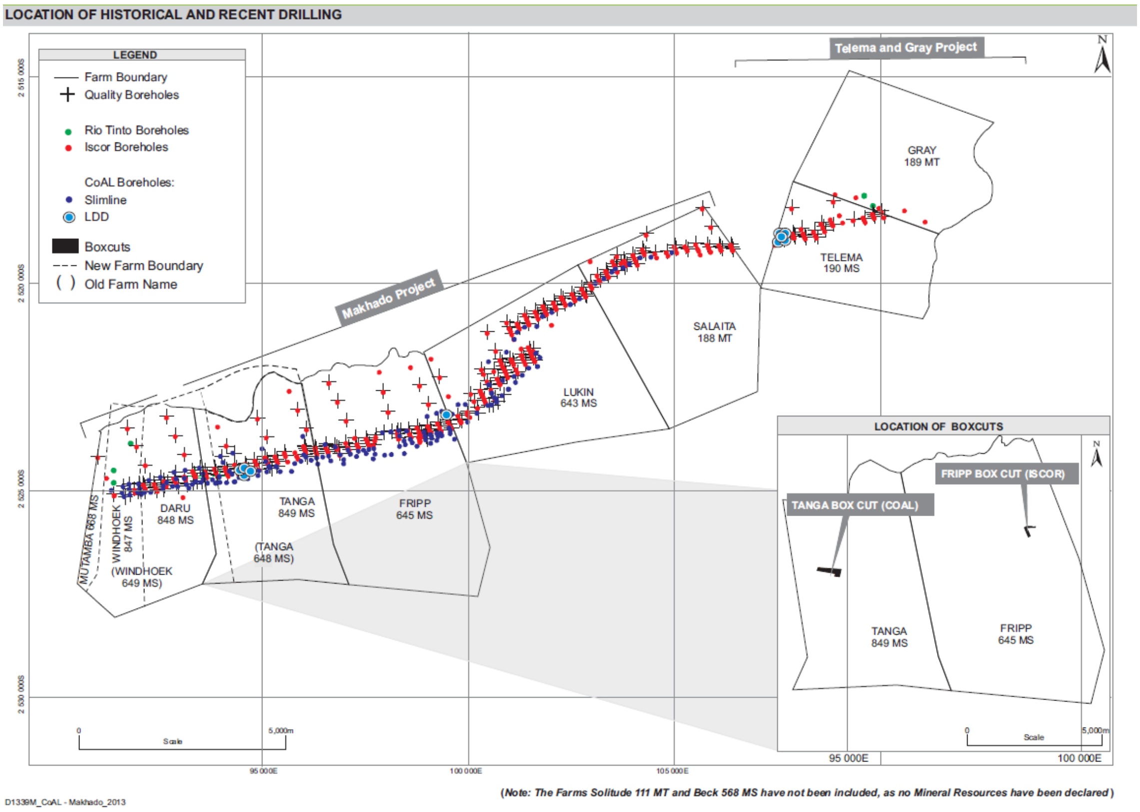
The location of the boreholes is shown in Figure 3-1.

The different drilling techniques used between Iscor and CoAL could potentially introduce a sample support bias as well as differences in the recovery of material, in particular of the vitrinite material in the NQ-size diamond core holes. The potential core loss in the vitrinite material could be an upside potential for the Iscor boreholes. In order to understand the bias between the boreholes drilled by Iscor and CoAL, a study was conducted which compared the two sample types and the yielded the following outcomes:

- Average yields compared well across all seams;
- Little correlation between yields at RD=1.40 for Iscor and CoAL;
- Yields across all seams estimated for the Iscor drilling was 15% less than COAL drilling (e.g. 12% vs 14,45%); and
- Negligible differences noted for the yields between LDD and PQ3 drilling for all float densities with the exception of RD=1.70. At RD=1.70, LDD had significantly lower yields than predicted by the PQ3 drilling.

MSA considers there to be upside potential with the slightly poorer yields based on the study. However, the impact of this study is not fully understood and requires further investigation.

Figure 3-1
Borehole locations for the Makhado Project (Venmyn 2013)



3.3 Spatial Data

The spatial data defining the Makhado project include the following:

- LIDAR survey by EPA in 2008.
- Aerial magnetic and radiometric surveys conducted by Fugro Geophysics (Pty) in March 2008.
- LIDAR survey in 2010 by Fugro Airborne Surveys (Pty).
- Aeromagnetic data acquired from Rio Tinto in 2010 for the properties Gray 189 MS and Windhoek 649 M.

Borehole collar surveys for each of the source data were completed as follows:

- The borehole collar survey information is unavailable for the Rio Tinto boreholes however MINCORP compared borehole elevations at the recorded northing and easting co-ordinates against elevations estimated from the LIDAR survey, or from topographic plans where there is no LIDAR coverage. Large discrepancies in elevations (up to 55m) were noted for the majority of boreholes which suggests that most of the borehole collar elevations were determined from non-differential, hand-held GPS. Hence these boreholes have been excluded from the Coal Resource estimation.

- MINCORP compared borehole elevations for the Iscor collars against elevations estimated from the LIDAR survey, or from topographic maps in areas where there was no LIDAR coverage, and found the data to be within an acceptable tolerance. With the exception of a number of deflections of the mother holes, the Iscor boreholes are believed to have been drilled vertically but no directional survey data has been provided.
- The CoAL boreholes were surveyed using Leica™ GPS equipment by P Matibe and Associates, which is registered (No. PLS0915) with the South African Council for Professional and Technical Surveyors (PLATO). All CoAL boreholes were drilled vertically and no down-hole directional surveys were undertaken. Given the relatively shallow depths involved, this was not considered a deficiency.

MSA considers the exclusion of the Rio Tinto boreholes in the Coal Resource estimate good practice.

3.4 Drilling, sampling and database

The drilling and sampling protocols used by Iscor are unknown. However, MSA assumed the drilling methods were conventional and pre-date the more efficient triple-tube wireline techniques commonly employed today.

The CoAL exploration drilling was undertaken by Geomechanics (Pty) Ltd and Ludikcore Exploration Services (Pty) Ltd. Drilling since 2009 has been conducted by South African Drilling Services (Pty) Ltd and Geomechanics. The CoAL drilling procedure has been independently supervised or verified by other reputable consulting companies and MSA is satisfied that best practice standards have been employed by the company. The core size was changed from HQ3 to PQ3 after the initial 25 exploration boreholes in order to obtain more sample material and maximise core recovery. The CoAL drilling contracts required a minimum recovery of 98% within coal horizons and 95% in non-coal sediments.

The core recovery was not retained in the database however it was measured within each individual coal ply with reference to the geophysical logs and, if found to be acceptable, logging commenced. It should be noted that in CoAL's best practice guideline for coal exploration it states that the core recovery should be recorded in the Borehole Header Sheet.

Subsequent to MSA's queries on the core recovery, CoAL calculated the core recovery within the mineralised packages. An excel sheet with core recoveries per borehole where core loss occurred in the mineralised package was provided to MSA. Since the JORC Code requires core recovery greater than 95%, MSA only considered the boreholes with greater than 95% in the spreadsheet provided by CoAL. There were 31 boreholes with core recovery less than 95% of which the majority of the holes were drilled by Iscor. It appeared that only eight re-drills were recorded in the database for these 31 boreholes. It is noted that MINCORP examined a subset of the Iscor field logging sheets which recorded core recoveries on a per-sample basis and concluded that the recoveries appeared to be generally good.

MSA recommends the capturing and monitoring of core recovery as an area of improvement. Where possible core recoveries for previous holes should be calculated and captured in the database. All future drilling should capture the core recoveries in the database.

The CoAL drilling and sampling programme procedures are summarised below:

- A 3 m drill run was drilled and reduced if poor recoveries or difficult drilling conditions were experienced.
- The core was placed in steel trays and enclosed in bubble-wrap.
- Full core trays were stacked and covered.
- Core recovery within individual coal plies was measured with reference to the geophysical logs and, if found to be acceptable, logging commenced.
- Core was not split prior to logging in order to minimise the effects of oxidation.
- Lithological depths were finalised after reconciliation with the geophysical wireline logs.
- Field logs were generated using printed logging forms and are archived at the CoAL offices in Johannesburg. The logging data was subsequently captured in a dedicated Sable™ database.
- Borehole core photography using a hand-held digital camera was initiated in January 2009 and was sporadic until November 2009. Since that time, all cores have been photographed.
- CoAL defined seams or selected mining cuts by firstly selecting intervals comprising predominantly coal and then by identifying the sample names associated with those intervals and automatically allocating them to the seam.
- The Iscor and CoAL sampling nomenclatures differ. Given that the Iscor sample/seam allocations have recently undergone re-interpretation by CoAL geologists, the allocations presented for Iscor samples in Table 3-1 can be considered generally valid, but exceptions do occur.
- CoAL conducted whole core sampling and sample intervals were selected on the basis of the geophysical logs. Samples were numbered from the base upwards and correspond to the same stratigraphic interval in every borehole. CoAL has identified six potentially mineable seams within the Coal Zone.
- Samples were double-bagged with each bag sealed with cable ties and labelled. Bagged samples were stored in a locked refrigerated container prior to transportation to the laboratory in a closed truck.
- Samples are submitted to the laboratory where QAQC is checked at the laboratory by plotting ash versus CV and all samples with a correlation less than 0.90 are re-analysed.

Table 3-1
Reinterpretation of Sampling Nomenclature for the Iscor boreholes

SEAM	CoAL SAMPLING NOMENCLATURE	ISCOR SAMPLING NOMENCLATURE
Upper	14C (14CA, 14CB, 14CC)	3, 3A, 3B
Middle	14A (14AA, 14AB, 14AC), 14BA	5, 5A, 5B, 5C, 5D
Middle Lower	12A (12AA, 12AB), 12B, 12C, (12CA, 12CB)	7, 7A, 7B, 7C
Bottom Upper	11A (11AA, 11AB, 11AC), 11B, 11BA	9A, 9B, 9C, 9D, 9E
Bottom Middle	10A (10AA, 10AB)	Not recognised
Bottom Lower	9A (9AA, 9AB, 9AC), 9B	10, 10A, 10B, 10C, 10D

.

The drilling and sampling protocols used by CoAL are considered appropriate for the type of mineralisation.

3.5 Coal Analysis

Samples from the Rio Tinto drilling campaign were analysed at ALS Brisbane (ISO 17025 accredited) and products were returned to South Africa for petrographic analysis. The samples from the first 25 boreholes drilled by CoAL were sent to the SABS laboratory in Secunda. SABS is accredited (No. T0230) through the South African National Accreditation System (SANAS) and SABS/ISO/IEC 17025:2005. However, due to delays in the reporting of analytical results, CoAL relocated all unprocessed samples from SABS to Inspectorate which is also a SANAS accredited laboratory (No. T0313).

Since July 2009, two laboratories have been used by CoAL, namely:

- Core exploration samples have been sent to the CAM Laboratory in Polokwane. CAM is accredited (No. T0476) through SANAS.
- Large diameter core samples were analysed at the ACT Laboratory in Pretoria. ACT is not yet SANAS accredited but is utilised by many South African and international coal mining companies particularly with regard to coking coal. It has been subjected to laboratory audits and regularly participates in recognised 'round robin' quality control procedures with the results and certificates openly available.

The sample preparation and coal analysis test work is detailed below. Also noted are the reasons for and impact of the coal analysis at each step:

- The samples were crushed to -12.5 mm rather than drop shatter tested as required for coking coal projects at DFS level. The reasons for this and the resultant impact on the project are as follows:

- the sample preparation was conducted for exploration purposes, not for DFS purposes, and according to standard South African exploration protocols typically used for thermal coal;
- slim-line drilling does not provide sufficient sample volume for drop shatter testing over small sample intervals. The focus of the sampling was on the detailed identification of mineable horizons rather than on detailed coking testwork;
- the resultant yields may not be representative of the results which will be achieved in the Coal Handling and Processing Plant (CHPP) which proposes the use of rotary crushing;
- CoAL has budgeted to carry out additional drilling in the East Pit and Central Pit for detailed metallurgical coking specific testwork in order to mitigate this issue; and
- this represents upside potential to the project with respect to yield.

- The -0.5 mm fraction was excluded from the washability testwork. The reasons and impact of this on the project are as follows:-
  - this is standard practise for South African exploration sampling protocols typically used for thermal coal;
  - this fraction typically reports to the coking coal product and has an associated yield percentage not taken into account in the washability results;
  - the Resource model used to estimate the product tonnages does not take this percentage into account and therefore an adjustment is made, post the estimation, to include this additional product;
  - the estimation uses an additional yield of 4.07% of ROM tonnes. This estimate is based upon the average fines (-0.5 mm) proportion of 8.14% of the slim-line holes, multiplied by an estimated 50% yield on this figure;
  - the Coal Resource and Reserve statements exclude this additional yield.

A&B Mylec reviewed the borehole testwork and found that the borehole samples were processed by crushing rather than using drop shatter tests and as a result the yields may not be representative of the actual yields to be achieved in the CHPP. MSA is of the opinion that this represents upside potential to the project with respect to yield.

MSA supports A&B Mylec's conclusions and considers this an area for improvement. CoAL requires a better understanding of the upside potential of the yields in the -12 mm and -0.5 mm fractions on the project through further drilling and testwork.

3.6 Data Storage

The source data are stored in a Sable™ database which is managed and maintained by the competent person for the project, Mr J Sparrow (Pr.Sci.Nat.), and the project geologist, Mr C Mafiri. Backups are stored at CoAL's head office in Johannesburg.

Sable™ has been set up to run validations on the analytical data on import into the programme. The integrity of the washability data is validated by visually ensuring that the ash content is increasing when compared to an increasing wash density, increasing CV and volatile matter. Further validation is completed by comparing ash content versus RD and ash versus CV through scatter plots. Ash vs volatile matter has been found to have a large scatter typical of southern African coals. In order to identify area of devolatilisation and or areas of high sediment further investigation is carried out on the dry ash free (DAF) volatiles.

3.7 Metallurgical Testwork

Various metallurgical testwork programmes, which include both washing and coking, was conducted by CoAL in order to establish the metallurgical parameters of the Makhado coal. The initial aim of the testwork was to produce a flowsheet capable of economically producing a coking coal with a 12% ash product. However, this was later revised to target a coking coal product with a 10% ash content for the market as well as a thermal middlings product.

The various testwork includes the following:

- Liberation testwork conducted by CoAL,
- Jameson Cell Flotation Testwork conducted by Xstrata in 2011,
- Ore characterisation conducted by Exxaro in 2011,
- Mineral Distribution Study conducted by Exxaro in 2011,
- Bulk sample testwork conducted by CoAL,
- Coking Tests conducted by ArcelorMittal.

It should be noted that the plant has been designed with the option to extend flotation, however the viability of the project is not dependent on flotation. Therefore only the ore characterisation, particle size distribution and bulk sample is described below.

3.7.1 Ore Characterisation (Exxaro 2011)

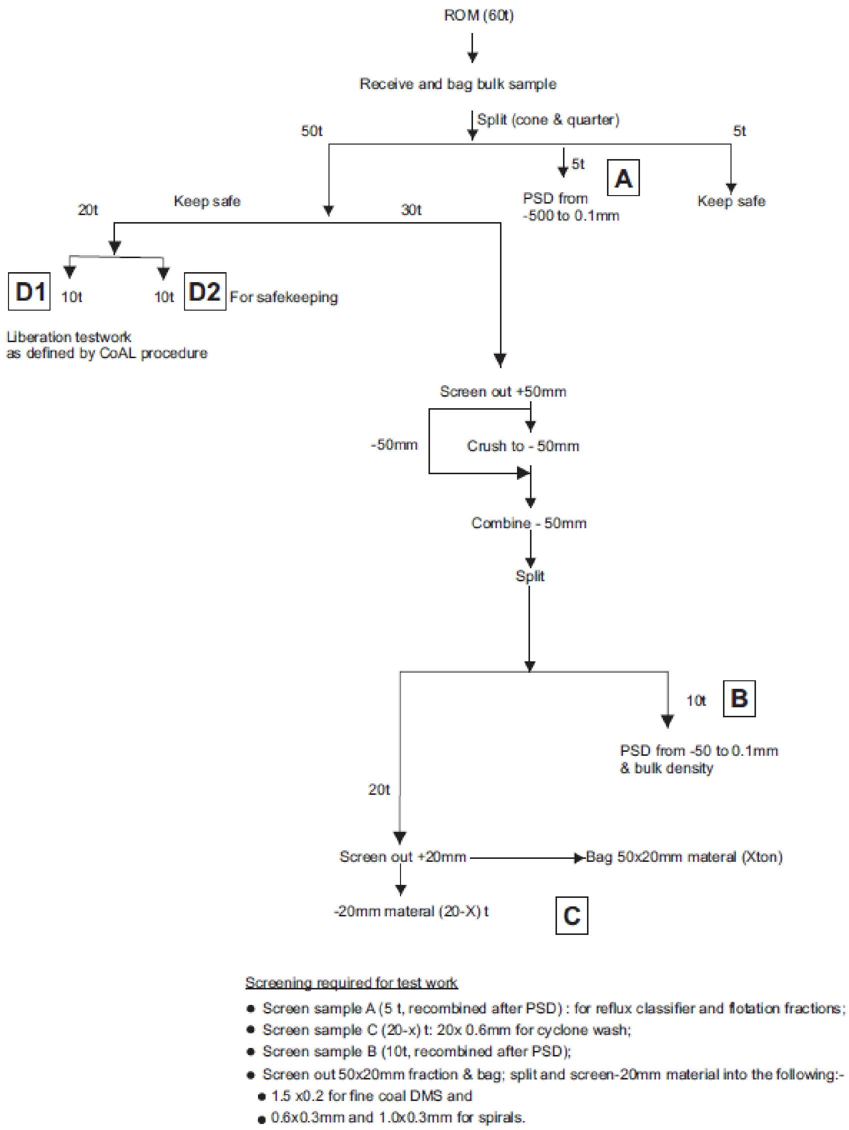
In 2011, the Research and Development Division of Exxaro Resources Limited (Exxaro) in South Africa was commissioned by CoAL to conduct ore characterisation testwork on a 60 t bulk sample from the Makhado Project. This work included:-

- particle size distribution (PSD) of the -500 to +0.1 mm and -50 to +0.1 mm size fractions;
- bulk density determination of the -50 mm fraction;

- liberation characteristics of the -150 mm fraction;
- determination of the metallurgical parameters such as yield and product quality of the various fractions from different process units; and
- reagent types, yields, combustible recovery and other metallurgical parameters of the flotation process.

The sample handling procedure is outlined in Figure 3-2.

Figure 3-2
Exxaro Ore Characterisation Testwork and Sample Handling Procedure and Schematic Flowsheet



3.7.1.1 *Particle Size Distribution*

Samples A and B were used to conduct particle size distribution (PSD) assessments of the ROM material provided by CoAL. The results are tabulated in Table 3-2.

From Table 3-2 and Figure 3-2 it is evident that, from Sample A, approximately 50% of the ROM is less than 16 mm in size, approximately 77% of the ROM is in the -50 mm size fraction whilst approximately 90% of the ROM is in the -100 mm size fraction. This would suggest a need to discard the coarse ROM (+50 mm). However, this needs to be validated by analysing the coal content of this fraction.

Table 3-2
Exxaro Particle Size Distribution assessment

Sample A (500 mm Topsize)				Sample B (50 mm Topsize)			
Size	**Mass**		**%**	**Size**	**Mass**		**%**
(mm)	**(kg)**	**(%)**	**Passing**	**(mm)**	**(kg)**	**(%)**	**Passing**
500.00	0.00	0.00	100.00				
250.00	21.70	0.36	99.64				
100.00	582.00	9.55	90.09				
50.00	804.00	13.19	76.90	50.00	0.00	0.00	100.00
31.50	562.00	9.22	67.68	31.50	744.00	15.34	84.66
20.00	824.00	13.52	54.16	20.00	838.00	17.28	67.38
16.00	270.00	4.43	49.73	16.00	413.00	8.52	58.87
12.00	736.00	12.08	37.66	12.00	251.00	5.18	53.69
8.00	328.00	5.38	32.28	8.00	588.00	12.12	41.57
6.00	172.00	2.82	29.45	6.00	359.00	7.40	34.16
4.00	120.00	1.97	27.49	4.00	188.00	3.88	30.29
2.00	506.00	8.30	19.18	2.00	362.00	7.46	22.82
1.00	292.00	4.79	14.39	1.00	374.00	7.71	15.11
0.85	154.00	2.53	11.87	0.85	102.00	2.10	13.01
0.50	202.00	3.31	8.55	0.50	157.00	3.24	9.77
0.25	246.00	4.04	4.51	0.25	207.00	4.27	5.50
0.106	17.180	0.28	4.23	0.11	244.00	5.03	0.47
0.00	258.00	4.23	0.00	0.00	22.92	0.47	0.00
Total	**6,094.88**	**100.00**			**4,849.92**	**100.00**	

Note: PSD assessment carried out on a dry basis. Percentage moisture in raw feed (non-dry basis) is 3.28 %.

3.7.2 Bulk Sample Testwork (CoAL Tshikondeni)

Testwork on a bulk sample excavated from the Makhado Project was tested at Exxaro's Tshikondeni Colliery with a view to:

- obtain a 10% ash product sample from the Makhado Coal Resource for coke testing at ArcelorMittal operations;
- obtain a product sample from the Makhado Coal Resource for coking coal product characterisation;
- obtain ROM, product and discard samples from the Makhado Coal Resource to test for mining and metallurgical process design, equipment selection and sizing; and
- observe the Makhado coal in the various stages of extraction and processing: blasting, extraction, crushing, screening and beneficiation and materials handling.

Since it had already been established from the crushing and liberation data from the large core diameter samples that only 1.2% coking coal is in the +20 mm material, all the ROM was planned to be crushed down to 50 mm and screened at 20 mm, with the -20 mm sent to Tshikondeni for processing and the +20 mm discarded at Makhado.

This was also made necessary by the short processing time allowed at Tshikondeni and the fact that all coarse discard was to be returned to Makhado, with CoAL bearing all transport cost.

ROM processing at Makhado was conducted using a pilot crushing and screening unit. Material was fed onto a 150 mm grizzly using a Front-End Loader. The +150 mm material overflow was stockpiled separately whilst the -150 mm material was crushed down to 50 mm and screened at 20 mm. The -20 mm material was delivered to Tshikondeni and the -50 to +20 mm material sampled and stockpiled separately as discard.

Processing at Makhado was adjusted in order to achieve a feed ash as close to 35% as possible as is the case with Tshikondeni feed. This was made necessary by failure to achieve product ash of 10% from the first run and Tshikondeni Colliery rejection of any further high-ash Makhado feed of 55%.

Testwork conducted during each phase of ROM preparation included particle size and ash distribution; and washability.

The Tshikondeni processing plant currently processes two fractions:

- -13 to +1.4 mm material in the dense medium cyclones; and
- -1.4 mm in the flotation plant.

However, no adjustments to the Tshikondeni process flow or equipment were carried out for the purpose of the bulk sample.

In view of these design considerations and constraints, the bulk sample delivered to the Tshikondeni processing plant was to be -20 mm, achieved through crushing and screening at Makhado via the mobile crushing and screening plant, with the +20 mm material discarded.

Discards from each phase of ROM preparation were tested for washability, coking coal misplacement and potential for secondary products. The purpose for testing discards was to improve the understanding of the discard coarse fraction and specifically to limit the amount of coking coal discarded. The results of the processing testwork are presented in Table 3-3.

Table 3-3
Results of processing testwork at Tshikondeni

Sample	Rom Preparation	Feed Ash	Feed Tonnage (t)	Product Tonnage (t)	Product Ash (%)	Product Yield (%)
1	All ROM crushed to 50mm and screened at 20mm	54.30	3,593	688	16.20	19.15
2	Crusher setting to 150mm open side, crushing all ROM and screening at 20mm	52.50	3,153	656	12.20	20.81
3	ROM not crushed, screened at 12mm	50.20	3,271	489	11.60	14.95
4	ROM not crushed, screened at 8mm	49.10	3,870	459	13.20	11.86
5	Sample 1 reject from Tshikondeni, screened at 8mm	47.20	3,210	345	12.80	10.75

The low yields were attributed to:

- the location of the bulk sample (West pit) known to have the lowest yields;
- the manner that the coal was mined out and processed on the crushing and screening plant. One blasting approach was used for coal and partings, resulting in waste being blasted into the coal and resulting in higher feed ash of the ROM to the beneficiation plant; and
- no adjustments to the Tshikondeni process flow or equipment were carried out for the purpose of the bulk sample.

Analysis of discard material indicated that there was insignificant amount of 10% ash in the +8 mm material.

The product from Tshikondeni Colliery was later successfully upgraded to 10% ash in the bulk washing facility at CAM Laboratory in Polokwane, South Africa. Coking tests were later performed on this product at ArcelorMittal and this is discussed in the following section.

An attempt was made to upgrade 1,500 t of the product from Tshikondeni at Exxaro Pilot Plant. This attempt has failed due to excessive fines in the system contaminating the separating medium and increasing the cut density and medium viscosity, making it difficult to achieve a 10% ash product quality.

3.8 Geological Model

The geological model was prepared by Mr J Sparrow (Pr.Sci.Nat.) as at 31st August 2011 in Minex^{TM} software. The model takes into account all available historical and recent drilling and other geological information as of the 31st August 2011. No changes have been made to the methodology or input data since the previous estimates, with the exception of an additional product being reported for the 2013 Coal Resource estimate.

MSA has reviewed CoAL geological model and conducted interviews with the CP to understand the modelling methodology. MSA plotted the distribution of the boreholes in Datamine and verified the results of the seam thickness variations and resultant volume calculations. MSA has a high level of confidence with respect of the current model and associated resource estimates. A summary of the geological modelling methodology and results are described below:

- The Upper, Middle, Middle Lower, Bottom Upper and Bottom Lower Seam floor elevations have been modelled in order to identify any abrupt elevation changes that would indicate the presence of faulting and also to identify the general dip across the project area.
- The abrupt floor elevation differences clearly illustrate the positions of a number of faults within the project area, most notably over the farm Lukin 643 MS, where a large fault is present, resulting in the upthrow of the Eastern Block of coal, limiting its aerial extent relative to the coal in the Western Block.
- Dolerite dykes, as well as fault planes, were incorporated into the 3D structural model.
- Both the physical and quality parameters of the various seams were modelled by CoAL.
- Grids with a 25 m mesh were estimated using the Minex^{TM} general purpose gridding function using a 2.5 km search radius.
- The model of the physical parameters of the seam was cut along any significant structures, whilst the quality parameters were modelled across it. All physical and quality parameters were plotted and visually inspected to ensure they were acceptable for geological interpretation.
- All boreholes with seam intersection data were used, by CoAL, to generate the physical seam models on which the estimates of seam volumes were based. The volume of the various seam Resources were estimated, by CoAL, using the Minex^{TM} model of the seam thickness.
- The Minex^{TM} modelled (gridded) weighted average raw apparent density (on an air dried basis) was used to calculate the tonnage from the volume. The raw apparent density of every sample is measured in the laboratory on an air dried basis.
- Each of the quality parameters are modelled in Minex^{TM} and the average quality per block is reported in the Coal Resource Statement. Average coal qualities were weighted by MTIS. The qualities for both a 10% ash primary coking coal product and a 30% ash thermal middlings product have been reported.

MSA understands that the geological modelling procedure has remained the same since MINCORP's estimate in 2010. The gridding parameters should be reviewed and optimised as an area for improvement.

3.9 Coal Resource Statement

The Coal Resources for Makhado were estimated and signed off by CoAL's Competent Person, Mr J Sparrow (Pr.Sci.Nat.), CoAL's chief consulting geologist, as at 1st May 2013. The Resource is comprised of the Upper, Middle Upper, Middle Lower, Bottom Upper and Bottom Lower seams only. The Bottom Middle seam has been excluded from all tonnage calculations. MSA reviewed the estimation procedures and independently validated the results. MSA agrees with the Coal Resource and classification as declared by CoAL.

The Coal Resource estimate was classified according to the JORC Code and the Australian Guideline for Estimating and Reporting of Inventory Coal, Coal Resources and Coal Reserves (The Guideline) as at May 2013.

The classification of the Resources into Inferred, Indicated and Measured was based on the recommended distances defined in The Guideline shown in Table 3-4 whilst considering the technical parameters as set out in Section 43 of The Guideline. The resultant classification is shown in Figure 3-3.

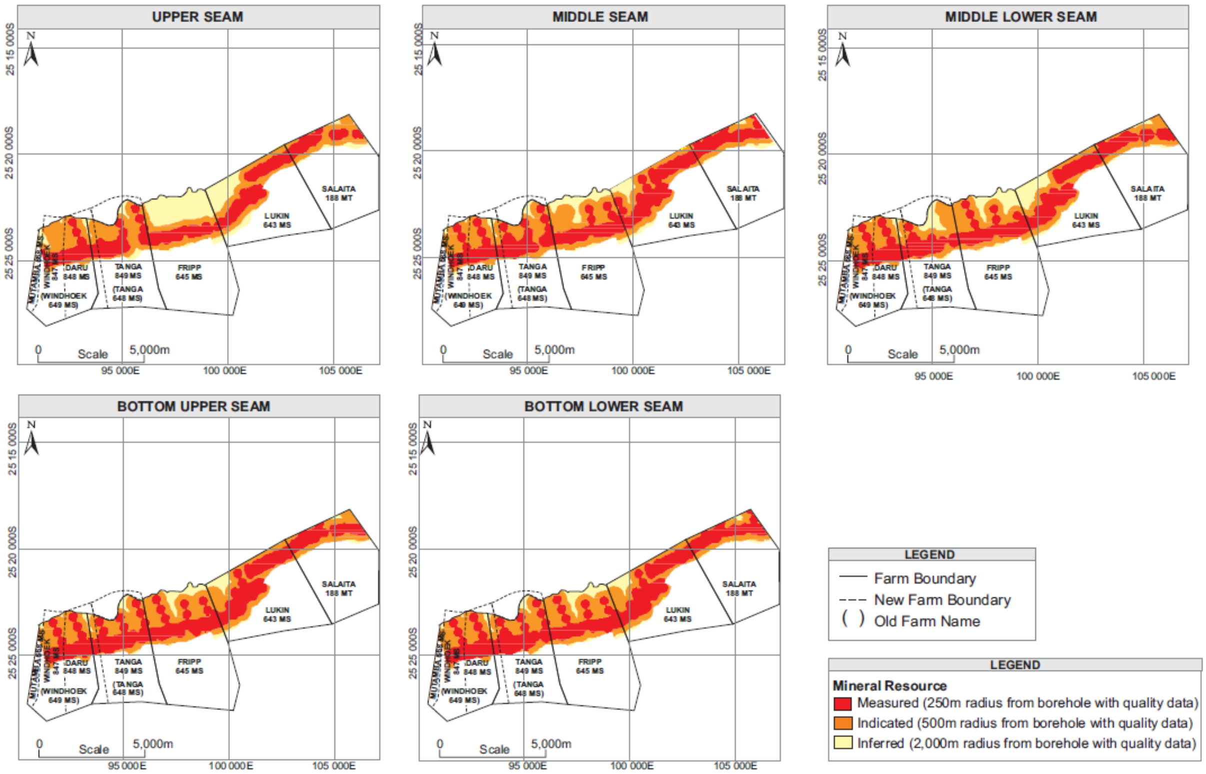
According to Section 4.3, "...Coal Resources should be estimated and reported for individual seams or seam groupings within a deposit. They should also be subdivided and reported on the basis of key variables, such as thickness, depth range, strip ratio, coal quality parameters, geographic constraints and geological or technical considerations. The key variables and assumptions for each deposit should be clearly stated in order to ensure clarity and transparency of the report."

Table 3-4
Coal Resource Categories according to JORC

JORC Resource Category	Max. Distance between Points of Observation with Quality Data (m)	Max. Halo Radius (m)
Measured	500	250
Indicated	1,000	500
Inferred	4,000	2,000

CoAL have also considered the South African Code for the Reporting of Exploration Results, Mineral Resources and Mineral Reserves (the SAMREC Code) which embodies the South African National Standard: South African guide to the systematic evaluation of Coal Resources and Coal Reserves (SANS10320:2004). For the purposes of full and open disclosure, all Resource tonnages quoted also include the associated coal quality, on an air dried basis, for both the primary coking coal product and the middlings thermal coal product.

Figure 3-3
Classification of the Coal Resources, Venmyn 2013



The Resources were presented in the following standard manner for the Makhado project (Table 3-5):-

- Gross Tonnes In Situ (GTIS), application of mineral tenure boundaries and a 0.5 m seam thickness cut-off. This is the simplest form of Resource declaration;
- Total Tonnes In Situ (TTIS), application of geological losses to GTIS; and
- Mineable Tonnes In Situ (MTIS), application of basic mining parameters to TTIS. An example of this would be the application of a minimum seam cut-off for underground mining or the block layout losses for an opencast operation. The MTIS Resources have only considered potential opencastable coal to a maximum depth of 200 m.

MSA is confident that the logging, sampling, data density and distribution are suitable for the Coal Resource estimation.

The air dried density used to calculate the tonnage may be different to the in situ moisture density which may have a resultant effect on the tonnage calculations. According to SANS 10320:2004 "Although the density should be correctly quoted on an in situ bed moisture basis, it is common practise to use the air dried density on South African coal that has a relatively low in situ bed moisture content. The relationship between the air dried moisture content and in situ bed moisture content should be established before this assumption is made."

The relationship between these two parameters was established for the Soutpansberg coalfield from four samples taken on a nearby project. The difference between the two parameters is negligible (1.5%) and therefore it is deemed acceptable to use the apparent or air dried density for tonnage calculations.

MSA considers four samples insufficient to provide conclusive results, however MSA believes that the 1.5% difference will have an immaterial effect on the low inherent moisture reported in the Coal Resource estimate of 0.54%.

The following cut-offs or limits are applied, by CoAL, to the Resources:

- the Resource blocks are limited according to the boundaries of the respective NOPRs;
- the Resource blocks are limited to the seam sub-crop;
- the Resource blocks are limited to the Resource extrapolation limits;
- a minimum seam thickness limit of 0.5 m is applied prior to the reporting of GTIS;
- a limit of oxidation of 30 m, based on the actual results from the bulk sampling pit indicate 18m;
- limit of 20% volatile matter. All material less than 20% volatiles were excluded;
- a limit of 50 m around all known geological structures and dykes;
- maximum depth of 200 m for opencastable Resources in the calculation of MTIS; and
- geological losses of 10%, 15% and 20% are applied to Measured, Indicated and Inferred Resources, respectively, prior to the reporting of TTIS. These losses take into account any unforeseen geological features, such as dykes and faults, which have not been identified in the drilling and which may have a negative impact on the Coal Resources. The percentages applied increase with decreasing borehole spacing.

Table 3-5

Makhado's Coal Resource Statement (Inclusive of Reserves)

Project	Resource Category	Seam	Gross Tonnes In Situ (GTIS) (ad)	Geological Loss (%)	Total Tonnes In situ (TTIS) (ad)	Mineable Tonnes In Situ (MTIS) (ad)	MTIS Attributable to CoAL (74%)	Primary Product – Air Dried Washed Qualities @ 10% Ash: Yield (%)	CV (MJ/kg)	Ash (%)	Vol (%)	Fixed Carbon (%)	Sulphur (%)	Moisture (%)	Middelings Product – Air Dried Washed Qualities @ 30% Ash: Yield (%)	CV (MJ/kg)	Ash (%)	Vol (%)	Fixed Carbon (%)	Sulphur (%)	Moisture (%)	Average Yield (%)
Makhado	Measured	Upper	49 739 069	10%	44 765 162	34 617 700	25 617 098	8.93	31.40	10.0	30.29	58.98	1.16	0.72	21.37	23.25	30.0	24.58	44.79	0.67	0.63	30.30
		Middle Upper	99 369 366	10%	89 432 429	61 795 200	45 728 448	12.89	31.40	10.0	30.19	59.21	1.27	0.60	25.81	23.22	30.0	24.98	44.43	0.80	0.60	38.70
		Middle Lower	50 245 151	10%	45 220 636	35 721 100	26 433 614	15.65	31.44	10.0	30.14	59.29	1.20	0.57	19.95	23.24	30.0	25.11	44.32	0.73	0.57	35.60
		Bottom Upper	94 803 401	10%	85 323 061	61 067 900	45 190 246	21.19	31.42	10.0	29.68	59.77	0.89	0.55	23.21	23.20	30.0	25.02	44.32	0.58	0.66	44.40
		Bottom Lower	108 623 583	10%	97 761 225	71 822 600	53 148 724	13.62	31.44	10.0	29.68	59.77	0.90	0.55	13.64	23.21	30.0	24.63	44.77	0.50	0.60	27.26
	Total / Ave Measured Resource		**402 780 570**	**10%**	**362 502 513**	**265 024 500**	**196 118 130**	**14.86**	**31.42**	**10.0**	**29.94**	**59.47**	**1.06**	**0.59**	**20.54**	**23.22**	**30.0**	**24.86**	**44.53**	**0.64**	**0.61**	**35.40**
	Indicated	Upper	46 302 051	15%	39 356 743	15 854 000	11 731 960	8.43	31.43	10.0	29.13	60.3	1.14	0.57	17.61	23.25	30.0	23.84	45.62	0.72	0.55	26.04
		Middle Upper	72 677 731	15%	61 776 071	16 015 000	11 851 100	11.81	31.42	10.0	29.59	59.89	1.17	0.52	20.52	23.21	30.0	24.71	44.73	0.89	0.55	32.33
		Middle Lower	30 373 388	15%	25 817 380	9 242 000	6 839 080	13.99	31.43	10.0	29.05	60.41	1.20	0.54	18.94	23.22	30.0	24.41	45.05	0.88	0.54	32.93
		Bottom Upper	72 647 666	15%	61 750 516	15 682 000	11 604 680	19.31	31.42	10.0	29.42	60.07	0.90	0.52	21.64	23.20	30.0	24.69	44.66	0.63	0.65	40.95
		Bottom Lower	76 594 050	15%	65 104 943	19 950 000	14 763 000	12.90	31.44	10.0	29.55	59.92	0.90	0.54	12.45	23.21	30.0	24.6	44.78	0.56	0.62	25.35
	Total / Ave Indicated Resource		**298 594 886**	**15%**	**253 805 653**	**76 743 000**	**56 789 820**	**13.19**	**31.43**	**10.0**	**29.38**	**60.08**	**1.04**	**0.54**	**17.86**	**23.22**	**30.0**	**24.46**	**44.95**	**0.71**	**0.59**	**31.05**
	Inferred	Upper	35 934 884	20%	28 747 907	2 560 000	1 894 400	10.15	31.44	10.0	28.98	60.48	1.12	0.54	18.70	23.26	30.0	23.6	45.86	0.69	0.53	28.85
		Middle Upper	20 372 039	20%	16 297 631	94 000	69 560	12.26	31.44	10.0	30.03	59.54	1.15	0.42	18.35	23.19	30.0	24.79	44.7	0.83	0.51	30.61
		Middle Lower	5 883 777	20%	4 707 022	80 000	59 200	12.86	31.43	10.0	28.54	61.07	1.22	0.39	17.08	23.20	30.0	24.82	44.78	0.82	0.40	29.94
		Bottom Upper	16 302 194	20%	13 041 755	4 000	2 960	14.54	31.45	10.0	31.53	57.33	1.05	1.14	25.03	23.23	30.0	24.72	44.36	0.72	0.92	39.57
		Bottom Lower	15 739 238	20%	12 591 390	260 000	192 400	4.09	31.42	10.0	29.96	59.46	0.65	0.58	3.39	23.19	30.0	24.48	45.01	0.10	0.51	7.48
	Total / Ave Inferred Resource		**94 232 132**	**20%**	**75 385 706**	**2 998 000**	**2 218 520**	**9.77**	**31.44**	**10.0**	**29.09**	**60.37**	**1.08**	**0.54**	**17.33**	**23.25**	**30.0**	**23.75**	**45.72**	**0.65**	**0.52**	**27.10**
Total Resource Makhado			**795 607 588**		**691 693 872**	**344 765 500**	**255 126 470**	**14.44**	**31.42**	**10.0**	**29.81**	**59.62**	**1.05**	**0.58**	**19.92**	**23.22**	**30.0**	**24.76**	**44.63**	**0.66**	**0.61**	**34.36**

Notes:

GTIS & TTIS – At minimum seam thickness cut-off of 0.5 m

MTIS – At opencast depth of 20 – 200 m. No underground mining considered

Excludes all coal with volatiles < 20% for primary product

Rounding down of tonnages to 100 t, 1,000 t and 10,000 t for Measured, Indicated and Inferred

Weighted averages qualities calculated on MTIS

All seam widths used are true widths

Yields are obtained from slim-line borehole yields

(ad) – Air dried basis

Excluding yields associated with -0.5mm fraction

MSA was provided with .csv file format exports from Minex™ of the final products for comparison. MSA combined the floor, roof, thickness, raw RD, and product qualities on a 20 m by 20 m mesh as provided by CoAL to form a single spreadsheet summarising the qualities and structural information per point location. The spreadsheet was filtered according to the limits and cut-offs applied to the Coal Resource estimate and tonnages and weighted average were calculated in Excel for comparison.

MSA note that the latest version of the Australian guidelines for the estimation and classification of Coal Resources was issued in March 2014. The current Resource estimation predates this guideline, and no additional drilling was conducted since. For completeness sake, MSA have summarised recommendations made in this guideline which should be incorporated in subsequent Coal Resource estimates:

- A geological model should represent the geological interpretation and honour the data.
    - Visual checks of the data such as by contour plots and sections;
    - Statistical checks between the borehole and model data;
    - Reconciliation with previous models; Validation of the model in relation to local geological understanding and trends; and
    - An assessment of the sensitivity of the model to changes in geological interpretation, modelling assumptions or additional data. And to consider geostatistical classification methods.
- Considering geostatistical methods to aid Resource Classification and to understand the impact on the selected search parameters.
- The guide no longer includes suggestions regarding maximum distances between points of observation for the various confidence categories due to misinterpretation of the guideline.
- Any Resource estimation should be accompanied by an assessment of the most influential risks to that estimation.
- The Estimator must consider quality parameters that may be critical to the mineability and marketability of the coal products from the deposit. This is crucial if the value of the marketable products has an impact on both cut-off limits and reasonable prospects. For example, if washed coal is to be marketed, then product yield should also be considered as a critical parameter in the estimate. If data on product yield are not included in all Points of Observation (for all seams being estimated), then the Estimator should consider downgrading the confidence categories or conversely demonstrate satisfactory correlations between yield and other product parameters (including ash percentage) which can be used to support retention of the confidence categories determined for the in situ coal.
- Reference to the spotted dog type of classification states that: Confidence regarding the extent of a zone of Measured, Indicated or Inferred Resources is always inadequate where there is a lack of support in both X and Y dimensions from adjacent Points of Observation. An isolated point, two connected points or a line of points do not demonstrate continuity in both directions (unless there is Supportive Data within the area of extrapolation).

3.10 Coal Reserve Statement

The results of the DFS have demonstrated that the Coal Resources at Makhado are economically mineable. This study has provided detailed information relating to mining and processing parameters and other modifying factors. Therefore a Reserves statement has been declared for the Makhado Project, as at 1st May 2013. The Makhado Coal Reserve Statement is presented in Table 3-6.

Coal Reserves were estimated and signed off by CoAL's Competent Person, Mr C Bronn, CoAL's Mining Engineer and Optimisation Manager, as at 1st May 2013 and in accordance with the JORC Code.. The Coal Reserves were based upon the block model prepared by Mr B Bruwer, the information to which was originally sourced from the Minex model dated 31st August 2011. The MTIS Resources is significantly different to the MTIS Reserves, due to the fact that the MTIS Reserve only consider coal that is within the pit shells, developed during the mine design. It excludes material that cannot be accessed due to economic or practical mining considerations. This includes the exclusion of the Mudimeli Village.

MSA reviewed the estimation procedures and independently validated the results. MSA agrees with the Coal Reserves and classification as declared by CoAL.

The minimum requirements for the conversion of Coal Resources to Coal Reserves and the resultant declaration and signoff of a Reserve statement requires that a mine plan has been prepared and that the modifying factors have been considered and applied to the Resource for the conversion process. The modifying factors include consideration of the mining, processing, metallurgical, infrastructure, economic, marketing, legal, environment, social and government factors in order to derive an ore Reserve which is demonstrated to be economically extractable in present day conditions. The Coal Reserves were declared on the basis of the recently completed DFS on Makhado Project

According to the JORC Code, Indicated Resources may only be converted to Probable Reserves. Measured Resources may be converted to either Proved Reserves or Probable Reserves. In the case of the latter, Measured Resources would be converted to Probable Reserves in the case when the level of confidence in any one of the modifying factors is not at the required level of confidence for a Proved classification.

In the case of Makhado, the Competent Person has classified all the Makhado Reserves into the Probable category, although 85% of the Resources from which they are derived, are classified as Measured Resources. The reason for this classification relates to the uncertainty around the yields. The yields estimated across the orebody model have been estimated based on slim-line drilling only and using crushing. Recent bulk sampling results at isolated locations across the deposit have suggested that higher yields may be obtained using this different drilling methods and crushing methods, and indeed when the deposit is mined and processed. There is currently insufficient data currently available to accurately prove statistically or geostatistically that the yield across the deposit would be higher than currently estimated and therefore the classification of Probable Reserves have been decided.

3.10.1 Modifying Factors

MSA has reviewed VBKom's Whittle input parameters and optimised pit shell and has also reviewed CoAL's financial model based on the estimated production, mining and processing costs and capital expenditure to demonstrate the economic viability of extracting these Coal Reserves. MSA is comfortable that the modifying factors are reasonable and have been correctly applied in the derivation of Reserves.

The modifying factors applied to derive the Makhado Ore Reserves are as follows:-

- an export/ domestic hard coking coal price of USD225 per tonne for the primary product, at an exchange rate of ZAR7 to the USD. A domestic thermal coal price of ZAR250 per tonne for the middlings product was not considered in the evaluation during the Whittle Pit Optimisation to define the pit size as this exercise was carried out prior to the decision to produce the middlings fraction. The inclusion of the middlings fraction would result in upside potential to the project. Commodity prices and exchange rates used to estimate the economic viability of Coal Reserves are based on long term forecasts applied at the time the estimate was completed. Even though the forecast coal prices have retreated in the short term, the significant depreciation of the South African Rand to ~ZAR14.1 to the USD results in no material changes ;
- an average total cash operating cost of ZAR244 per ROM tonne was utilised;
- processing plant efficiency of 90%;
- an average primary product practical yield of 15% and an average middlings product practical yields of 26% was estimated based on the results from the slim line borehole results. It should be noted that these yields exclude the recoveries for the coal fines and the result of the recent large diameter boreholes results and therefore yields may be higher;
- mining recovery efficiency factor of 92% and geological losses of 5% on the opencast Coal Reserves;
- surface/residual moisture of ~3.0% and inherent moisture of 1.6%;
- assumed contamination of 5% for the opencast Coal Reserves. This figures was based upon industry averages;
- in the estimation of Coal Reserves, MSA assumed that all regulatory applications will be approved and the current approvals will continue to be valid; and
- primary product yield percentages excludes fines recovery. CoAL plans to implement a full fines recovery system in the plant for the -0.500 mm to +0.075 mm fraction. The estimated fines (-5 mm) recovery for the 10% ash primary product are 4.07% of ROM tonnes.

Saleable Coal Reserves are reported on an as sold and air dried basis. No superficial moisture is added as the Saleable Reserves are sold on an air dried basis. For logistical purposes relating to coal transport, the addition of 3% moisture to the Saleable Tonnes is required to account for superficial moisture.

Table 3-6

Makhado's Coal Reserve Statement

Mining Block	Reserve Category	Mineable Tonnes In Situ (MTIS) Reserve (ad)	Geological Loss (%)	Extractable Reserves (t)	Contamination	Mine Recovery Factor	ROM Reserves (t)	ROM Reserves Attributable to CoAL (74%)	Primary Marketable Reserves (t)	Middlings Marketable Reserves (t)
East Pit	Probable	94 585 936	5%	89 856 639	5%	92%	86 801 000	64 232 740	14 773 000	24 330 000
Central Pit		53 472 256	5%	50 798 643	5%	92%	49 071 000	36 312 540	6 747 000	10 560 000
West Pit		40 192 263	5%	38 182 650	5%	92%	36 884 000	27 294 160	4 116 000	9 645 000
Total Makhado Reserves		**188 250 455**	**5%**	**178 837 932**	**5%**	**92%**	**172 756 000**	**127 839 440**	**25 636 000**	**44 535 000**

Mining Block	Primary Product Air Dried Washed Qualities @ 10% Ash							Middelings Product Air Dried Washed Qualities @ 30% Ash						
	Practical Yield (%)	CV (MJ/kg)	Ash (%)	Vol (%)	Fixed Carbon (%)	Sulphur (%)	Moisture (%)	Yield (%)	CV (MJ/kg)	Ash (%)	Vol (%)	Fixed Carbon (%)	Sulphur (%)	Moisture (%)
East Pit	17.02	31.57	10.0	29.69	58.9	1.21	1.18	28.03	23.53	30.0	24.64	44.27	1.27	1.18
Central Pit	13.75	31.28	10.0	29.29	59.1	1.19	1.65	24.52	23.23	30.0	23.82	44.72	1.16	1.47
West Pit	11.16	31.31	10.0	30.29	58.31	1.12	1.41	26.15	23.29	30.0	24.8	43.9	1.04	1.36
Total Makhado Reserves	**14.84**	**31.45**	**10.0**	**29.68**	**59.86**	**1.19**	**1.34**	**25.78**	**23.41**	**30.0**	**24.48**	**44.30**	**1.19**	**1.34**

Notes:

The declared Coal Reserves are based upon Measured and Indicated Coal Resources only.

Rounding down of tonnages to 1,000 t to reflect the relative uncertainty in the estimate may result in adding inconsistencies

MTIS – a 30 m depth cut-off was applied to remove any oxidised material. Only the ore within the pit shells was considered.

Pit depth varies between 197 m (East) to 161 m (Central) and 121 m (West).

All coal with Volatile content <20% excluded.

No moisture correction factor was applied to the ROM tonnes as dry mining methods are to be used.

All product qualities are on an air dried basis.

Practical yields are obtained from the slim-line borehole yields and take into account a 90% plant efficiency.

Primary product yield percentages excludes fines recovery.

Reserve tonnages quoted on an air dried basis

4 MINING

4.1 Introduction and supplied data

No commercial mining has taken place at the Makhado Project to date as the NOMR is still to be executed and registered.

A DFS has assessed the mining of the Makhado Project using opencast mining methods. The DFS details the planned mining design, mining methods, mine scheduling and the proposed processing methodologies for Makhado Project. The LOM for the proposed opencast mining operations is estimated to be approximately 15 years. The LOM schedules, LOM plans, capital costs and operating costs had been provided by CoAL, Caterpillar and VBKom Consulting Engineers (Pty) Limited (VBKom) in January 2013. The results of these studies are summarised in this section.

The project will mine the coal from three opencast pits (referred to as the West Pit, Central Pit and East Pit) located east of the N1 National Road and to the south of Provincial Road D745. Intermediate crushers will be located to the south of each of these pits. The coal processing plant will be located to the south of the East Pit, so as to minimise the haulage distances. The East Pit will be the largest pit with the greatest portion of the Coal Reserves.

The planned opencast mine is to mine at a ROM production rate averaging approximately 12.6 Mtpa ROM to produce approximately 2.3 Mtpa of primary product (10% Ash coking coal, including fines) of which 1 Mtpa has been earmarked for the local market and the remainder for export. In addition to coking coal, the Makhado Project will also produce 3.2 Mtpa of middlings secondary product (maximum 30% ash, thermal coal) for power generation. This is anticipated for sale domestically as a domestic thermal coal product.

The area covered by the NOMR application covers seven farms with a combined area of 7,634.32 ha with an estimated Coal Reserve of 170 Mt ROM in the Soutpansberg coalfield. The mineral to be mined is coal found in the Madziringwe Formation. Within this coal zone the total estimated Resource is 860 Mt, which may allow for future expansion. The deposit extends from a sub-outcrop at a depth of less than 30 m to over 300 m on some of the farms.

For the base mine modelling case, a depth cut-off of 200 m has been used as the maximum mining depth, and this has been calculated to the floor of the Bottom Lower Seam. This cut-off limit is based on a strip ratio of 7:1 bcm per ROM tonne coal. The seams included in the mineable Resource are:

- the Upper Seam;
- the Middle Seam;
- the Middle Lower Seam;
- the Bottom Upper Seam; and
- the Bottom Lower Seam.

The mining method selected is truck and shovel opencast mining. The overburden removal will be independent of the coaling operation in that the burden benches will be horizontal and unaffected by the dip of the coal until the upper coal horizon is reached. The mining operation will be contractor-based with one local opencast mining contractor having provided a quotation for their services to CoAL. The mining equipment will include a conventional truck and shovel fleet, sized according to the outcomes of the current mine planning and scheduling study.

A dataset for the project was provided during meetings held at CoAL's head office in Johannesburg as well as through FTP and Dropbox sites, the latter of which was setup by CoAL.

The following data and reports were used for the review:

- Independent Competent Persons Report on the Makhado Project of Coal of Africa Limited. Venmyn Deloitte (Pty) Ltd (Venmyn). May 2013.
- Makhado Feasibility Report. Geology and Mineral Resources: Chapter 4. Coal of Africa Limited. January 2013.

MSA has accepted the information and data provided by CoAL in good faith and places reliance on CoAL that all technical information provided to MSA is both valid and appropriate for the purpose of undertaking this review and compiling this report.

4.2 Material Classification

All the material mined in the pit areas has been divided into the following categories for descriptive purposes:

- **Topsoil**: Assumed to be the topmost 0.5 m of the overburden calculated from the topographic surface coordinates and elevations provided;
- **Softs (Overburden)**: Material between the base of the topsoil and the top surface of the hard overburden. This material has been classified as free dig material but does contain layers of calcrete that may need blasting;
- **Oxidized Horizon**: Material occurring in a layer or zone that is less than 30 m below the topographical surface and includes all coal horizons from the mineable Resource that fall within this zone;
- **Hards (Overburden)**: Material that requires blasting that occurs between the base of the weathered horizon and the top of the first coal seam encountered;
- **Coal Seam**: Material that has been identified by the geologist as forming the mining Resource and converted to a ROM Resource using the aforementioned modifying factors. In the case of Makhado, this is a zone in which there is more coal than rock and is deemed to be a seam;
- **Parting**: The material encountered between successive coal layers;
- **Inter-burden**: In the case of Makhado this is a zone between seams where there is more rock than coal and by virtue of its in situ position is referred to as inter-burden;
- **Overburden**: A collective term referring to all the material occurring above the topmost coal horizon or seam and includes topsoil, soft overburden and hard overburden;

- **Waste**: A collective term referring to all non-coal material and includes topsoil, soft overburden, hard overburden and inter-seam partings;
- **Discards**: A collective term referring to all the non-coal material within the coal seam and that portion of coal within the coal seam that is not deemed to be a coking coal product that is separated from the product by the processing plant;
- **Carbonaceous waste**: A collective term referring to all inter-seam partings and discards that contain carbonaceous or coal material; and
- **Inert waste**: A collective term referring to all waste that does not contain carbonaceous material. For the purposes of this project this includes topsoil, soft overburden and hard overburden only.

4.3 Mining Method and Blasting Technology

The Makhado Project is being considered as an opencast mining operation using a modified truck and shovel terrace mining method with sequential pushbacks to economically extract the multiple and dipping coal seams. The Makhado orebody is unique in South Africa mainly because of steeply dipping coal seams. At Makhado the dip varies between 4° and 18° with an average of approximately 12°. The majority of South African surface coal mines are strip-mining operations on seams dipping at less than 8°. Mining of such steeply dipping coal seams is a tried and tested methodology mainly utilised in Australia and Indonesia (Wahana Coal Mine Project), where the truck and shovel opencast mining method has been applied successfully in conjunction with through-seam blasting technology (in South Africa this technology is known as in-situ blasting).

A truck and shovel mining operation has been selected due to the structural nature of the deposit and to reduce the visual and noise impact from the mining operation compared to the use of a dragline shovel. Three mining methods were considered and the Modified Terrace option was selected due to the improvement in safety of the operation, the space created for early in pit overburden disposal and the relatively concentrated mining activities.

To access the opencast Coal Reserves, topsoil must initially be stripped to a depth of 1 m by a truck and shovel operation and stored for later rehabilitation. Initial topsoil stripping will be done by utilising contractors. Overburden and interburden stripping is then to be performed by truck and shovel fleets. Separate coaling fleets will transport the coal from the pit to the ROM tip.

CoAL had indicated that they plan to start mining topsoil, soft and hard waste in 2018, with a target to produce first coal early in 2019. Topsoil will be stockpiled for later rehabilitation. Waste overburden and interburden will be dumped on an allocated waste dump to be used for in pit backfilling.

Coal will be fed to a shovel by a track type dozer pushing in parallel to the coal seam. Coal will also be fed by a hydraulic front hoe-type shovel by pulling the coal off the benches. Conventional terrace mining will be undertaken as and when the dip angle affords. In actual practice, a modified combination of terrace mining and strip mining system will be undertaken on the dip and along strike as far as conditions will allow.

The main difference between the conventional drill and blast practice and the through-seam blasting technology, is in the blasting that specifically targeting certain horizon without much disturbance on the coal horizon. This has been successfully implemented in similar dipping seam deposits as those found in Wahana, where the company, Leighton Contractors and Orica Mining Services, increased the production rates by implementing a more efficient blasting method. The through seam blasting technology would involve the following:-

- the integration with a gamma density logging technology to effectively detect seams and geological strata from blastholes, design and build an accurate coal model with a 20 cm minimum coal height;
- load blasts on an operational scale using i-konTM electronic detonator systems or an equivalent system;
- precisely load the bulk explosives and crushed stemming material based on the gamma density logging results. The explosives are charged in such a way that the coal seam would have the minimum disturbance and the interburden is loosened up; and
- ensure delivery of effectively broken material for the excavator fleet without coal seam dilution.

To employ this method, it is crucial to accurately identify the location of the roof and floor of the coal seams in relation to the blasthole collar. Hence to achieve this, a representative number of blastholes are logged using either natural gamma or density gamma probe in each blast hole. Based on the foregoing, an updated coal model is prepared which allows the appropriate design of explosives in terms of quantity and location in the blasthole to sufficiently break the rock and not damage the coal seams. The loading would normally vary due to the changes in the location of the coal seams, the proximity of each explosives deck in the blastholes and the interburden strata rock properties. The loading design follows a loading guideline that would have been developed from the predictive blast modelling.

Hence the selected mining method would involve the removal of topsoil, and the blasting and stripping of the overlying rock material (overburden) to expose the coal seams. Five primary procedures will be implemented during the mining process including:

- removal and stockpiling of topsoil;
- stripping and stockpiling of overburden;
- through seam basting technology;
- excavation of coal and backfilling of pit with overburden material once enough room has been created in the pit;
- replacement and levelling/shaping of topsoil; and
- re-vegetation and maintenance of levelled areas.

4.4 Life of Mine Plan

A LOM schedule for the anticipated Makhado production has been developed and scheduled by VBKom in January 2013. The current LOM plan for Makhado Colliery only focuses on exploiting the opencastable Coal Reserves at a designed capacity of 12 Mtpa at full production capacity. In the LOM production profile, the effect of the mining methodology is clearly evident in the waste-mining profile, with the three distinct phases starting with the low stripping in the early years. The reader should note the low to moderate stripping of an annual 12 to 20 million cubic metres (Mm^3) of overburden over the first five years. The stripping ratio increases from year six onwards as a result of mining the second pushbacks in the central and east. Overburden is mined at between 35 and 40 Mm^3 annually. The increase in strip ratio requires an increase in mining fleet capacity.

The highest strip ratio in the later part of the open pit mine life is a direct result of the last pushbacks. Note the overburden stripping of between 40 and 60 Mm^3 per annum. Initially, Makhado was designed as an owner operated mine and it was envisaged that the pushbacks with the high stripping ratios be mined with a contractor fleet additional to the forecasted initial mining fleet. However, subsequently, CoAL has made a management decision to have contractor operated mining activities. Hence the capital requirements on the mining fleet and the quantum of such a fleet required for the different phases would have to be dealt with the contractor. The only risk that comes with this decision is that CoAL should select a suitable contractor with the suitable skills, earthmoving equipment and balance sheet.

It is important to note that the LOM schedule includes only Coal Resources and Coal Reserves that are within the optimal pit shell as determined by the Whittle optimisation exercise. It should be noted that because of the better quality coal in the East pit, this pit contributes approximately 50% of the ROM production.

The LOM is expected to be approximately 15 years based on the technical and economic assumptions utilised in the Whittle optimisation exercises. The flexibility that is introduced by having different pushbacks during the LOM would provide CoAL an opportunity to reconsider the economic implications should the market conditions changes drastically.

4.5 Mining Conclusions

The Definitive Feasibility Study carried out by CoAL is a thorough one which considers all relevant aspects in a study of this nature. Where more detail was required due to the risk posed, they have more thoroughly investigated those areas. There are however a few areas where it is considered by the reviewer that potential risks still exist.

The size of the intended operation is a potential risk to the project, as a mine producing 12.6 Mt per annum is a large operation and the capital expenditure is significant. The biggest opencast coal mines in South Africa mine operate at 12.5 Mtpa to 16 Mtpa, with only Grootegeluk producing more. A lower risk approach would be to develop the mine in phases, building up to full production.

The mining plan to mine in a series of "pushbacks" is not a commonly used method in coal strip mining, it is generally accepted that the strip ratio over the life of an opencast coal mine is averaged out. In the plan put forward there will be three phases of mining in each pit with the subsequent phases being more expensive than previous cuts.

The amount of material that is required to be stockpiled outside of the pit is another risk. The intention is to build 72 to 100 m high stockpiles to store the overburden, which is very high considering the limited space to build these dumps. As a comparison, the highest overburden dump at Grootegeluk coal mine is 80 m, with most of the old dumps having been decommissioned at 50 to 60 m high. There are also risks of building these stockpiles on the highwall of the pit, and geotechnical investigations will be required to determine the distance that these need to be from the highwall. A future risk is placing stockpiles on ground that may be later mined by underground methods.

In pit disposal is demonstrated graphically in the DFS, but the process is not explained properly. There are numerous considerations which need to be taken into account when stockpiling material in a dipping pit that is mined as a series of pushbacks.

5 COAL PROCESSING

5.1 Introduction and supplied data

DRA Mineral Projects (Pty) Ltd (DRA) was contracted by CoAL to carry out the portion of the feasibility study covering the coal handling and processing plant (CHPP) for the Makhado Coal Project. The plant needs to be efficient in terms of energy and water usage and should apply technology that is proven in the coal processing industry.

5.2 Coal Washability Characteristics

5.2.1 Bulk Sample

In order to improve the confidence levels on geology and process and to produce a coking coal sample to test at ArcelorMittal South Africa, a bulk sample was mined and sent to Tshikondeni for processing. Note that a 10% ash product was not achieved in the bulk sample runs; with the product ash ranging between 11.6% and 16.2% and at a weighted average of 13.34% for the minimum operating RD of 1.30. The failure to achieve a 10% ash product was due to the Tshikondeni wash plant not being optimised for the Makhado coal and specifically the processing for the fines and ultra-fines where most of the Makhado vitrinite-rich product occurs. The Tshikondeni wash plant does not have a dedicated section for the processing of the fines (typically the -1.0 to +0.25 mm material) and applies froth flotation to material too coarse for flotation (-1.4 to +0 mm), resulting in huge product losses to the waste streams. A 60 t sample was split from the bulk sample and sent to the Exxaro Pilot Plant for further test work.

The bulk sample fractional yield indicates a similar trend from low to high yield for the coal from coarser to the finer fractions respectively. The bulk sample theoretical yield is however significantly lower than the yield from the large core borehole sample.

Some of the reasons for the lower yield, but not limited to, are:

- Over blasting of the coal seams resulting in high level of contamination;

- Further contamination due to large equipment loading of roof and floor material in a small box cut area.

Pilot plant DMS test work on the bulk sample resulted in an 11.4% ash product at a yield around 10%. (Ref: Exxaro EX1376). The test work was based on a single stage wash at a medium RD of 1.34, it is expected that a product with ash content closer to 10% ash can be achieved with a two stage DMS circuit comprising of high gravity (HG) wash followed by a low gravity (LG) wash. The HG wash in this configuration plays a destoning role prior to final separation in the LG washing stage.

The -1 to +0.3 mm fraction tested through the spirals did not produce a 10% ash product; the best quality achieved was around 12% ash at 35% yield.

5.3 Laboratory and Pilot Plant Test Work

DRA previously conducted a study for CoAL on the Vele Colliery. The data (characteristics and properties) collected during the study were compared with the current data available for the Makhado Project, and the exercise indicated that the two ore bodies seem to have some resemblance. Based on this, DRA decided to review some of the typical equipment selections (spirals, flotation cells) that were considered during the Vele study which had later raised some concerns after tests were carried out on Makhado material. A reflux classifier was therefore selected instead of spirals for the processing of fines, and the Jameson flotation cells were chosen for primary flotation followed by conventional cells as scavengers for the processing of slimes. The degree of confidence in the selection of these equipment types was drawn from some recently-built coking-coal plants in Australia, which have found these units to be successful. The filtration technologies considered for the project are also not commonly applied in the South African coal industry, but these have proven to be successful in overseas coal plants. These are the Bokela Disc Filter for the filtration of flotation concentrate and the Phoenix belt filters for the filtration of the fine process tailings.

However, the tailings filter option was reconsidered after test work results were received from Phoenix on the belt press filter. A flocculant consumption rate of 190 g/t was reported, and this is much higher than the 50 g/t (vendor claimed) for the Bokela filter for the same application. As a result of this, arrangements were made to run tests on a flotation tails sample (produced by Betachem) from the Makhado coal using the Bokela in order to confirm the claimed flocculant consumption figure of 50 g/t. A flocculent consumption rate of 40 g/t was reported after test work and as a result, the four Phoenix belt press filters were replaced with a single Bokela disc filter (L4). Another factor which supports the selection of the Bokela is the change made to the plant layout, which allows for the flotation tailings filter cake to be diverted to the thermal conveyor if it meets the thermal product specification. The Bokela filter is expected to produce a product with lower surface moisture content compared to the Phoenix, and this will assist in fulfilment of the overall thermal product moisture specification. The Bokela filters (and the Phoenix filters) are reasonably priced compared to plate frame and press filters, and offer better process control due to their ability to operate continuously (instead of batch). Some of the equipment selected for the project is new to the South African industry; hence it is critical for tests to be conducted on these units to verify their suitability for the Makhado coal. The plan was to have the tests done in parallel with the planned bulk sample test work at Tshikondeni Mine and most of the tests were completed as planned. The list of tests and exercises submitted to CoAL which needed to be incorporated into the bulk sampling test programme was as follows:

- Confirm coal characterisation - liberation test procedure from 50 mm down to bottom wash size using the same sample (using same density cuts as the initial liberation tests). Full PSD, solids SG, bulk density, angle of repose, moisture content, ash content, etc.;
- Flotation tests - Jameson cells, Microcells and conventional cells;
- Reflux classifier tests – to use the new generation reflux classifier unit;
- Spirals tests;
- Thickening tests – flotation tails slurry required;
- Phoenix tails filter – flotation tails slurry required at 30% - 40% solids;
- Bokela concentrate filter – flotation concentrate slurry and tails required and;
- Plate and frame filter test work on flotation concentrate and tails.

5.4 Process Selection and Basis

The plant is designed to accommodate different yielding material with the West Pit yielding the lowest product and the East, the highest. According to the latest production schedule document received, labelled "Copy of Production LONG_502 dataT_graphed_02 – delayed calendar_BERNIES CAPEX cut INCL FINES" (date received 01/06/2013), the plant will receive a blend of ore from the East, West and Central Pits for the major duration of the life of mine. The ore from these three sources is treated according to the mining production schedule where the East coal is first treated for the first two years, followed by a blend of the East and Central coal and finally a blend of all three pits for the last six years of the life of mine. The average annual ROM supply from the pits to the processing plant is 12,330,442 t (calculated from taking an average of the different ROM figures for each year), and the maximum annual ROM supply is read from the same production schedule as 12,600,000 t. Therefore, if during actual mining it happens that more of the material from the West is frequently sent to the plant, the plant will frequently operate at the higher throughput limit compared to when say more of the East material is sent to the plant.

The process was designed employing cost-effective and well-proven technologies while conforming to the required operational capability. Additionally, the following key points were considered during the development of the process plant's design:

- short construction time;
- minimum plant footprint;
- adequate maintenance access to key equipment;
- simple and safe operation;
- variability in the quality of the coal seams;

- beneficiation of the ultra-fines;
- zero effluent / low water usage; and
- sensitive environmental matters.

5.4.1 DMS Circuit

The Dense Media Separation (DMS) circuit consists of High Gravity (HG) and Low Gravity (LG) cyclones. The feed for the HG cyclones is received from the feed preparation screen by two DMS mixing boxes filled with circulating magnetite medium from a steady head box. The magnetite and feed solids slurry mixture is pumped to medium cyclones (one per mixing box) which produce floats and sinks streams.

The HG cyclone overflow and underflow both discharge to drain and rinse screens for medium recovery. The solids (floats) obtained after the cyclone overflow stream has passed through the drain screen are directed to the LG mixing boxes. The cyclone underflow solids (sinks) report directly to the plant-discard conveyor after passing over the drain and rinse screen. The medium drained from the solids in the HG circuit is gravitated to the HG circulating medium (CM) tank for recirculation. A small portion of the drained medium is bled to the dilute-medium circuit for medium densification and to prevent a build-up of fine coal contaminants in the circulating medium. The HG floats which report to the LG mixing box also go through the same process of separation through the LG cyclones, producing a coking product stream as floats, and the thermal product, as sinks. The floats and sinks streams are passed over separate drain and rinse screens for medium recovery. The medium drained from LG drain and rinse screens reports into a LG circulating medium tank for recirculation. The resulting clean floats and sinks solids that come off the screens after the drain & rinse process are passed through separate centrifuges for dewatering before reporting to the coking and thermal product conveyors respectively.

Dilute medium arising from the rinsing sections of the HG and LG drain and rinse screens as well as the densification circuit is collecting in a common dilute medium (DM) tank and pumped to two back-to-back magnetic separators operating in parallel. The over-dense medium recovered by the magnetic separators is split into two streams which are returned to the HG and LG circulating medium tanks. A portion of magnetic separator effluent recycles to the HG sinks, LG floats and LG sinks drain and rinse screens as primary spray water. The remaining magnetic separator effluent gravitates to the module feed conveyor head chute for use as pulping water.

5.4.2 Sampling and Quality Control

The process plant design incorporates sampling devices collection of routine samples at various key points. The samples are collected from conveyor belts using cross-cut hammer samplers. The basic purpose of sampling is to obtain a representative portion of a stream or bulk material which when analysed will provide results that are representative of the source stream/material.

The key streams typically sampled in most processing plants are:

- the plant feed;
- the plant products, and
- the plant discard streams.

In coal processing the feed is usually sampled for quality analysis (ash, CV, sulphur, etc.), particle size distribution analysis as well as float and sink analysis. The product streams are sampled for numerous purposes such as process control, quality tests, product certification and size analysis. The discards streams are generally sampled for float and sink analysis to get a measure of the quantity of the product coal misplaced to the discard due to the inefficiency of the separation process. The process plant operation team normally decides when samples should be taken and for what purpose. The decision is mainly based on the employer's quality control and management policy. Grab samples (once-off samples) are sometimes also collected at any point in the process to determine certain parameters at a specific point/ moment or for metallurgical test work. A laboratory is required to prepare and process the samples collected in the plant and it should be equipped with the necessary equipment to at least provide for a "general analysis". The "general analysis", also known as the proximate analysis, provides the following information:

- ash content;
- sulphur content;
- calorific value;
- volatile matter; and
- fixed carbon.

When sampling for characterisation purposes, the following information is generally required:

- material particle size distribution (PSD);
- washability data (sinks and float analysis);
- abrasion and grindability index;
- swelling and Roga index (for coking coal properties);
- phosphorus;
- ash fusion; and
- moisture.

6 ENGINEERING AND INFRASTRUCTURE

The Makhado Project footprint is in an environmentally and ecologically sensitive area. Thus the necessary diligence was exercised when consideration was given to the location, placement and orientation of the mine infrastructure area (MIA) facilities.

Energy efficiency is considered when orientating and designing buildings. Office buildings are where possible, north-facing.

The impacts on environmental conditions such as prevailing winds, dust and sun were considered where possible when orientating and positioning all facilities. This is particularly relevant to:

- workshop facilities orientated to minimise the ingress of wind and dust;
- offices close to stockpile areas;
- all facilities, including roads, are designed according to the flood and rainfall protection levels given in the Guidelines for Human Settlement Planning and Design; and
- water recycling and water reuse were the basis of design and will be implemented across all facilities.

6.1.1 Fit for Purpose Maintainability of Facilities

The infrastructure has been designed to support the mining operation with maximum availability and utilisation. The vehicle support and stores buildings will be provided by the mining contractor but will align with the operating philosophy of the mine:

- the physical size of each facility is based on the functional requirements of the facility;
- maintenance facilities to consider the life-of-mine (LOM) requirements when sizing all current and future maintenance facilities' requirements;
- vehicles access into workshops and adequate crane clearance;
- the tyre change facility to be adequately sized to accommodate tyre storage;
- fuel and lube storage volumes to be aligned with the mine's operating requirements and balanced with in-pit and service vehicles' fuel consumption expectancies;
- the need for a hot-seat shift change facility or operations centre to be aligned with the mine's operating philosophy;
- storage areas for maintenance tooling to be considered for each maintenance facility and where appropriate, central storage also be considered to minimize labour and storage space requirements;
- a hard park area will be designed to allow parking of mining equipment;
- repair areas to be provided for all equipment in various workshops and facilities;
- travel distances between the administration, change house, offices and workshop facilities to be optimised to facilitate efficient operation and management;
- access within the workshop, within the storage areas and between these facilities to be provided for personnel to facilitate efficient operation;
- the heavy mine vehicles (HMV) wash facility to be located in the vicinity of the entrance to the HMV workshop to minimise the volume of dust / mud carried onto the terraces;
- lubrication facilities to be located in the vicinity of the main workshop to optimise storage and distribution infrastructure;
- tyre-change facilities to be located close to other maintenance areas with sufficient space to handle tyre maintenance and tyre-changing operations.

- workshop floors to be painted to designate the following:
    - working areas;
    - walkways; and
    - storage.

6.1.2 On-Site Infrastructure

The infrastructure has been designed to support the mining operation with a high degree of availability and utilisation, whilst striving to remain within the "fit for purpose" mould.

Infrastructure details the following aspects:

- roads and terraces:
- Nzhelele main road;
- on-site haul roads;
- on-site service roads;
- buildings:
- administration;
- service and workshops;
- stores;
- satellite buildings;
- explosives;
- shift change facility;
- water-bowser refill;
- electrical reticulation; and
- control and instrumentation.

6.1.3 Engineering Maintenance Philosophy

It is the philosophy of CoAL and the Makhado Project that maintenance of its production assets will be performed where such activity is desirable for:

- the preservation and protection of the health and safety of employees;
- the preservation of the natural environment in which activities take place; and
- the preservation of the health and safety of the communities in which activities take place.

And that the maintenance is conducive to enhancing company profits by:

- optimising asset life;

- optimising asset operating costs; and
- optimising asset productivity.

6.1.4 Bulk Services

Bulk Water

Bulk water supply has been given the deserved attention in this DFS, due to the scarcity of water and the risk that it poses. More than 30 possible water supply options were identified, 11 were further investigated in this report after discarding others due to various reasons. The investigation of the supply options has been carried out to support the Makhado Bulk Water Infrastructure Development Plan which is an important aspect of this project. The costs of the various solutions put forward for Bulk water supply are high, but due to water scarcity this is to be expected.

Bulk power

All possible supply options were considered taking into account the constrained ESKOM infrastructure. The maximum load available for use by Makhado is 10 MVA which is able to support the project with Power Factor Correction equipment installed at the 11 kV Main Intake Substation. This covers the worst case scenario and this may improve with the upgrade of ESKOM infrastructure in the future.

7 SUMMARY OF CAPITAL AND OPERATING COSTS

7.1 Capital Costs

The capital cost estimates for the three pits is detailed in the Table 7-1, Table 7-2 and Table 7-3. The East Pit is the Base Case and the Central Pit comes into production in 2021 followed by the West Pit production start in 2027. Capital costs are in July 2015 money terms. The total capital spend over the life of the Project is ZAR6.39 billion.

Table 7-1
Capital Cost - East Pit (Real)

Item	ZAR million	US$ million (R14.00:US$1.00)
Bulk Services	326.7	23.3
Mine Infrastructure	779.0	55.6
Surface Mining East Pit	310.5	22.2
ROM Handling	197.3	14.1
Processing Plant	1,161.5	83.0
Discard Handling	32.5	2.3
Product Handling	525.1	37.5
Indirect Costs (Owner’s Team)	484.4	34.6
Contingencies	349.3	25.0
Land Acquisition	32.3	2.3

Working Capital and Commitments	345.3	24.7
Total Capex	**4,543.9**	**324.6**

Table 7-2
Capital Cost – Central Pit (Real)

Item	**ZAR million**	**US$ million (R14.00:US$1.00)**
Geology	8.3	0.6
Building Works	5.6	0.4
Consultants	45.6	3.3
Electrical Reticulation	32.4	2.3
Control & Instrumentation	12.6	0.9
Fencing	0.7	0.0
Material Handling (Crushing, Screening, Tips, Conveyors)	223.8	16.0
Pit Dewatering	10.2	0.7
Roads	67.2	4.8
Sewage	0.1	0.0
Stockpiles	147.3	10.5
Terraces	81.1	5.8
Water Management (Pollution Control)	34.2	2.4
Water Reticulation	34.8	2.5
Workshops & Vehicle Services	48.8	3.5
Contingencies	77.2	5.5
Total Capex	**829.8**	**59.3**

Table 7-3
Capital Cost – West Pit (Real)

Item	**ZAR million**	**US$ million (R14.00:US$1.00)**
Geology	46.0	3.29
Building Works	42.9	3.07
Consultants	0	-
Electrical Reticulation	32.6	2.33
Control & Instrumentation	12.5	0.89
Fencing	0.7	0.05
Material Handling (Crushing, Screening, Tips, Conveyors)	173.6	12.40
Pit Dewatering	10.1	0.72
Roads	104.3	7.45
Sewage	68.45	4.89
Stockpiles	254.5	18.18
Terraces	79.0	5.64
Water Management (Pollution Control)	10.0	0.71

Water Reticulation	41.5	2.97
Workshops & Vehicle Services	57.9	4.13
Contingencies	84.8	6.06
Total Capex	**1,018.8**	**72.77**

7.2 Operating Costs

The average on-mine operating costs are R797 (US$56.96) per saleable hard coking coal tonne. Thermal coal is treated as a by-product and is therefore a credit to the cost. On-mine operating costs are defined as costs including mining, processing, maintenance, logistics, overheads and in-direct costs, as out in Table 7-4 below.

Distribution costs (rail and port charges) on the export of coking and thermal coal through Maputo amount to ZAR726 (US$51.86) per tonne of hard coking coal.

Table 7-4
Total Mine Operating Costs (Base Dated July 2015)

Description	ZAR/ROM Tonne	ZAR/Saleable Hard Coking Coal Tonne	US$/ Saleable Hard Coking Coal Tonne (R14.00:US$1.00)
Mining	252.88	1622.85	115.92
Process	16.83	108.02	7.72
Site Logistics	0.23	1.49	0.11
Mine Overheads	8.09	51.92	3.71
Thermal Coal Revenue		-987.00	-70.50
Total Mine Gate Costs	**278.03**	**797.28**	**56.96**

8 MINERAL ASSET VALUATION METHODOLOGY

The generally accepted approaches that may be used to derive a value for a mineral asset are summarised in Table 8-1.

Table 8-1
Valuation approaches

Approach	Method
Market based	Comparable Sales/Transactions Net Metal Value per unit of metal Value per Unit Area Market Capitalisation
Income based	Cashflow Real Option Monte Carlo Analysis Probabilistic Methods
Cost based	Appraised Value based on expenditures (replacement cost)

	Multiples of expenditure
	Geoscience Factor

Of these, the market approach is the only direct measurement of market value and is generally one of the preferred approaches. All the other methods determine a value based on technical analysis of some aspects of the subject property. Such a technical value then has to be adjusted by a competent valuer to reflect an estimated Market Value.

The most appropriate application of the various methods depends on careful consideration of several factors and the VALMIN Code 2005 states that:

"The Expert and Specialist must make use of valuation methods suitable for the Mineral or Petroleum Assets or Securities under consideration. Selection of an appropriate valuation method will depend on such factors as:

- *the nature of the Valuation;*
- *the development status of the Mineral or Petroleum Assets, and*
- *the extent and reliability of available information."*

The VALMIN Code 2005 classifies the level of asset development according to the following categories:

"Exploration Areas" are properties where mineralisation may or may not have been identified, but where a Mineral Resource has not been identified.

"Advanced Exploration Areas" are those where considerable exploration has been undertaken and specific targets have been identified that warrant further detailed investigation, usually by drilling, trenching or some form of detailed geological sampling. A Mineral Resource may or may not have been estimated but sufficient work will have been undertaken on at least one prospect to provide a good understanding of the type of mineralisation present and encouragement that further work will elevate the asset (or a part thereof) to the Resource category.

"Pre-Development Projects" refers to properties where Mineral Resources have been estimated (possibly incompletely) but where a decision to proceed with development has not been made. Properties at the early assessment stage, properties for which a decision has been made not to proceed with development, properties on care and maintenance and properties held on retention titles are included in this category if Mineral Resources have been estimated, even if no further valuation, technical assessment or advanced exploration is being undertaken.

"Development Projects" are properties for which a decision has been made to proceed with construction and/or production, but which have not been commissioned or are not operating at design levels.

"Operating Mines" refers to mineral properties which have been commissioned and are in production.

The various recognised valuation techniques attempt to provide the most accurate estimate of the asset value in each of these categories of project maturity. In some instances, a particular mineral property or project may include assets that logically fall under more than one of these categories.

A guide to the use of the different approaches is summarised in Table 8-2.

Table 8-2
Valuation approaches

Valuation Approach	Exploration Areas	Advanced Exploration Areas	Pre-Development Projects	Development Projects	Operating Mines
Market based	Widely used	Widely used	Quite widely used	Quite widely used	Less widely used
Income based	Not generally used	Not generally used	Less widely used	Widely used	Widely used
Cost based	Quite widely used	Quite widely used	Less widely used	Not generally used	Not generally used

The valuation must reflect the perceived "fair market value", which is described in Definition 43 of the VALMIN Code 2005 as *"the amount of money (or the cash equivalent of some other consideration) determined by the Expert in accordance with the provisions of the VALMIN Code for which the Mineral or Petroleum Asset should change hands on the Valuation Date in an open and unrestricted market between a willing buyer and a willing seller in an 'arm's length' transaction, with each party acting knowledgeably, prudently and without compulsion"*.

Where previous and future committed exploration expenditures are known, or can be reasonably estimated, the Multiple of Exploration Expenditures (MEE) method can be applied to derive a cost-based technical value. The method requires establishing a relevant Expenditure Base (EB) from past and future committed exploration expenditure. A premium or discount is then assigned to the EB through application of a Prospectivity Enhancement Multiplier (PEM), which reflects the success or failure of exploration done to date and the future potential of the asset. The PEM usually ranges between 0.2 and 5.0, but can be as low as 0 and as high as 20. The lower factor would reflect disappointing exploration results and the higher identification of potentially economic mineral resources. The basic tenet of this approach is that the amount of exploration expenditure justified on a property is related to its intrinsic technical value. This reasoning is usually valid in a qualitative sense, but the quantity (i.e. the actual amount expended) may vary greatly for properties of similar intrinsic value, hence the experience of the valuer in carefully weighing up the PEM and the final result is of great import. The MEE method is best applicable to Exploration and Advanced Exploration Areas.

Where Comparable Transactions relating to the sale, joint venture or farm-in/farm-out of mineral assets are known, such transactions may be used as a guide to, or a means of, valuation. For a transaction to be considered comparable it should be similar to the asset being valued in terms of location, timing and commodity, and the transaction can be regarded as of "arm's length". The Comparable Transactions method is best applicable to Exploration and Advanced Exploration areas, and Pre-Development Projects. Its application to more advanced mineral assets is generally restricted to recent sales (whole or part) of the actual assets under consideration.

Where a comparable (same definition as above) joint venture agreement has been negotiated, the Joint Venture Terms (or Farm-in/Farm-out) valuation method may be applied. In a typical staged earn-in agreement, the value assigned to each of the various stages can be combined to reflect the total, 100% equity, value. That is, the 100% equity value is the sum of all successive stages of earning in.

The equity stake that the Farminor (buying into the asset) acquires at any earn-in stage of the joint venture is taken as the value of the liquid assets (cash, shares or other considerations) transferred to the Farminee (selling part of the asset), plus the value of committed future exploration expenditure. The value of the future expenditure is commonly discounted (usually at a rate of 8-10% per annum) to present day value. In the case where the expenditure is discretionary, a range of probabilities (low and high) is applied to reflect the valuer's opinion on the likelihood that the full future expenditure will be concluded.

Second and subsequent earn-in stages are subject to exponentially increasing speculation as to the likelihood that such subsequent milestones will be achieved. The logic governing these later stages is that the knowledge position and hence the value of the asset would have been significantly altered by the intervening exploration work. MSA therefore deems it appropriate to consider only the first stage of earn-in as the basis for estimating a fair market value at the time of the transaction.

The future committed expenditure is discounted for time according to general discounted cash flow practice. The future elective expenditure is discounted for the earn-in period in the same way as the committed expenditure and also multiplied with a probability factor between 0 and 1, to reflect the element of uncertainty associated with it. By assigning lower and upper limits of probability, it is possible to derive lower and higher values for the subject property.

Pre-development, Development and Mining Projects should have Measured and Indicated Resources estimated, with technical parameters known or reasonably determinable with regard to mining and mineral processing. In such cases, a technical value of the asset can be derived with a reasonable degree of confidence by compiling a discounted cash flow ('DCF') and determining the net present value ('NPV').

Where Mineral Resources are classified in only the Inferred category, reflecting a lower level of confidence and understanding, the application of mining parameters is not practicable and in most cases it would be inappropriate to value such Resources by applying the DCF/NPV approach. The argument also applies to a mineral asset where economic viability cannot be readily demonstrated for a Resource assigned to a higher confidence category (e.g. a feasibility study that shows marginal or sub-economic financial returns). In these instances it is frequently appropriate to adopt the In Situ Resource (or "Yardstick") method of technical valuation for such assets. The In Situ Resource technique involves application of a heavy discount to the value of the total in-situ metal contained within the Resource. The discount is usually taken as a range of a certain fraction (or percentage) of the spot metal price as at the valuation date. The actual range varies for different commodities, being typically between 2% and 4.5% for gold (Lawrence, 1994) and diamonds, and between 0.5% and 3% for base metals (including platinum group elements) (van der Merwe, 2006), but may also vary substantially in response to a range of additional factors such as physiography, infrastructure and the proximity of a suitable processing facility. The depth (and hence cost) of a potential mining operation on the asset is also a determining factor. Because the sale price realised for a coal product varies with the type and quality of the coal, it is not a trivial matter to derive an appropriate in situ value for coal. MSA evaluated a number of recent transactions involving coal projects, and classified the results according to type and quality of coal in order to compile a continuum of transactional values for in-ground Coal Resources and Reserves.

In the case of Exploration Areas, and to a lesser extent Advanced Exploration Areas, the assets have "hidden" potential that has a speculative effect on their value. The valuation of Exploration Areas is therefore to a significant extent dependent on the informed, professional opinion of the valuer. Taking into account and comparing results from more than one valuation technique is likely to lead to a more confident range of values.

The VALMIN Code 2005 also proposes that an evaluation of the risks likely to apply to the assets under consideration should be included, analysing the uncertainties inherent in the assumptions made and the effects they may have on the valuation. Such risks and uncertainties may include:

- geology of mineral deposits and the dependant estimates of grade, Resources and Reserves;
- geological prospectivity and the possibility that further exploration may fail to demonstrate any economic mineralisation;
- ore processing and the variability of metallurgical parameters such as recovery rates, process plant availability and the ability of new processes to be financed and to live up to expectations;
- construction, including unforeseen foundation conditions, weather and industrial disputes, all of which may affect both capital costs and completion date;
- production of marketable commodities in terms of quality and price; and
- "country risk" involving social, political, environmental, cultural and security factors which cannot be controlled by project operators.

The "fair market value" (or "Value") of a mineral asset is defined by Definition D43 of the VALMIN Code 2005 as "the amount of money (or the cash equivalent of some other consideration) determined by the Expert in accordance with the provisions of the VALMIN Code for which the Mineral or Petroleum Asset or Security should change hands on the Valuation Date in an open and unrestricted market between a willing buyer and a willing seller in an 'arm's length' transaction, with each party acting knowledgably, prudently and without compulsion". It usually comprises two components: the underlying or "technical value" of the assets and a premium or discount relating to market, strategic and other considerations. The fair market value is therefore more likely to fluctuate with time.

Regardless of the technical application of various valuation methods and guidelines, the valuer should strive to adequately reflect the carefully considered risks and potentials of the various projects in the valuation ranges and the preferred values, with the overriding objective of determining the "fair market value".

8.1 Construction of Discounted Cashflow Financial Models

The property which MSA reviewed fell into the development category and all had a financial model representative of the workings of the proposed operation. The income approach is considered appropriate for valuing mineral properties of this nature. The cash flow methodology values a property on the basis of discounted cashflow (DCF) financial modelling and in general these cashflows will cover the life of the operation.

MSA reviewed and checked the models for structural errors and robustness using auditing software and in general checked the integrity of the flow of data from model sheets to each other. However, where errors were found these were corrected to ensure the models functioned as designed. MSA was reasonably satisfied that the technical inputs were captured correctly and that the integrity of the models could be relied upon.

MSA updated some of the input parameters which are highlighted elsewhere in this report. Recommendations regarding some of these inputs were reviewed, and MSA is satisfied that they fairly reflect the state of the economic situation of South Africa and current status of the South African coal industry.

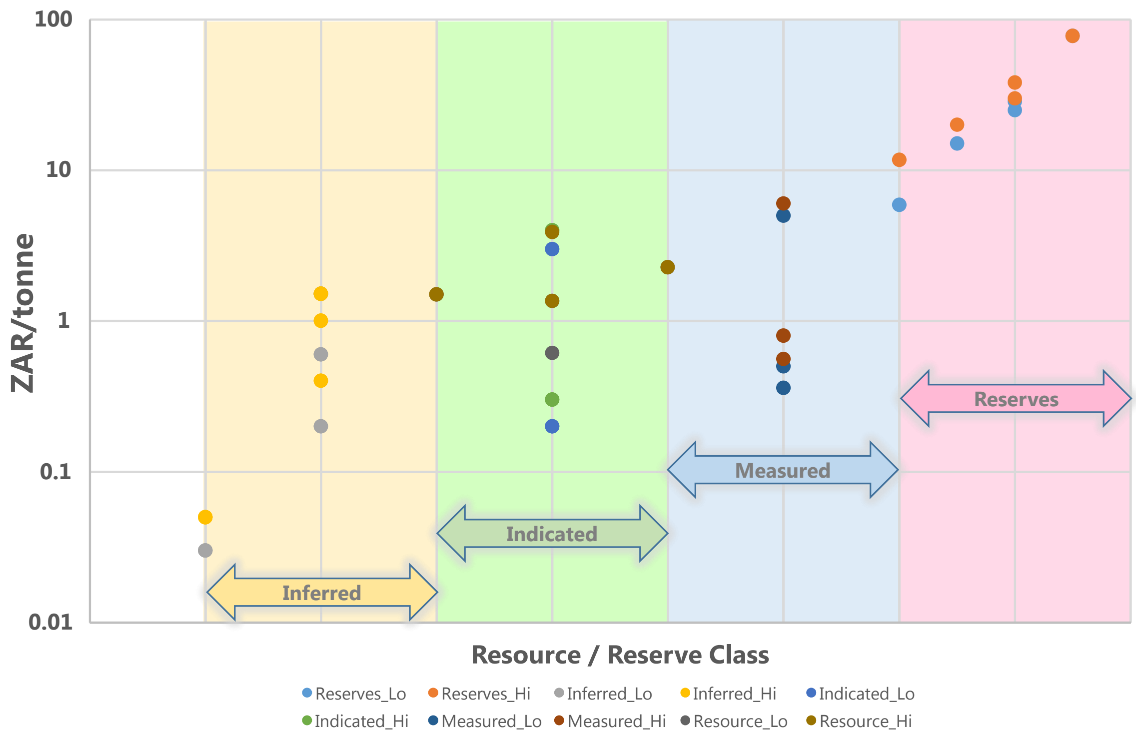
The values for the properties so derived are considered by MSA to be fair based on the projected Resources or Reserves to be mined, which do not necessarily equal the total Resources or Reserves of each property.

8.2 Market based Approach

MSA analysed some 33 transactions and independent valuations concerning South African coal assets that could be found in the public domain. These transactions occurred over a time period from 2008 to date. Of these, 27 were found to be more or less comparable to some of CoAL's coal assets.

Figure 8-1 summarises the results of the transactions analysed, once reduced to a value (in South African Rand) per tonne of in situ coal mineralisation. As can be expected, there is a clear trend of increasing value with increasing confidence in the mineralisation. The range of values for the coal asset of CoAL were taken from the graph, based on the appropriate location of that asset along the X-axis of the graph.

Figure 8-1
Valuation curve of South African Coal Projects



9 VALUATION OF THE MAKHADO PROJECT

9.1 Discounted Cashflow Analysis

9.1.1 Principal Sources of Information

The principal source of information in this section of the report is an Excel spreadsheet detailing the operations of the Project. The spreadsheet was provided by CoAL, Celeste Riekert (Group Finance Manager), dated 9 November 2015.

9.1.2 Introduction

The financial evaluation has been performed in real terms and has been undertaken on an after-tax, un-leveraged, real rate of return basis. The inflate/deflate methodology has been incorporated in order that the quantum and timing of tax and royalty payments is correct

The base date for the NPV and IRR calculations for the financial model is 9 November 2015. All production, costs and revenues are based on financial years and all cash inflows and outflows are assumed to occur in the middle of each year, i.e. 1st July of each year. To the best of the knowledge of MSA, there have been no material changes since 4 December 2015 being the date of the financial analysis and the date of this document.

9.1.3 Review of Cash Flow Forecast

The spreadsheet model was checked for formula consistency and for the correct flow-through of data between the various sections of the spreadsheet. A few errors were found and corrected.

The input parameters were also reviewed and a number of changes made as outlined below.

9.1.4 Changes made to the Model

Foreign Exchange Rate

A foreign exchange rate of ZAR13.00 for USD1.00 is considered to be low in the light of current economic circumstances and a more appropriate rate of ZAR14.00:USD1.00 was implemented. Over the last 6 months, the rand has averaged R13:00 to the USD but the general consensus of investment analysts is that the Rand will continue its downward trend and Rand Merchant Bank is forecasting ZAR15.42 to the USD in 12 months' time. Another commentator has forecast a rate of R15.90 to the USD in the next 12 months.

The exchange rate was allowed to change according to the purchasing power parity ("PPP") between the two currencies. The inflation rate for South Africa is forecast to be 6% per annum and the US inflation is forecast to be 2.5% per annum giving a PPP of 3.41% per annum. A sensitivity analysis of exchange rate vs coking coal price is included.

Discount Rate

The valuation must comply with the AIM rules of using a real discount rate of 10%. The NPVs will be in real terms determined after the inflate/deflate methodology has been implemented. With a South African inflation rate estimated at 6% per annum, a 10% discount rate equates to a 16.71% nominal discount rate.

Other

Other inputs covering tax and royalties were checked and found to be correct. All other inputs are considered to be acceptable.

9.1.5 Methodology Applied

The costs and revenues were originally in 2013 money terms for the Definitive Feasibility Study completed in June 2013. These costs and revenues have been adjusted to mid-2015 money terms by applying appropriate escalation factors. Inflation is applied from 2016 onwards and then deflated back to 2016, thus preserving the mid-2015 money terms.

The inflation applied to the East Pit capital expenditure was based on a combined SEIFSA Weighted Indices Forecast up to 2020 which covers the capital expenditure for the East Pit. The average SEIFSA index year on year was 5.3% from 2016 to 2020; this has been applied to capital expenditure beyond 2020 for the Central and West Pits.

9.1.6 Results of Financial Model

Table 9-1 Base Case Variables	
Discount rate (real)	10.0%
Discount Rate (nominal)	16.7%
ZAR:US$ Exchange Rate	R14.00:US$1.00
Average price per tonne Hard Coking Coal	US$135.00
Overall Yield (hard coking coal)	19.7%
Overall Yield (thermal coal)	24.7%
Life of Mine	15 years

Table 9-2
Summary of selected financial inputs and corresponding results (Real)– post tax valuation

Item	ZAR	US$
Post Tax Valuation		
Capital investment	6.39bn	456.6m
Cash flow before Tax and Royalty	31.91bn	2,279.5m
Project cash flow (real) (including royalty)	21.59bn	1,542.4m
Maximum funding required	2.4bn	171m
Payback period from Project start (years)	4.3	
Payback period from start of production (years)	3.3	
Post-tax NPV @ 10 % (real discount rate)	6.96bn	497.0m
Post-tax IRR (Real)	30.4%	

Table 9-2 shows the NPVs in real terms as well as the internal rate of return (IRR) at various discount rates based on the assumptions and inputs as outlined above.

Table 9-3 NPVs of the Makhado Project			
		Net Present Values (Real)	
Discount rate (nominal	**Discount rate (real)**	**NPV (ZAR mill)**	**NPV (US$ mill)**
0.0%	0.0%	21,594	1,542
11.4%	5.0%	12,174	870
15.1%	8.5%	8,229	588
16.7%	10.0%	6,955	497
19.4%	12.5%	5,233	374
22.0%	15.0%	3,898	278
27.3%	20.0%	2,024	145
	IRR =	30.44%	30.44%

9.1.7 Sensitivity Analysis

The sensitivity chart, Figure 9-1 below, shows the real NPV @ 10% variation for the Base Case due to changes in revenue, capital and operating costs, holding all other inputs constant. The Project is most sensitive to the coal prices and more sensitive to Opex than Capex. The revenue sensitivity assumes that all coal prices change by the same percentage.

Figure 9-1

NPV @ 10% (Real) Sensitivity Analysis

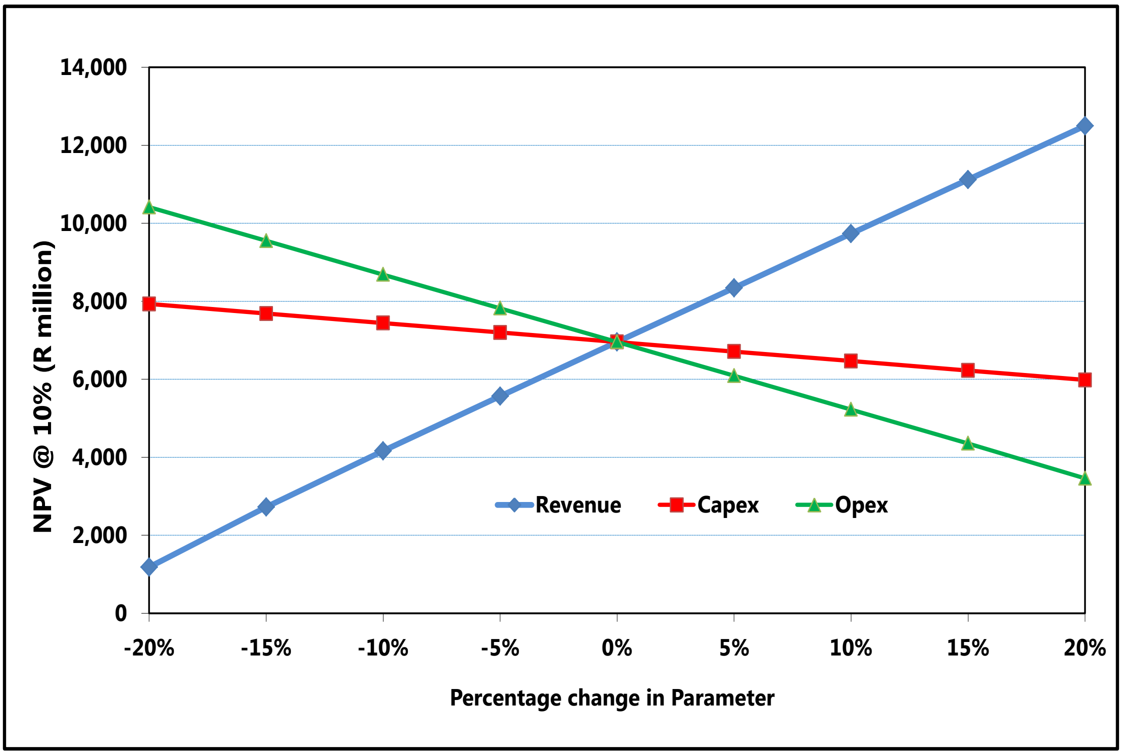
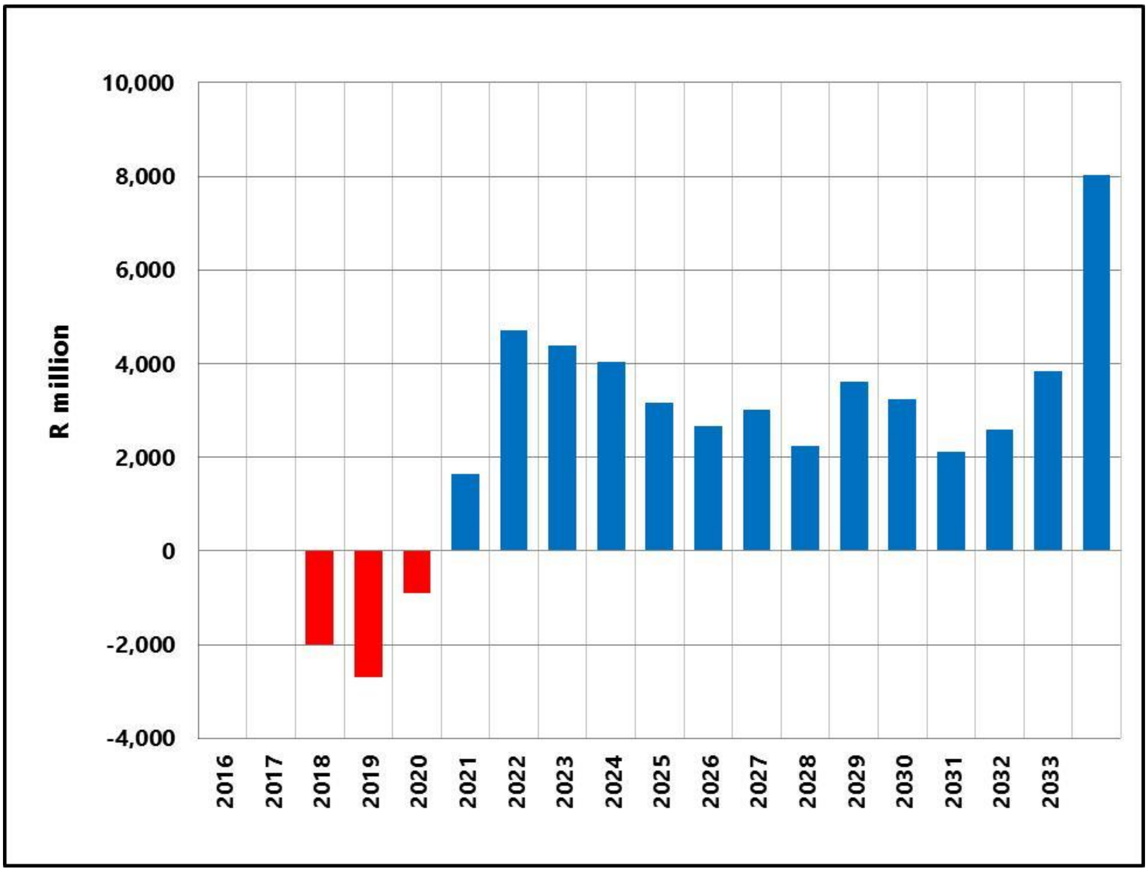


Figure 9-2

Annual Cash Flow (Real)



Maximum negative cash flow of ZAR2.4 billion occurs in 2019 as shown in the cumulative cash flow graph Figure 9-3.

Figure 9-3
Cumulative Annual Cash Flow (Real)

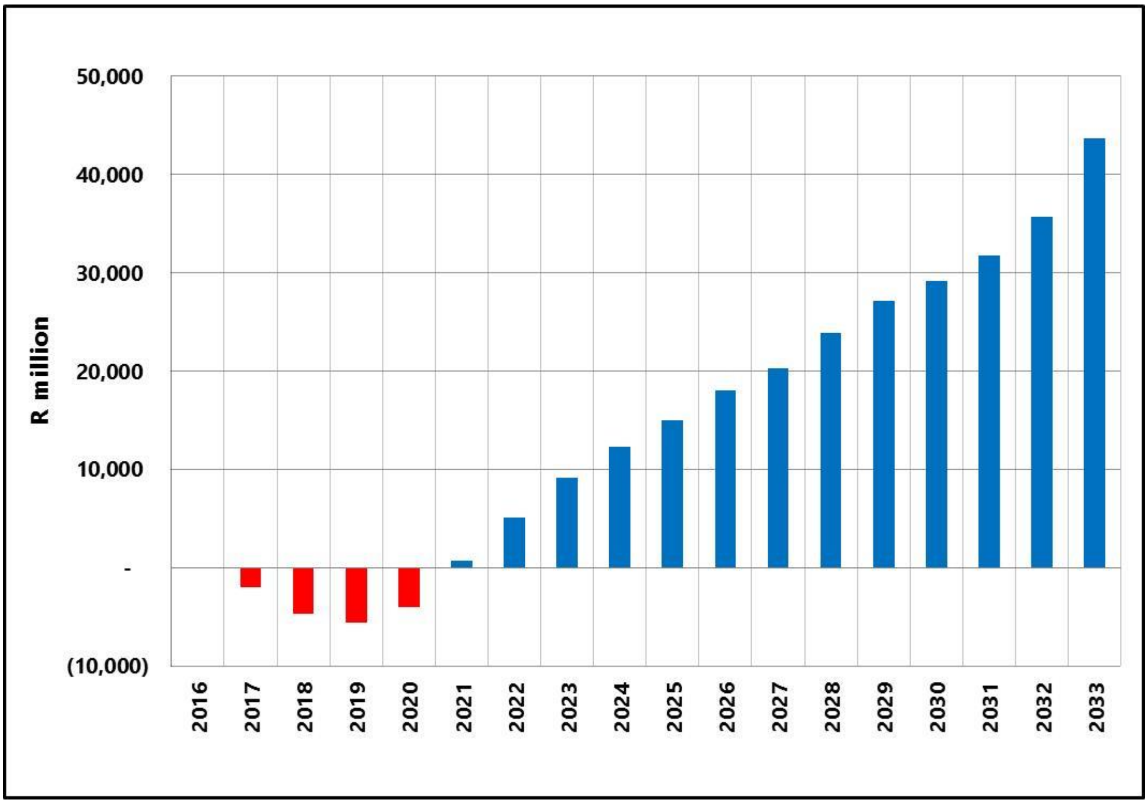


Table 9-4 shows the matrices of the NPV for percentage variations in revenue, capital and operating expenditure.

Table 9-4
Sensitivity of NPV (Real) to changes in Coal prices, Capex and Opex

		Revenue						
	Change	NPV R million						
		0.0%	5.0%	8.0%	10.0%	12.0%	15.0%	20.0%
PERCENTAGE CHANGE IN REVENUE	20%	35,622	20,735	15,257	12,501	10,274	7,680	4,715
	15%	32,114	18,595	13,619	11,116	9,093	6,736	4,044
	10%	28,609	16,457	11,983	9,732	7,912	5,792	3,373
	5%	25,098	14,314	10,341	8,343	6,727	4,845	2,699
	0%	21,593	12,174	8,702	6,955	5,543	3,898	2,024
	-5%	18,088	10,032	7,061	5,566	4,358	2,951	1,350
	-10%	14,589	7,883	5,410	4,165	3,159	1,989	660
	-15%	10,954	5,664	3,709	2,724	1,928	1,003	(45)
	-20%	7,087	3,295	1,892	1,184	613	(50)	(797)

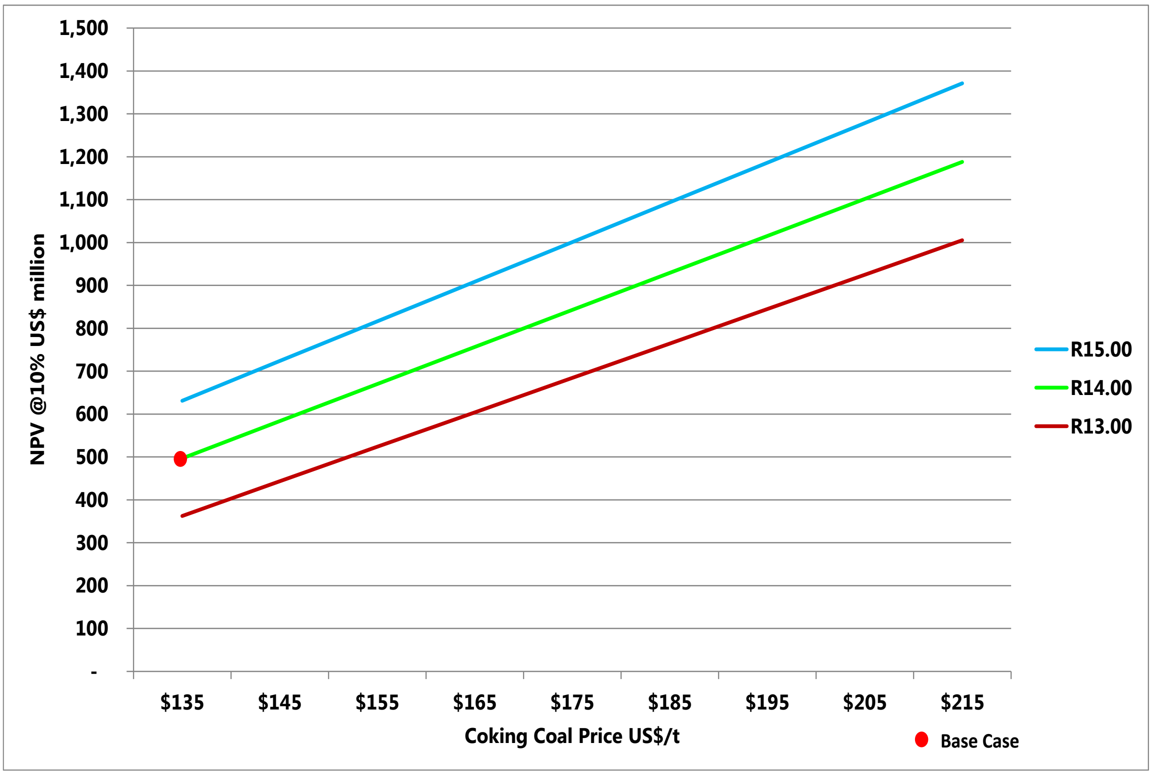
	Change	Opex						
		NPV R million						
PERCENTAGE CHANGE IN OPEX		**0.0%**	**5.0%**	**8.0%**	**10.0%**	**12.0%**	**15.0%**	**20.0%**
	20%	12,533	6,715	4,552	3,457	2,570	1,532	347
	15%	14,862	8,114	5,615	4,353	3,331	2,138	777
	10%	17,102	9,468	6,646	5,224	4,072	2,729	1,197
	5%	19,345	10,821	7,674	6,090	4,808	3,314	1,612
	0%	**21,593**	**12,174**	**8,702**	**6,955**	**5,543**	**3,898**	**2,024**
	-5%	23,838	13,524	9,728	7,819	6,277	4,482	2,437
	-10%	26,088	14,877	10,755	8,684	7,012	5,065	2,850
	-15%	28,338	16,230	11,783	9,549	7,746	5,649	3,262
	-20%	30,588	17,583	12,811	10,414	8,481	6,233	3,675

	Change	Capex						
		NPV R million						
PERCENTAGE CHANGE IN CAPEX		**0.0%**	**5.0%**	**8.0%**	**10.0%**	**12.0%**	**15.0%**	**20.0%**
	20%	20,297	11,064	7,679	5,981	4,613	3,027	1,234
	15%	20,621	11,342	7,934	6,224	4,846	3,245	1,432
	10%	20,945	11,619	8,190	6,468	5,078	3,463	1,629
	5%	21,269	11,896	8,446	6,711	5,310	3,681	1,827
	0%	**21,593**	**12,174**	**8,702**	**6,955**	**5,543**	**3,898**	**2,024**
	-5%	21,918	12,451	8,958	7,198	5,775	4,116	2,222
	-10%	22,242	12,728	9,214	7,442	6,008	4,334	2,419
	-15%	22,566	13,006	9,470	7,685	6,240	4,552	2,617
	-20%	22,890	13,283	9,726	7,929	6,473	4,770	2,814

Figure 9-4shows the sensitivity of the NPV at 10% of the coking coal price (US$/mt) versus the ZAR/US$ Exchange Rate.

Figure 9-4

Sensitivity Analysis: NPV10% (US$),Coal Price, ZAR/US$ Exchange Rate



9.1.8 Mine Life

The mine has an estimated operating life of 15 years based on the current mine plan tonnage.

9.1.9 Discounted cash flow model

Table 9-5 shows the DCF model for the Makhado Project.

Table 9-5

Cash Flow Model– Makhado Project

DESCRIPTION	UNIT	TOTAL	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
MINING																				
Waste mined	t	99,710,514	-	-	-	814,307	3,551,169	6,128,097	7,028,539	7,060,098	7,467,096	7,692,018	7,450,938	7,378,820	7,293,721	7,310,203	7,486,594	7,296,941	7,317,250	8,434,723
Strip ratio	W:O	1.65																		
ROM tonnes	t	164,530,897	-	-	-	1,461,402	6,719,977	10,652,345	12,000,000	12,000,000	12,000,000	12,000,000	12,000,000	12,000,000	12,000,000	12,000,000	12,000,000	12,000,000	12,000,000	13,697,173
SALEABLE PRODUCT																				
Saleble Coking Tonne	t	25,637,839	-	-	-	284,672	1,252,909	1,820,576	2,192,402	2,123,037	1,811,772	1,728,695	1,859,357	1,781,241	1,823,062	1,685,760	1,658,220	1,832,078	1,758,423	2,025,635
Saleble Coking Tonne - 4% fines	t	32,334,247	-	-	-	344,151	1,526,412	2,254,127	2,680,802	2,611,437	2,300,172	2,217,095	2,347,757	2,269,641	2,311,462	2,174,160	2,146,620	2,320,478	2,246,823	2,583,110
Saleble Thermal	t	40,712,682	-	-	-	376,015	1,978,396	2,802,739	2,890,660	2,928,464	2,832,732	2,690,887	2,801,306	2,951,539	2,994,817	3,115,637	2,966,786	2,982,581	3,035,926	3,364,199
TOTAL SALEABLE TONNES	**t**	**98,684,768**	**-**	**-**	**-**	**1,004,838**	**4,757,716**	**6,877,442**	**7,763,863**	**7,662,939**	**6,944,676**	**6,636,677**	**7,008,419**	**7,002,421**	**7,129,341**	**6,975,557**	**6,771,625**	**7,135,137**	**7,041,173**	**7,972,943**
OPERATING INCOME (NOMINAL)																				
Sales	ZARm	206,490	-	-	-	1,300	6,529	10,051	12,000	12,571	12,169	12,362	13,784	14,618	15,757	16,391	16,890	18,779	19,675	23,614
Less royalty	ZARm	3,386	-	-	-	6	26	40	237	392	267	199	257	259	304	219	69	94	287	729
NET REVENUE (NOMINAL)	**ZARm**	**203,104**	**-**	**-**	**-**	**1,294**	**6,503**	**10,010**	**11,762**	**12,179**	**11,902**	**12,162**	**13,527**	**14,360**	**15,453**	**16,172**	**16,821**	**18,684**	**19,389**	**22,886**
OPERATING EXPENDITURE (NOMINAL)																				
Mining opex	ZARm	87,497	-	-	292	1,018	1,922	2,340	2,735	3,826	4,836	5,665	6,126	6,430	6,835	8,072	10,113	10,884	9,272	7,131
Plant Opex	ZARm	7,825	-	-	-	181	277	325	366	396	428	463	501	542	587	635	688	746	808	883
Engineering Opex	ZARm	69	-	-	-	2	3	4	4	4	4	5	5	5	5	6	6	6	7	2
Distribution	ZARm	36,876	-	-	-	191	1,233	1,956	2,196	2,213	2,165	2,213	2,405	2,623	2,744	2,923	3,027	3,227	3,561	4,197
Overheads (fixed)	ZARm	2,341	-	-	-	154	131	153	141	136	160	150	121	189	183	152	148	159	176	188
TOTAL CASH OPERATING COSTS (NOMINAL)	**ZARm**	**134,608**	**-**	**-**	**292**	**1,547**	**3,567**	**4,778**	**5,443**	**6,575**	**7,594**	**8,496**	**9,158**	**9,788**	**10,354**	**11,787**	**13,983**	**15,022**	**13,824**	**12,401**
CAPITAL EXPENDITURE (NOMINAL)																				
East Pit	ZARm	4,829	-	1,783	2,408	573	64	-	-	-	-	-	-	-	-	-	-	-	-	-
Central Pit	ZARm	1,094	-	-	-	-	920	54	38	-	33	49	-	-	-	-	-	-	-	-
West Pit	ZARm	1,851	-	-	-	-	-	4	40	42	44	14	117	1,444	30	-	117	-	-	-
Commitment and Working Cap - East Pit	ZARm	345	-	212	24	77	32	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL CAPEX (NOMINAL)	**ZARm**	**8,119**	**-**	**1,996**	**2,433**	**649**	**1,017**	**57**	**78**	**42**	**78**	**62**	**117**	**1,444**	**30**	**-**	**117**	**-**	**-**	**-**
PRE-TAX CASH FLOW (NOMINAL)																				
Net operating income	ZARm	203,104	-	-	-	1,294	6,503	10,010	11,762	12,179	11,902	12,162	13,527	14,360	15,453	16,172	16,821	18,684	19,389	22,886
Less cash costs	ZARm	134,608	-	-	292	1,547	3,567	4,778	5,443	6,575	7,594	8,496	9,158	9,788	10,354	11,787	13,983	15,022	13,824	12,401
EBITDA	**ZARm**	**68,496**	**-**	**-**	**-292**	**-253**	**2,936**	**5,233**	**6,320**	**5,605**	**4,308**	**3,666**	**4,369**	**4,571**	**5,099**	**4,385**	**2,838**	**3,663**	**5,565**	**10,485**
Less taxation	ZARm	16,690	-	-	-	-	-	265	1,760	1,565	1,187	1,005	1,185	871	1,409	1,221	747	1,003	1,542	2,932
PROFIT AFTER TAX	**ZARm**	**51,806**	**-**	**-**	**(292)**	**(253)**	**2,936**	**4,968**	**4,560**	**4,040**	**3,121**	**2,661**	**3,184**	**3,701**	**3,690**	**3,164**	**2,091**	**2,660**	**4,023**	**7,553**
Less capital expenditure	ZARm	8,119	-	1,996	2,433	649	1,017	57	78	42	78	62	117	1,444	30	-	117	-	-	-
Less change in working capital	ZARm	-	-	-	(24)	4	264	190	106	(46)	(117)	(58)	62	17	47	(66)	(139)	70	172	(481)
POST TAX CASH FLOW NOMINAL	**ZARm**	**43,687**	**-**	**(1,996)**	**(2,701)**	**(905)**	**1,655**	**4,720**	**4,377**	**4,044**	**3,160**	**2,657**	**3,005**	**2,240**	**3,613**	**3,230**	**2,113**	**2,590**	**3,851**	**8,034**
POST TAX CASH FLOW REAL	**ZARm**	**21,594**	**-**	**(1,881)**	**(2,400)**	**(758)**	**1,307**	**3,513**	**3,070**	**2,674**	**1,970**	**1,561**	**1,664**	**1,169**	**1,778**	**1,498**	**924**	**1,067**	**1,496**	**2,942**

Disc Rate (Nominal)	Disc Rate (Real)	ZAR mill	US$ mill
0.0%	0.0%	R 21,594	R 1,542
11.4%	5.0%	R 12,174	R 870
15.1%	8.5%	R 8,229	R 588
16.7%	**10.0%**	**R 6,955**	**R 497**
19.4%	12.5%	R 5,233	R 374
22.0%	15.0%	R 3,898	R 278
27.3%	20.0%	R 2,024	R 145
	IRR=	30.4%	30.4%

NPVs as at 1 January 2015 in July 2015 Money Terms

9.2 Market-based Approach

The Makhado Project hosts hard coking and thermal coal which is expected to provide reasonable yields from washing. The average depths below surface indicate that eventual extraction is likely to be by both opencast and underground mining methods. The range of values selected from the researched transactional values reflects these realities, as shown in Table 9-6.

Table 9-6
Range of selected values – Makhado Project

Coal Resource Reserve Classification	Coal Reserves / Resources[1] (Mt)	Value in situ (ZAR/t)		Value (100 % Interest) (ZAR million)		
		Lower	**Higher**	**Lower**	**Higher**	**Preferred**
Probable Reserve	172.8	8.00	12.00	1,380	2,070	1,720
Inferred Resource	75.4	0.50	1.00	40	75	55
TOTAL				**1,420**	**2,145**	**1,775**

9.3 Valuation Summary

MSA took into consideration the AIM Rules and with specific reference to the AIM June 2009 - Note for Mining and Oil & Gas Companies, which prescribes a valuation based on NPV (post-tax) at a discount rate of 10%. MSA thus considers the results of the Income approach to be most applicable, due to the high level of techno-economic study that was completed recently. MSA then estimates a Value of ZAR 6,960 million (USD497 million) for CoAL interest in the Makhado Project.

10 CONCLUSIONS

The Makhado Project is housed under Boabab Mining and Exploration, which is 100% owned by Coal of Africa Ltd (CoAL) a company listed on various stock exchanges namely: ASX in Australia, AIM in the UK and JSE in South Africa.

The Makhado Project represents CoAL's first project in the Soutpansberg Coalfield, Limpopo Province, South Africa. It is a thermal and coking coal project expected to mine at an average steady state rate of 12.6 Mtpa (Run of Mine (ROM)) to produce an average product of 2.3 Mtpa of coking coal (including fines) and 3.2 Mtpa of thermal coal.

The project is situated in the Limpopo Province 35 km north of the town Makhado (Louis Trichardt). The town of Musina is located approximately 50 km north of the Makhado Project are. The village of Mudimeli is located within the Makhado Project area on the farm Fripp 645MS.

The JORC compliant Coal Resource for the Makhado Project, and inclusive of Reserves, were estimated and signed off by CoAL's Competent Person, Mr J Sparrow (Pr.Sci.Nat.), CoAL's chief consulting geologist. MSA reviewed the estimation procedures and independently validated the results. MSA agrees with the Coal Resource and classification as declared by CoAL. The Makhado Project contains 344,765,500 MTIS, 74% attributable to CoAL (265,025,500 Measured, 76,743,000 Indicated and 2,998,000 Inferred)

Coal Reserves were estimated and signed off by CoAL's Competent Person, Mr C Bronn, CoAL's Mining Engineer and Optimisation Manager, as at 1st May 2013 and in accordance with the JORC Code. The Reserve Statement is presented in the table below. This excludes the estimated 4% of additional tonnage for fines (-0.5mm) recovery. The Coal Reserves were based upon the block model prepared by Mr B Bruwer, VBKom's Senior Mining Engineer, the information to which was originally sourced from the Minex model dated 31st August 2011. MSA reviewed the estimation procedures and independently validated the results. MSA agrees with the Coal Reserve and classification as declared by CoAL. The total ROM Reserves, all in the Probable category, is 172,756,000 tonnes.

MSA took into consideration the AIM Rules and with specific reference to the AIM June 2009 - Note for Mining and Oil & Gas Companies, which prescribes a valuation based on NPV (post-tax) at a discount rate of 10%. MSA thus considers the results of the Income approach to be most applicable, due to the high level of techno-economic study that was completed recently. MSA then estimates a Value of ZAR 6,960 million (USD497 million) for CoAL interest in the Makhado Project.

.

Project	Resource Category	Seam	Gross Tonnes In Situ (GTIS) (ad)	Geological Loss (%)	Total Tonnes In situ (TTIS) (ad)	Mineable Tonnes In Situ (MTIS) (ad)	MTIS Attributable to CoAL (74%)
Makhado	Measured	Upper	49 739 069	10%	44 765 162	34 617 700	25 617 098
		Middle Upper	99 369 366	10%	89 432 429	61 795 200	45 728 448
		Middle Lower	50 245 151	10%	45 220 636	35 721 100	26 433 614
		Bottom Upper	94 803 401	10%	85 323 061	61 067 900	45 190 246
		Bottom Lower	108 623 583	10%	97 761 225	71 822 600	53 148 724
	Total / Ave Measured Resource		**402 780 570**	**10%**	**362 502 513**	**265 024 500**	**196 118 130**
	Indicated	Upper	46 302 051	15%	39 356 743	15 854 000	11 731 960
		Middle Upper	72 677 731	15%	61 776 071	16 015 000	11 851 100
		Middle Lower	30 373 388	15%	25 817 380	9 242 000	6 839 080
		Bottom Upper	72 647 666	15%	61 750 516	15 682 000	11 604 680
		Bottom Lower	76 594 050	15%	65 104 943	19 950 000	14 763 000
	Total / Ave Indicated Resource		**298 594 886**	**15%**	**253 805 653**	**76 743 000**	**56 789 820**
	Inferred	Upper	35 934 884	20%	28 747 907	2 560 000	1 894 400
		Middle Upper	20 372 039	20%	16 297 631	94 000	69 560
		Middle Lower	5 883 777	20%	4 707 022	80 000	59 200
		Bottom Upper	16 302 194	20%	13 041 755	4 000	2 960
		Bottom Lower	15 739 238	20%	12 591 390	260 000	192 400
	Total / Ave Inferred Resource		**94 232 132**	**20%**	**75 385 706**	**2 998 000**	**2 218 520**
Total Resource Makhado			**795 607 588**		**691 693 872**	**344 765 500**	**255 126 470**

Coal Reserves were estimated and signed off by CoAL's Competent Person, Mr C Bronn, CoAL's Mining Engineer and Optimisation Manager, as at 1st May 2013 and in accordance with the JORC Code. The Reserve Statement is presented in the table below. This excludes the estimated 4% of additional tonnage for fines (-0.5mm) recovery. The Coal Reserves were based upon the block model prepared by Mr B Bruwer, VBKom's Senior Mining Engineer, the information to which was originally sourced from the Minex model dated 31st August 2011. MSA reviewed the estimation procedures and independently validated the results. MSA agrees with the Coal Reserve and classification as declared by CoAL. The table below summarises the Makahdo Coal Project Coal Reserves as at 4 December 2015.

Mining Block	Reserve Category	Mineable Tonnes In Situ (MTIS) Reserve (ad)	Geological Loss (%)	Extractable Reserves (t)	Contamination	Mine Recovery Factor	ROM Reserves (t)	ROM Reserves Attributable to CoAL (74%)	Primary Marketable Reserves (t)	Middlings Marketable Reserves (t)
East Pit	Probable	94 585 936	5%	89 856 639	5%	92%	86 801 000	64 232 740	14 773 000	24 330 000
Central Pit		53 472 256	5%	50 798 643	5%	92%	49 071 000	36 312 540	6 747 000	10 560 000
West Pit		40 192 263	5%	38 182 650	5%	92%	36 884 000	27 294 160	4 116 000	9 645 000
Total Makhado Reserves		**188 250 455**	**5%**	**178 837 932**	**5%**	**92%**	**172 756 000**	**127 839 440**	**25 636 000**	**44 535 000**

MSA took into consideration the AIM Rules and with specific reference to the AIM June 2009 - Note for Mining and Oil & Gas Companies, which prescribes a valuation based on NPV (post-tax) at a discount rate of 10%. MSA thus considers the results of the Income approach to be most applicable, due to the high level of techno-economic study that was completed recently. MSA then estimates a Value of ZAR 6,960 million (USD497 million) for CoAL interest in the Makhado Project.

11 JORC CODE, 2012 EDITION – TABLE 1 REPORT TEMPLATE

11.1 Section 1 Sampling Techniques and Data

(Criteria in this section apply to all succeeding sections.)

Criteria	JORC Code explanation	Commentary
Sampling techniques	• *Nature and quality of sampling (eg cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling.* • *Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.* • *Aspects of the determination of mineralisation that are Material to the Public Report.* • *In cases where 'industry standard' work has been done this would be relatively simple (eg 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (eg submarine nodules) may warrant disclosure of detailed information.*	• A 3 m drill run was drilled and reduced if poor recoveries or difficult drilling conditions were experienced. • Core recovery within individual coal plies was measured with reference to the geophysical logs and, if found to be acceptable, logging commenced. Core was not split prior to logging in order to minimise the effects of oxidation. Lithological depths were finalised after reconciliation with the geophysical wireline logs. • Field logs were generated using printed logging forms and are archived at the CoAL offices in Johannesburg. The logging data was subsequently captured in a dedicated Sable™ database. • Borehole core photography using a hand-held digital camera was initiated in January 2009 and was sporadic until November 2009. Since that time, all cores have been photographed. • CoAL defined seams or selected mining cuts by firstly selecting intervals comprising predominantly coal and then by identifying the sample names associated with those intervals and automatically allocating them to the seam.

Criteria	JORC Code explanation	Commentary
		• Whole core sampling was conducted and sample intervals were selected on the basis of the geophysical logs. Samples were numbered from the base upwards and correspond to the same stratigraphic interval in every borehole. Six potentially mineable seams was identified within the Coal Zone.
Drilling techniques	• *Drill type (eg core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (eg core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc).*	• The first 25 boreholes drilled by CoAL were pre-collared to a depth of 10m with a tri-cone bit prior to diamond drill coring, in order to penetrate the bouldery regolith that characterises the area. From July 2009, this practice was abandoned in favour of coring from surface, with steel casing installed to the base of weathering, in order to investigate occurrences of surface regolith and calcrete. • All boreholes were drilled using triple tube techniques in order to minimise loss of core, particularly of fines. • The core size was changed from HQ3 to PQ3 after the initial 25 exploration boreholes in order to obtain more sample material and maximise core recovery. • The only percussion or open hole drilling conducted within the Makhado Project area is that by CoAL in 2010. This programme included 13 straight percussion holes within the area identified for the bulk sample (boxcut).
Drill sample recovery	• *Method of recording and assessing core and chip sample recoveries and results assessed.* • *Measures taken to maximise sample recovery and ensure representative nature of the samples.*	• The core recovery was measured within each individual coal ply with reference to the geophysical logs, if found to be acceptable, logging commenced • A minimum recovery of 98%

Criteria	JORC Code explanation	Commentary
	• *Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.*	within coal horizons and 95% in non-coal sediments was enforced.
Logging	• *Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.* • *Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.* • *The total length and percentage of the relevant intersections logged.*	• Core was not split prior to logging in order to minimise the effects of oxidation. Lithological depths were finalised after reconciliation with the geophysical wireline logs. Field logs were generated using printed logging forms and are archived at the CoAL offices in Johannesburg. The logging data was subsequently captured in a dedicated Sable™ database. • Borehole core photography using a hand-held digital camera was initiated in January 2009 and was sporadic until November 2009. Since that time, all cores have been photographed. • Geotechnical logging has only been incorporated in the last 15 boreholes on Lukin 643MS and Salaita188MT.
Sub-sampling techniques and sample preparation	• *If core, whether cut or sawn and whether quarter, half or all core taken.* • *If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.* • *For all sample types, the nature, quality and appropriateness of the sample preparation technique.* • *Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.* • *Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate/second-half sampling.* • *Whether sample sizes are appropriate to the grain size of the material being sampled.*	• Samples were double-bagged with each bag sealed with cable ties and labelled. Bagged samples were stored in a locked refrigerated container prior to transportation to the laboratory in a closed truck. • Samples are submitted to the laboratory where QAQC is checked at the laboratory by plotting ash versus CV and all samples with a correlation less than 0.90 are re-analysed. •
Quality of assay data	• *The nature, quality and appropriateness of the assaying*	• Samples from the first 25 boreholes drilled by CoAL

Criteria	JORC Code explanation	Commentary
and laboratory tests	*and laboratory procedures used and whether the technique is considered partial or total.* • *For geophysical tools, spectrometers, handheld XRF instruments, etc, the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.* • *Nature of quality control procedures adopted (eg standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie lack of bias) and precision have been established.*	were sent to the SABS laboratory in Secunda. SABS is accredited (No T0230) through the South African National Accreditation System (SANAS) and SABS/ISO/IEC 17025:2005. However, due to delays in the reporting of analytical results, CoAL relocated all unprocessed samples from SABS to Inspectorate which is also a SANAS accredited laboratory (No T0313). • Since July 2009, two laboratories have been used by CoAL. Core exploration samples have been sent to the CAM Laboratory in Polokwane. CAM is accredited (No.T0476) through SANAS.
Verification of sampling and assaying	• *The verification of significant intersections by either independent or alternative company personnel.* • *The use of twinned holes.* • *Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.* • *Discuss any adjustment to assay data.*	• Laboratories are required to calibrate their coal analytical equipment daily and are also required to partake in round robin proficiency tests to ensure a high standard of results. All result reports are verified by the laboratory manager and any inconsistencies or variations about the laboratory's specifications are reanalysed. • CoAL has specifically requested that the laboratories plot ash versus CV curves for all samples. Any samples with a correlation of less than 0.90 are reanalysed. • CoAL has validated all results in SableTM, by doing basic tests on cumulative results and checking of logs. • No adjustments have been made to the coal quality data, other than the correction of Relative Density to insitu moisture basis
Location of data points	• *Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine*	• For structural modelling purposes, the reported collar positions for the Rio Tinto

Criteria	JORC Code explanation	Commentary
	workings and other locations used in Mineral Resource estimation. • *Specification of the grid system used.* • *Quality and adequacy of topographic control.*	boreholes were adjusted to the LIDAR survey. • The Rio Tinto boreholes were not used for resource estimation purposes. • Boreholes drilled by CoAL were generally initially sited in the field using a hand-held Garmin™ GPS device. • Following completion of the boreholes, the collar positions were accurately surveyed using Leica™ GPS equipment by P Matibe and Associates, which is registered (No PLS0915) with the South African Council for Professional and Technical Surveyors (PLATO).
Data spacing and distribution	• *Data spacing for reporting of Exploration Results.* • *Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.* • *Whether sample compositing has been applied.*	• The classification of the Resources into Inferred, Indicated and Measured was based on the recommended distances defined in The Guideline, whilst considering the technical parameters as set out in Section 43 of The Guideline. • In most instances the borehole spacing for the Measured Resources is less than what is recommended in the guideline
Orientation of data in relation to geological structure	• *Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.* • *If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.*	• The coal deposit is considered to dip at approximately 4 – 18 degrees to the north, with an average of 12 degrees • All drill holes are vertical to provide the best intercept angle to achieve an unbiased sample
Sample security	• *The measures taken to ensure sample security.*	• Samples were double-bagged with each bag sealed with cable ties and labelled. Bagged samples were stored in a locked refrigerated container prior to transportation to the laboratory in a closed truck. • Sample security was ensured under a chain of custody between CoAL personnel on

Criteria	JORC Code explanation	Commentary
		site and various laboratories
Audits or reviews	• *The results of any audits or reviews of sampling techniques and data.*	• The sample data has been extensively QA/QC reviewed internally.

11.2 Section 2 Reporting of Exploration Results

(Criteria listed in the preceding section also apply to this section.)

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	• *Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.* • *The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.*	• CoAL holds an New Order Prospecting Right (NOPR) (LP 30/5/1/1/2/38 PR) over all or sections of the farms Overwinning 713MS, Mutamba 668MS, Windhoek 649MS, Daru 848MS, Tanga 849MS, Fripp 645MS and Lukin 643MS • New Order Mining Right application by CoAL on the farms Mutamba 668MS, Windhoek 649MS, Daru 848MS, Tanga 849MS, Fripp 645MS, Lukin 643MS and Salaita 188MT on the 25th February 2011 and granted in 15 May 2015 • There are no known impediments • The tenure is good standing, all work and expenditure commitments are in compliance.
Exploration done by other parties	• *Acknowledgment and appraisal of exploration by other parties.*	• Previous exploration takes into account all exploration undertaken from 2006 to 2011. This exploration was conducted by both Rio Tinto South Africa (Rio Tinto) and CoAL. • The Rio Tinto boreholes were not used for resource estimation purposes, but for structural modelling purposes
Geology	• *Deposit type, geological setting and style of mineralisation.*	• The Makhado Project area is located in the Tshipise South subdivision of the greater Soutpansberg Coalfield, South Africa. The Project is characterised by a number of seams which occur within a 30 to 40 metre thick carbonaceous zone of the

Criteria	JORC Code explanation	Commentary
		Madzaringwe Formation • All seams comprise interbedded carbonaceous mudstones and coal. The coal component is usually bright and brittle and contains a high proportion of vitrinite. The seams dip northwards at approximately 12°. • Six potential mining horizons or seams which were identified by CoAL namely: Upper Seam, Middle Seam, Middle Lower Seam, Bottom Upper Seam, Bottom Middle Seam and Bottom Lower Seam.

Drill hole Information	• *A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes:*
	  ○ *easting and northing of the drill hole collar*
	  ○ *elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar*
	  ○ *dip and azimuth of the hole*
	  ○ *down hole length and interception depth*
	  ○ *hole length.*
	• *If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.*
		• All drill holes have been modelled from vertical and hole deviation (from vertical) has been recorded and used in the model.
		• Drill hole positions and spacing is graphically presented in the report and follow the requirements ad stipulated in the Guidlines

Data aggregation methods	• *In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (eg cutting of high grades) and cut-off grades are usually Material and should be stated.* • *Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.* • *The assumptions used for any*	• Both the physical and quality parameters of the various seams were modelled by CoAL. Grids with a 20m mesh were estimated using the MinexTM general purpose gridding function using a 2.5km search radius • The MinexTM modelled (gridded) weighted average raw apparent density (on an air dried basis) was used to calculate the tonnage from the volume. • The model of the physical parameters of the seam was

Criteria	JORC Code explanation	Commentary
	reporting of metal equivalent values should be clearly stated.	cut along any significant structures, whilst the quality parameters were modelled across it.
Relationship between mineralisation widths and intercept lengths	• *These relationships are particularly important in the reporting of Exploration Results.* • *If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.* • *If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (eg 'down hole length, true width not known').*	• All drilling is conducted in vertical holes, thus all coal intersections and down-hole geophysics are vertical thickness, as the seam dips are sub-10 degrees this thickness is considered true thickness.
Diagrams	• *Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.*	• Appropriate Maps and diagrams are included in the Resource Report and ASX announcement presented.
Balanced reporting	• *Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.*	• All available exploration data for the Makhado Project area has been collated and reported. All data from all holes has been reported.
Other substantive exploration data	• *Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.*	• Bulk sampling test pit was completed to test the following: • obtain a 10% ash product sample from the Makhado Coal Resource for coke testing at ArcelorMittal operations; • obtain a product sample from the Makhado Coal Resource for coking coal product characterisation; • obtain ROM, product and discard samples from the Makhado Coal Resource to test for mining and metallurgical process design, equipment selection and sizing; and • observe the Makhado coal in the various stages of extraction and processing: blasting, extraction, crushing,

Criteria	JORC Code explanation	Commentary
		screening and beneficiation and materials handling.
Further work	• *The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).* • *Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.*	• Further exploration and Resource definition work will be conducted on the down dip extension for potential underground mining. • This work is not seen as material to the project at this stage and could be deferred to after to commencement of commercial operations.

11.3 Section 3 Estimation and Reporting of Mineral Resources

(Criteria listed in section 1, and where relevant in section 2, also apply to this section.)

Criteria	JORC Code explanation	Commentary
Database integrity	• *Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.* • *Data validation procedures used.*	• The source data are stored in a Sable™ database which is managed and maintained by the CoAL CP. • Sable™ has been set up to run validations on the analytical data on import into the programme. • The integrity of the washability data is validated by visually ensuring that the ash content is increasing when compared to an increasing wash density, increasing CV and volatile matter. Further validation is completed by comparing ash content versus RD and ash versus CV through scatter plots.
Site visits	• *Comment on any site visits undertaken by the Competent Person and the outcome of those visits.* • *If no site visits have been undertaken indicate why this is the case.*	• A site visit was conducted by Mr Philip Mostert, on 19 August 2015 as part of the high-level due diligence review of the geology and Coal Resources
Geological interpretation	• *Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.* • *Nature of the data used and of any assumptions made.* • *The effect, if any, of alternative interpretations on Mineral Resource estimation.* • *The use of geology in guiding and*	• MSA has a high level of confidence with respect of the current model and associated resource estimates. A summary of the geological modelling methodology and results are described below: • The Upper, Middle, Middle Lower, Bottom Upper and

Criteria	JORC Code explanation	Commentary
	controlling Mineral Resource estimation. • *The factors affecting continuity both of grade and geology.*	Bottom Lower Seam floor elevations have been modelled in order to identify any abrupt elevation changes that would indicate the presence of faulting and also to identify the general dip across the project area. • The abrupt floor elevation differences clearly illustrate the positions of a number of faults within the project area, most notably over the farm Lukin 643 MS, where a large fault is present, resulting in the upthrow of the Eastern Block of coal, limiting its aerial extent relative to the coal in the Western Block. • Dolerite dykes, as well as fault planes, were incorporated into the 3D structural model. • Both the physical and quality parameters of the various seams were modelled. • The model of the physical parameters of the seam was cut along any significant structures, whilst the quality parameters were modelled across it. All physical and quality parameters were plotted and visually inspected to ensure they were acceptable for geological interpretation. • All boreholes with seam intersection data were used, to generate the physical seam models on which the estimates of seam volumes were based.
Dimensions	• *The extent and variability of the Mineral Resource expressed as length (along strike or otherwise), plan width, and depth below surface to the upper and lower limits of the Mineral Resource.*	• The seams dip northwards at approximately 12°. • a limit of oxidation of 30 m, based on the actual results from the bulk sampling pit indicate 18m;

Criteria	JORC Code explanation	Commentary
		• The coal within opencastable areas generally occurs at depths to a maximum of approximately 200m from surface. • The Makhado Project stretches across a distance of approximately 17km along strike.
Estimation and modelling techniques	• *The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points. If a computer assisted estimation method was chosen include a description of computer software and parameters used.* • *The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.* • *The assumptions made regarding recovery of by-products.* • *Estimation of deleterious elements or other non-grade variables of economic significance (eg sulphur for acid mine drainage characterisation).* • *In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.* • *Any assumptions behind modelling of selective mining units.* • *Any assumptions about correlation between variables.* • *Description of how the geological interpretation was used to control the resource estimates.* • *Discussion of basis for using or not using grade cutting or capping.* • *The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.*	• All historical and previous exploration data has been collated, by CoAL, into a SableTM database. This database was used, by CoAL, in the estimation of the coal resources of the Makhado Project. • Both the physical and quality parameters of the various seams were modelled. • Grids with a 20m mesh were estimated using the MinexTM general purpose gridding function using a 2.5km search radius. • The model of the physical parameters of the seam was cut along any significant structures, whilst the quality parameters were modelled across it. • All physical and quality parameters were plotted and visually inspected to ensure they were acceptable for geological interpretation. • In addition, the caking property of coke, phosphorous content and total sulphur content have been assessed across the deposit using results obtained from approximately 60% of the CoAL boreholes. • The yields estimated from the boreholes may be different to what will occur during processing through the CHPP, but are considered as the best estimate using the currently available information.
Moisture	• *Whether the tonnages are estimated on a dry basis or with natural moisture, and the method*	• The air dried density used to calculate the tonnage may be different to the in situ

Criteria	JORC Code explanation	Commentary
	of determination of the moisture content.	moisture density which may have a resultant effect on the tonnage calculations. • The relationship between these two parameters was established for the Soutpansberg coalfield from four samples taken on a nearby project. The difference between the two parameters is negligible (1.5%) and therefore it is deemed acceptable to use the apparent or air dried density for tonnage calculations.
Cut-off parameters	• *The basis of the adopted cut-off grade(s) or quality parameters applied.*	• The following cut-offs or limits are applied, by CoAL, to the Resources: ○ the Resource blocks are limited according to the boundaries of the respective NOPRs; ○ the Resource blocks are limited to the seam sub-crop; ○ the Resource blocks are limited to the Resource extrapolation limits; ○ a minimum seam thickness limit of 0.5 m is applied prior to the reporting of GTIS; ○ a limit of oxidation of 30 m, based on the actual results from the bulk sampling pit indicate 18m; ○ limit of 20% volatile matter. All material less than 20% volatiles were excluded; ○ a limit of 50 m around all known geological structures and dykes; ○ maximum depth of 200 m for opencastable Resources in the calculation of MTIS;

Criteria	JORC Code explanation	Commentary
		and ◦ geological losses of 10%, 15% and 20% are applied to Measured, Indicated and Inferred Resources, respectively, prior to the reporting of TTIS. These losses take into account any unforeseen geological features, such as dykes and faults, which have not been identified in the drilling and which may have a negative impact on the Coal Resources. The percentages applied increase with decreasing borehole spacing.
Mining factors or assumptions	• *Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.*	• The coal within opencastable areas generally occurs at depths to a maximum of approximately 200m from surface.
Metallurgical factors or assumptions	• *The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment processes and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical*	• Various metallurgical testwork programmes, which include both washing and coking, have been conducted by CoAL with a view to establish the metallurgical parameters of the Makhado coal. • An average yield of 14.4% was used for the Primary Product (10% ash) and 19.9% of the Secondary Product (30% ash)

Criteria	JORC Code explanation	Commentary
	assumptions made.	
Environmental factors or assumptions	• *Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.*	• At this stage of the project there are not any limiting environmental factors. • The Integrated Water Use License has been granted by the Department of Water and Sanitation.
Bulk density	• *Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.* • *The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc), moisture and differences between rock and alteration zones within the deposit.* • *Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.*	• Dry bulk density determination of the -50 mm fraction, from a 60tonne bulk sample in 2011 by the Research and Development Division of Exxaro Resources Limited (Exxaro) in South Africa
Classification	• *The basis for the classification of the Mineral Resources into varying confidence categories.* • *Whether appropriate account has been taken of all relevant factors (ie relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data).* • *Whether the result appropriately reflects the Competent Person's view of the deposit.*	• The Resources were presented in the following standard manner for the Makhado project: ○ Gross Tonnes In Situ (GTIS), application of mineral tenure boundaries and a 0.5 m seam thickness cut-off. This is the simplest form of Resource declaration; ○ Total Tonnes In Situ (TTIS), application of

Criteria	JORC Code explanation	Commentary
		geological losses to GTIS; and ○ Mineable Tonnes In Situ (MTIS), application of basic mining parameters to TTIS. An example of this would be the application of a minimum seam cut-off for underground mining or the block layout losses for an opencast operation. The MTIS Resources have only considered potential opencastable coal to a maximum depth of 200 m. • Additional interpretive data, supporting the structural (but not quality) continuity of seams includes, open holes with geophysics. • A maximum spacing of 500m between points of observation has been used to determine an measured resource Category A maximum spacing of 1,000m between points of observation has been used to determine an indicated resource Category. A maximum spacing of 4,000m between points of observation has been used to determine an inferred resource category for this estimation. • A measured, indicated and inferred resource has been identified in the Makhado Project area reflecting the competent person's level of confidence in the seam structure and quality continuity, based on the data currently available.
Audits or reviews	• *The results of any audits or reviews of Mineral Resource estimates.*	• The Makhado Project Coal Resource was previously reviewed by Venmyn Deloitte

Criteria	JORC Code explanation	Commentary
		(Pty) Ltd in 2013 and the MSA Group in 2015. • No adverse finding were recorded.
Discussion of relative accuracy/ confidence	• *Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.* • *The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.* • *These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.*	• The MSA Group Pty Ltd have assigned a measured, indicated and inferred resource category to the Coal Resource Estimate, reflecting the level of confidence in the seam structure and quality continuity. This category is considered to be appropriate, given the current amount of data available.

11.4 Section 4 Estimation and Reporting of Ore Reserves

(Criteria listed in section 1, and where relevant in sections 2 and 3, also apply to this section.)

Criteria	JORC Code explanation	Commentary
Mineral Resource estimate for conversion to Ore Reserves	• *Description of the Mineral Resource estimate used as a basis for the conversion to an Ore Reserve.* • *Clear statement as to whether the Mineral Resources are reported additional to, or inclusive of, the Ore Reserves.*	• The 31st August 2011 Makhado Coal Resource estimate is the basis for the Ore Reserve estimate. • The Coal Resource estimate reported is inclusive of the Ore Reserve estimate
Site visits	• *Comment on any site visits undertaken by the Competent Person and the outcome of those visits.* • *If no site visits have been undertaken indicate why this is the case.*	• CoAL's Competent Person, Mr C Bronn, CoAL's Mining Engineer and Optimisation Manager, has visited the site numerous times as part of his normal duties. • In addition, a site visit was conducted by Mr Philip

Criteria	JORC Code explanation	Commentary
		Mostert, on 19 August 2015 as part of the high-level due diligence review of the geology and Coal Resources
Study status	• *The type and level of study undertaken to enable Mineral Resources to be converted to Ore* • *Reserves.* • *The Code requires that a study to at least Pre-Feasibility Study level has been undertaken to convert Mineral Resources to Ore Reserves. Such studies will have been carried out and will have determined a mine plan that is technically achievable and economically viable, and that material Modifying Factors have been considered.*	• A Definitive Feasibility Study (DFS) was completed on the project by CoAL and its external consultants in May 2013.
Cut-off parameters	• *The basis of the cut-off grade(s) or quality parameters applied.*	• A 30 m depth cut-off was applied to remove any oxidised material. Only the ore within the pit shells was considered • All coal with Volatile content <20% (air dried) excluded
Mining factors or assumptions	• *The method and assumptions used as reported in the Pre-Feasibility or Feasibility Study to convert the Mineral Resource to an Ore Reserve (i.e. either by application of appropriate factors by optimisation or by preliminary or detailed design).* • *The choice, nature and appropriateness of the selected mining method(s) and other mining parameters including associated design issues such as pre-strip, access, etc.* • *The assumptions made regarding geotechnical parameters (eg pit slopes, stope sizes, etc), grade control and pre-production drilling.* • *The major assumptions made and Mineral Resource model used for pit and stope optimisation (if appropriate).* • *The mining dilution factors used.* • *The mining recovery factors used.* • *Any minimum mining widths used.* • *The manner in which Inferred Mineral Resources are utilised in mining studies and the sensitivity of the outcome to their inclusion.* • *The infrastructure requirements of*	• The modifying factors applied to derive the Makhado Ore Reserves are as follows:- • an export/ domestic hard coking coal price of USD225 per tonne for the primary product, at an exchange rate of ZAR7 to the USD. A domestic thermal coal price of ZAR250 per tonne for the middlings product was not considered in the evaluation during the Whittle Pit Optimisation to define the pit size as this exercise was carried out prior to the decision to produce the middlings fraction. The inclusion of the middlings fraction would result in upside potential to the project. Commodity prices and exchange rates used to estimate the economic viability of Coal Reserves are based on long term forecasts

Criteria	JORC Code explanation	Commentary
	the selected mining methods.	applied at the time the estimate was completed. Even though the forecast coal prices have retreated in the short term, the significant depreciation of the South African Rand to ~ZAR14.1 to the USD results in no material changes ; • an average total cash operating cost of ZAR244 per ROM tonne was utilised; • processing plant efficiency of 90%; • an average primary product practical yield of 15% and an average middlings product practical yields of 26% was estimated based on the results from the slim line borehole results. It should be noted that these yields exclude the recoveries for the coal fines and the result of the recent large diameter boreholes results and therefore yields may be higher; • mining recovery efficiency factor of 92% and geological losses of 5% on the opencast Coal Reserves; • surface/residual moisture of ~3.0% and inherent moisture of 1.6%; • assumed contamination of 5% for the opencast Coal Reserves. This figures was based upon industry averages; • in the estimation of Coal Reserves, MSA assumed that all regulatory applications will be approved and the current approvals will continue to be valid; and • primary product yield percentages excludes fines recovery.

Criteria	JORC Code explanation	Commentary

Metallurgical factors or assumptions	• *The metallurgical process proposed and the appropriateness of that process to the style of mineralisation.*
	• *Whether the metallurgical process is well-tested technology or novel in nature.*
	• *The nature, amount and representativeness of metallurgical test work undertaken, the nature of the metallurgical domaining applied and the corresponding metallurgical recovery factors applied.*
	• *Any assumptions or allowances made for deleterious elements.*
	• *The existence of any bulk sample or pilot scale test work and the degree to which such samples are considered representative of the orebody as a whole.*
	• *For minerals that are defined by a specification, has the ore reserve estimation been based on the appropriate mineralogy to meet the specifications?*
		• DRA Mineral Projects (Pty) Ltd (DRA) was contracted by CoAL to carry out the portion of the feasibility study covering the coal handling and processing plant (CHPP) for the Makhado Coal Project.
		• The plant needs to be efficient in terms of energy and water usage and should apply technology that is proven in the coal processing industry.
		• A bulk sample was mined and sent to Exxaro's Tshikondeni site for processing.
		• A 60 t sample was split from the bulk sample and sent to the Exxaro Pilot Plant for further test work.
		• The bulk sample fractional yield indicates a similar trend from low to high yield for the coal from coarser to the finer fractions respectively. The bulk sample theoretical yield is however significantly lower than the yield from the large core borehole sample.
		• Some of the reasons for the lower yield, but not limited to, are:
		  ○ Over blasting of the coal seams resulting in high level of contamination;
		  ○ Further contamination due to large equipment loading of roof and floor material in a small box cut area.
		• Pilot plant DMS test work on the bulk sample resulted in an 11.4% ash product at a yield around 10%. The test work was based on a single stage wash at a medium RD of 1.34, it is expected that a product with ash content closer to 10% ash can be achieved with a two stage

Criteria	JORC Code explanation	Commentary
		DMS circuit comprising of high gravity (HG) wash followed by a low gravity (LG) wash. The HG wash in this configuration plays a destoning role prior to final separation in the LG washing stage.
Environmen-tal	• *The status of studies of potential environmental impacts of the mining and processing operation. Details of waste rock characterisation and the consideration of potential sites, status of design options considered and, where applicable, the status of approvals for process residue storage and waste dumps should be reported.*	• The Makhado Project footprint is in an environmentally and ecologically sensitive area. Thus the necessary diligence was exercised when consideration was given to the location, placement and orientation of the mine infrastructure area facilities. • Energy efficiency is considered when orientating and designing buildings. Office buildings are where possible, north-facing. • The Integrated Water Use License has been granted by the Department of Water and Sanitation.
Infrastructure	• *The existence of appropriate infrastructure: availability of land for plant development, power, water, transportation (particularly for bulk commodities), labour, accommodation; or the ease with which the infrastructure can be provided, or accessed.*	• CoAL will obtain road access to site using the existing gravel Nzhelele Road off the N1. • Road access to the mine will be directly from the Nzhelele Road at an “at grade” intersection, which will provide access to both the mining area as well as to the proposed rail loadout station.
Costs	• *The derivation of, or assumptions made, regarding projected capital costs in the study.* • *The methodology used to estimate operating costs.* • *Allowances made for the content of deleterious elements.* • *The derivation of assumptions made of metal or commodity price(s), for the principal minerals and co- products.* • *The source of exchange rates used in the study.* • *Derivation of transportation charges.*	• The capital cost estimate was compiled by an independent quantity surveying company (Venn & Milford Inc.) and to present them in accordance with the developed Work Breakdown Structure (WBS). The costs were estimated from Bills of Quantities (BoQ) derived from specialist consultants’ drawings, quotations received for equipment, and extracts from

Criteria	JORC Code explanation	Commentary
	• *The basis for forecasting or source of treatment and refining charges, penalties for failure to meet specification, etc.* • *The allowances made for royalties payable, both Government and private.*	estimates of recently completed projects. • The on-mine operating-cost estimates for the Makhado Project are defined as costs including mining, processing, maintenance, logistics, overheads and indirect costs. The operating cost is based on the Feasibility Study recommendation that mining will be “contractor operated” and the plant will be “owner operated”.
Revenue factors	• *The derivation of, or assumptions made regarding revenue factors including head grade, metal or commodity price(s) exchange rates, transportation and treatment charges, penalties, net smelter returns, etc.* • *the derivation of assumptions made of metal or commodity price(s), for the principal metals, minerals and co-products.*	• Forecast sales prices and exchange rates are based on the average of consensus market forecasts. • Over the last 6 months, the rand has averaged R13:00 to the USD but the general consensus of investment analysts is that the Rand will continue its downward trend and Rand Merchant Bank is forecasting ZAR15.42 to the USD in 12 months’ time. Another commentator has forecast a rate of R15.90 to the USD in the next 12 months.
Market assessment	• *The demand, supply and stock situation for the particular commodity, consumption trends and factors likely to affect supply and demand into the future.* • *A customer and competitor analysis along with the identification of likely market windows for the product.* • *Price and volume forecasts and the basis for these forecasts.* • *For industrial minerals the customer specification, testing and acceptance requirements prior to a supply contract.*	• Established external forecast analysts have provided guidance to assess the long term market and sale of coking and thermal coal. • No sales or off-take agreement are currently in place.
Economic	• *The inputs to the economic analysis to produce the net present value (NPV) in the study, the source and confidence of these economic inputs including estimated inflation, discount rate, etc.* • *NPV ranges and sensitivity to*	• The valuation must comply with the AIM rules of using a real discount rate of 10%. The NPVs will be in real terms determined after the inflate/deflate methodology has been implemented. With a South African inflation rate

Criteria	JORC Code explanation	Commentary
	variations in the significant assumptions and inputs.	estimated at 6%$ per annum, a 10% discount rate equates to a 16.71% nominal discount rate.
Social	• *The status of agreements with key stakeholders and matters leading to social license to operate.*	• CoAL has informed MSA of land claims on the farms Fripp 645 MS, Tanga 648 MS, Lukin 643 MS and Salaita 188 MS. The land claims on the various properties have been gazetted by the Department of Rural Development and Land Reform (DRDLR). CoAL recognises land claimants as key stakeholders, and the company's engagement is governed by the company's stakeholder engagement strategy that ensures regular, meaningful and transparent engagement. CoAL recognises the legislative framework of the land claims process and will work within that framework.
Other	• *To the extent relevant, the impact of the following on the project and/or on the estimation and classification of the Ore Reserves:* • *Any identified material naturally occurring risks.* • *The status of material legal agreements and marketing arrangements.* • *The status of governmental agreements and approvals critical to the viability of the project, such as mineral tenement status, and government and statutory approvals. There must be reasonable grounds to expect that all necessary Government approvals will be received within the timeframes anticipated in the Pre-Feasibility or Feasibility study. Highlight and discuss the materiality of any unresolved matter that is dependent on a third party on which extraction of the reserve is contingent.*	• The DMR accepted an NOMR application by CoAL on the farms Mutamba 668MS, Windhoek 649MS, Daru 848MS, Tanga 849MS, Fripp 645MS, Lukin 643MS and Salaita 188MT on the 25th February 2011, and granted in 15 May 2015. The application covers a Mining Right Area of 7,634 ha. This right will supersede the current NOPRs and the required renewals thereof. • The Integrated Water Use License has been granted by the Department of Water and Sanitation.
Classification	• *The basis for the classification of the Ore Reserves into varying confidence categories.* • *Whether the result appropriately reflects the Competent Person's*	• In the case of Makhado, the Competent Person has classified all the Makhado Reserves into the Probable category, although 85% of the

Criteria	JORC Code explanation	Commentary
	view of the deposit. • *The proportion of Probable Ore Reserves that have been derived from Measured Mineral Resources (if any).*	Resources from which they are derived, are classified as Measured Resources. The reason for this classification relates to the uncertainty around the yields. The yields estimated across the orebody model have been estimated based on slim-line drilling only and using crushing. Recent bulk sampling results at isolated locations across the deposit have suggested that higher yields may be obtained using this different drilling methods and crushing methods, and indeed when the deposit is mined and processed. There is currently insufficient data currently available to accurately prove statistically or geostatistically that the yield across the deposit would be higher than currently estimated and therefore the classification of Probable Reserves have been decided.
Audits or reviews	• *The results of any audits or reviews of Ore Reserve estimates.*	• The Makhado Project Coal Resource was previously reviewed by Venmyn Deloitte (Pty) Ltd in 2013 and the MSA Group in 2015. • No adverse finding were recorded.
Discussion of relative accuracy/ confidence	• *Where appropriate a statement of the relative accuracy and confidence level in the Ore Reserve estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the reserve within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors which could affect the relative accuracy and confidence of the estimate.* • *The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and*	• The Ore Reserves estimates have been completed to a minimum of feasibility level of confidence. • The results were benchmarked against other local operators and independently verified by Venmyn-Deloitte • The accuracy of the estimates will be subject to regular reconciliation and ongoing monitoring.

Criteria	JORC Code explanation	Commentary
	economic evaluation. Documentation should include assumptions made and the procedures used. • *Accuracy and confidence discussions should extend to specific discussions of any applied Modifying Factors that may have a material impact on Ore Reserve viability, or for which there are remaining areas of uncertainty at the current study stage.* • *It is recognised that this may not be possible or appropriate in all circumstances. These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.*	

12 REFERENCES

***Coal of Africa Limited.* (2013**) Makhado Feasibility Study – January 2013

Venmyn Deloitte (2013) Independent Competent Persons Report On the Makhado Project of Coal of Africa Limited

ENSafrica (2016) Legal Opinion: Coal of Africa Limited

APPENDIX 1:

Glossary of Technical Terms

Glossary of Technical Terms

analyses	Process of determining critical chemical properties of a coal sample
Ash %	The solid residue that remains after the complete combustion of coal
borehole	Core or chips extracted from a cylindrical hole during drilling
bulk sample	Large sample which is processed through a small-scale plant, not a laboratory
Cambrian	The oldest of the systems into which the Palaeozoic stratified rocks are divided, 545 to 490 million years ago.
carbonate	A rock, usually of sedimentary origin, composed primarily of calcium, magnesium or iron and CO_3. Essential component of limestones and marbles
Coal	Carbonaceous sedimentary rock with an ash content of less than 50%. Coal is a plentiful source of energy. Thermal (energy) coal provides a reliable fuel for baseload electricity generation and coking coal is also an important ingredient in the production of steel used to build cities, railways and other vital infrastructure
Coal Seam	Portion of the strata that contains solid fossil fuels
Calorific Value (MJ/kg)	A known mass of air-dried coal is burned under standard conditions in an oxygen atmosphere contained in a bomb (i.e. at constant volume). The gross CV is calculated from the temperature rise of the water in the calorimeter vessel, and the mean effective heat capacity of the system
Coking Coal or Metallurgical Coal	A coal suitable for carbonisation in coke ovens, used in the production of steel
collar	Geographical co-ordinates of a drillhole or shaft starting point
colliery	A coal mine and the buildings and equipment associated with it
Coal washing	Treatment to reduce impurities in coal
Cretaceous	Applied to the third and final period of the Mesozoic era, 141 to 65 million years ago
DAF vols or DAFVM or Dry-ash-free volatiles	The volatiles expressed as a percentage without the other proximate analyses (Ash and moisture)

density	The density of a coal sample is dependent on the rank, type, mineral matter and moisture contents of the coal. The moisture content of a sample will be affected by the manner in which it has been handled, broken, dried, or analysed. The determination (best estimate) of the density of coal in situ requires the conversion of those densities and moistures determined in a laboratory. The industry standard method follows the Preston and Sanders formula (Preston and Sanders, 1993) which utilises the best estimate of the in situ moisture (from a Moisture Holding Capacity test or an Equilibrium Moisture test on a higher rank coal) in conjunction with the laboratory-determined air dry density and air dry moisture content of the sample. For further information refer to Q4 (Appendix C) and Preston (2005)
Devonian	The fourth period, in order of decreasing age, of the periods comprising the Palaeozoic era, 410 to 354 million years ago
diamond drilling	Method of obtaining cylindrical core of rock by drilling with a diamond set or diamond impregnated bit.
DMS	Dense medium separation
dolomite	A mineral composed of calcium and magnesium carbonate; a rock predominantly comprised of this mineral is also referred to as dolomite or dolostone
drilling	The primary method of exploration used to define the geology of the lease area and the coal deposits available
eluvium	Incoherent material resulting from the chemical decomposition or physical disintegration of rock in situ.
fault	A fracture or fracture zone, along which displacement of opposing sides has occurred
felsic	Light coloured rocks containing an abundance of feldspars and quartz
fluvial	Pertaining to streams and rivers
fold	A planar sequence of rocks or a feature bent about an axis
GJ	Gigajoules, a unit of energy
granitoid	A generic term for coarse grained felsic igneous rocks, including granite
gravity survey	Recording the specific gravity of rock masses in order to determine their distribution

Grade (coal)	Coal Grade refers to the inorganic constituents of a coal (the mineral matter) in terms of their total proportion (% mineral matter or its residue on combustion, ash) and in terms of their individual constituents (e.g. % Na, S, P etc.)
GTIS	Gross Tonnes in situ with no modifying factors
HQ	Diamond drill core size 63.5 mm in diameter
ilmenite	An iron, magnesium and titanium oxide ($(Fe,Mg)TiO_3$). The magnesium-rich ilmenite in kimberlite is called picro-ilmenite
imaging	Computer processing of data to enhance particular features
Indicated Coal Resource	That part of a Coal Resource for which tonnage, densities, shape, physical characteristics, grade and coal quality can be estimated with a moderate level of confidence. It is based on exploration sampling and testing information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes. The locations are appropriate to confirm physical continuity, while the locations are too widely or inappropriately spaced to confirm coal quality continuity. However, such locations are spaced closely enough for coal quality continuity to be assumed
Inferred Coal Resource	That part of a Coal Resource for which tonnage, grade and coal quality can be estimated with a low level of confidence. It is inferred from geological evidence and assumed but not verified physical continuity with or without coal quality continuity. It is based on exploration, sampling and testing information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes which is limited or of uncertain quality or reliability
in situ	In situ refers to the condition of the coal as being undisturbed in the ground. An estimate of Coal Resources should state the condition of the coal in the ground and the values for moisture and density.
in situ tonnage	Measure of mass of coal in the ground containing inherent moisture
joints	Regular planar fractures or fracture sets in massive rocks, usually created by unloading, along which no relative displacement has occurred
Kcal/kg	Kilocalorie per kilogramme

Licence, Permit, Lease or other similar entitlement	Any form of licence, permit, lease or other entitlement granted by the relevant Government department in accordance with its mining legislation that confers on the holder certain rights to explore for and/or extract minerals that might be contained in the land, or ownership title that may prove ownership of the minerals
Ma	Million years
mamsl	Metres above mean sea level
mineable	That portion of a Resource for which extraction is technically and economically feasible
Mineral Reserve	Is the economically mineable material derived from a Measured and/or Indicated Mineral Resource. It is inclusive of diluting materials and allows for losses that are likely to be incurred during extraction
Mineral Resource	A concentration of material of economic interest in or on 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, estimated from specific geological evidence and knowledge, or interpreted from a well constrained and portrayed geological model. Mineral Resources are subdivided, in order of increasing confidence in respect of geoscientific evidence, into Inferred, Indicated and Measured categories. A deposit is a concentration of material of possible economic interest in, on or near the Earth's crust. Portions of a deposit that do not have reasonable and realistic prospects for eventual economic extraction must not be included in a Mineral Resource
Mining dilution	The contamination of defined ore with designated waste during the mining process
Mining loss	Ore material that is not recovered during the mining process
MPRDA	South African Minerals and Petroleum Resources Development Act of 2002 (Act No 28 of 2002)
Mt	Million tonnes
MTIS	Mineable tonnes in situ
Mtpa	Million tonnes per annum
MW	Mega Watt
Open pit or open cut	The main type of mine designed to extract minerals close to the surface

Ore or orebody	Natual mineral accumulations which can be extracted for use under existing economic conditions and using existing extraction techniques
Ordovician	The second of the periods comprising the Palaeozoic area, 490 to 434 million years ago
orogeny	A deformation and/or magmatic event in the earth's crust, usually caused by collision between tectonic plates
Palaeozoic	An era of geologic time between the Late Precambrian and the Mesozoic era, 545 to 251 million years ago
PCI	Pulverised coal injection
Precambrian	Pertaining to all rocks formed before Cambrian time (older than 545 million years)
Proterozoic	An era of geological time spanning the period from 2,500 to 545 million years before present
Quality (coal)	Quality is a term that encompasses all aspects of rank, type and grade that contribute to giving a coal its properties, as indicated by a standard suite of tests. Quality is normally considered in the context of coal's potential utilisation and how it might favourably or unfavourably affect the utilisation process.
Rank (coal)	Rank is a concept that describes the degree of coalification (physical and chemical transformation from vegetable material to coal) that has been achieved by plant materials, as a consequence of elevated temperature maintained over time and to a much lesser degree, pressure. The causal factor is principally deep burial of plant materials within the earth's crust. Rank is indicated by a range of properties, including moisture and calorific value for low rank coals and mean maximum reflectance of vitrinite for higher rank coals
RBCT	Richards Bay Coal Terminal
RC drilling	(Reverse Circulation) A percussion drilling method in which the fragmented sample is brought to the surface inside the drill rods, thereby reducing contamination.
RD	Relative density
Recovery	The percentage of minerals produced compared to the amount of minerals contained in the feedstock in the context of a processing plant or the percentage of metal produced compared to the amount of metal contained in the feed concentrates in the context of a smelting plant
ROM	Run of mine

sandstone	A sedimentary rock composed of cemented or compacted detrital minerals, principally quartz grains
satellite positioning system (global positioning system GPS)	An instrument used to locate or navigate, which relies on three or more satellites of known position to identify the operators location
siltstone	A rock intermediate in character between a shale and a sandstone. Composed of silt sized grains
stratigraphic drill hole	A drill hole completed to determine the nature of rocks, rather than to identify mineral deposits, frequently applied for research or in the early stages of petroleum exploration
strike	Horizontal direction or trend of a geological structure
tectonic	Pertaining to the forces involved in, or the resulting structures of, movement in the earth's crust
Thermal Coal	The Resource used for power generation and cement production
trough	A large sediment-filled and fault-bounded depression resulting from extension of the crust
Tonnes	Metric tonnes
Type (Coal)	Coal type refers to the composition of a coal in terms of its organic components, recognised as its macerals. The macerals are recognised according to a standard classification system, which refers to the original plant material from which they were formed and the degree of subsequent decomposition and degradation

APPENDIX 2:

Certificates of Authors

CERTIFICATE OF INDEPENDENT SENIOR SPECIALIST

I, Philip Mostert, Professional Natural Scientist (Geology) (Pr.Sci.Nat.) do hereby certify that:

1. I am Principal Coal Consultant of:

   The MSA Group (Pty) Ltd, 20B Rothesay Avenue, Craighall Park, Gauteng, South Africa, 2196

2. This certificate applies to the Independent Competent Person and Valuation Report titled "Independent Competent Persons Report on the Makhado Coal Project of Coal of Africa Limited", that has an effective date of 29 January 2016 and a report date of 29 January 2016 (the Independent Competent Person Report).

3. I graduated with a BSc Hons degree in Geology from the University of Pretoria in 2001. In addition, I have obtained a BSc degree in Geology from the University of Pretoria in 2000.

4. I am a Registered Professional Natural Scientist (Pr.Sci.Nat No. 400442/11) with The South African Council for Natural Scientific Professions and a Member of the Geological Society of South Africa.

5. I have worked as a geologist for a total of 13 years, during which time I have worked as a geologist, senior geologist, chief geologist, senior manager (acting) of technical services and a consultant. I have undertaken independent competent persons' reports and Mineral Resource statements since 2009.

6. I have read the definition of "Senior Specialist" set out in The VALMIN Code 2005 and certify that by reason of my education, affiliation with a professional association and past relevant work experience, I fulfil the requirements to be a "Senior Specialist" for the purposes of The VALMIN Code 2005.

7. I am responsible for, or co-responsible for, the preparation of sections 1 – 9 the the Independent Competent Person and Valuation Report.

8. I have not had prior involvement with the properties that are the subject of the Independent Competent Person and Valuation Report.

9. I am not aware of any material fact or material change with respect to the subject matter of Independent Competent Person and Valuation Report that is not reflected in the Independent Competent Person and Valuation Report, the omission to disclose which makes Independent Competent Person and Valuation Report misleading.

10. I am independent of the issuer according to the definition of independence described in The VALMIN Code 2005

11. I have read The VALMIN Code 2005 and, as of the date of this certificate, to the best of my knowledge, information and belief, those portions of the Independent Technical Assessment and Valuation Report for which I am responsible have been prepared in compliance with the Code.

12. I consent to the filing of Independent Competent Person and Valuation Report with any stock exchange and other regulatory authority and any publication by them for regulatory purposes, including electronic publication in the public company files on their websites accessible by the public, of the Independent Technical Assessment and Valuation Report

Dated this 29th Day of January, 2016

Philip Mostert, Professional Natural Scientist (Geology) (Pr.Sci.Nat.)

CERTIFICATE OF REPRESENTATIVE EXPERT

I, André Johannes van der Merwe, Professional Natural Scientist (Geology) (Pr.Sci.Nat.) do hereby certify that:

I am Head of Department – Mining Studies of: The MSA Group (Pty) Ltd, 20B Rothesay Avenue, Craighall Park, Gauteng, South Africa, 2196

1. This certificate applies to the Independent Competent Person and Valuation Report titled "Independent Competent Persons Report on the Makhado Coal Project of Coal of Africa Limited", that has an effective date of 29 January 2016 and a report date of 29 January 2016 (the Independent Competent Person Report).
2. I obtained a BSc Degree in Geology and Physics from the University of Stellenbosch in 1985. In addition I graduated with a BSc Hons Degree in Geophysics from the University of the Witwatersrand in 1988 and a Graduate Diploma in Engineering (Mining) from the University of the Witwatersrand in 1996.
3. I am a Member of the Australasian Institute of Mining and Metallurgy, a Fellow of the Geological Society of South Africa and a Registered Professional Natural Scientist (Pr.Sci.Nat No. 400329/04) with The South African Council for Natural Scientific Professions.
4. I have worked as a geologist and geophysicist for a total of 28 years, during which time I have worked as an exploration geophysicist, exploration geologist, mine geologist and rock engineer. I have undertaken independent valuations of mineral assets since 2000.
5. I have read the definition of "Representative Expert" set out in The VALMIN Code 2005 and certify that by reason of my education, affiliation with a professional association and past relevant work experience, I fulfil the requirements to be a "Representative Expert" for the purposes of The VALMIN Code 2005 and this report.
6. I have not visited any of the mineral properties which are the subject of this report, since the site visits were carried out by the other co-authors of this Independent Competent Person and Valuation Report.
7. I am responsible for, or co-responsible for, the preparation of sections 7 – 9 of the Independent Competent Person and Valuation Report.
8. I have not had prior involvement with the properties that are the subject of the the Independent Competent Person and Valuation Report.
9. I am not aware of any material fact or material change with respect to the subject matter of the the Independent Competent Person and Valuation Report that is not reflected in the Independent Competent Person and Valuation Report, the omission to disclose which makes the the Independent Competent Person and Valuation Report misleading.
10. I am independent of the issuer according to the definition of Independence described in The VALMIN Code 2005
11. I have read The VALMIN Code 2005 and, as of the date of this Certificate, to the best of my knowledge, information and belief, those portions of the Independent Technical Assessment and Valuation Report for which I am responsible have been prepared in compliance with the Code.
12. I consent to the filing of the Independent Competent Person and Valuation Report with any stock exchange and other regulatory authority and any publication by them for regulatory purposes, including electronic publication in the public company files on their websites accessible by the public, of the Independent Technical Assessment and Valuation Report

Dated this Dated this 29th Day of January, 2016

André Johannes van der Merwe, Professional Natural Scientist (Geology) (Pr.Sci.Nat.)