CONFIDENTIAL AND LEGALLY PRIVILEGED REPORT

Independent Competent Person's Report on Isibonelo Colliery

Report Prepared for

South Africa Coal Operations (Pty) Ltd

Report Number 566627

Report Prepared by

srk consulting

SRK Consulting (South Africa) (Pty) Ltd

Report Ref: 566627_Isibonelo CPR Final

Report Date: 25 March 2021

Effective Date: **31 December 2020** [12.10(a), SR9.1(iii), SV1.2]

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South Africa Coal Operations (Pty) Ltd

55 Marshall Street
Marshalltown
Johannesburg 2001
South Africa

SRK Consulting (South Africa) (Pty) Ltd
265 Oxford Rd
Illovo 2196
Johannesburg
South Africa

e-mail: johannesburg@srk.co.za
website: www.srk.co.za

Tel: +27 (0) 11 441 1111
Fax: +27 (0) 11 880 8086

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Compiled by:

Lesley Jeffrey Pr.Sci.Nat FGSSA
Principal Geologist

Email: ljeffrey@srk.co.za

Peer Reviewed by:

Marcin Wertz PrEng FSAIMM
Principal Mining Engineer & Partner

Contributors:

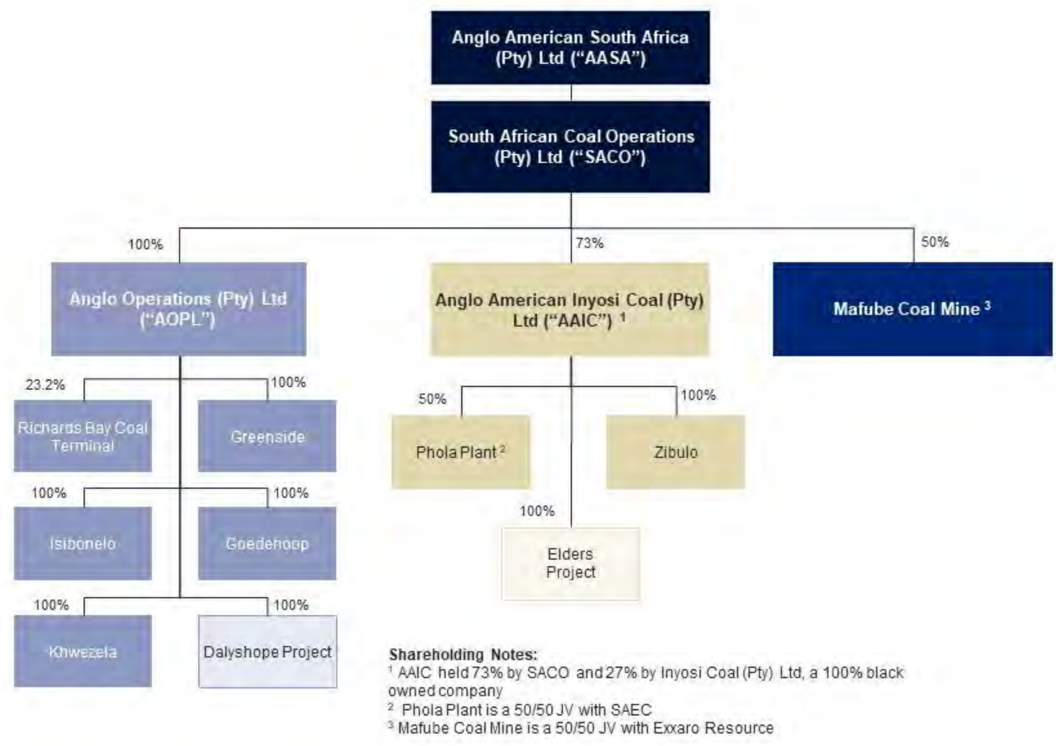
S Benedek, K Black, J Edwards, L Fair, P Hand, C Hempel, L Jeffrey, D Killian, B Korb, J Lotheringen, A Louw, B Mabenge, V Maharaj, K Mahuma, P Mans, A Maritz, R Mayne, N McGeorge, D Mossop, W Schoeman, P Shepherd, V Snyman, A Treadwell, J van Eyssen, A van Zyl, C Zermatten

Executive Summary

ES1: Introduction

[12.10(h)(i)] [SR1.1(i)] [SV1.2]

SRK Consulting (South Africa) (Pty) Ltd (**SRK**) was commissioned by South African Coal Operations (Pty) Ltd (**SACO**) (Figure ES.1) to compile a Competent Person's Report (**CPR**) on Isibonelo Colliery (**Isibonelo**) in Mpumalanga, South Africa (Figure ES.2). The Anglo American Group will be separating its South African thermal coal operations, which comprise the operations held by SACO, by way of a demerger ("**Demerger**") and the transfer of such operations to Thungela Resources Limited (the **Company**). The Company is incorporated in South Africa and all of the issued, and to be issued, Shares of the Company are expected to be admitted to the main board of the JSE Limited (**JSE**) as a primary listing and admitted to the standard listing segment of the UK Official List and to trading on the main market for listed securities on the London Stock Exchange (**LSE**). Any reference to the Company in this report should be read to also include SACO, as relevant.



srk consulting	**ISIBONELO COLLIERY CPR** Illustrative Existing Group Structure and Interests in Coal Assets *(Source: pers. Comm. Harding, C., 2020)*	Project No. 566627

Figure ES.1: Simplified Corporate Structure and Interests in Coal Assets

This report has been prepared by SRK for inclusion in the pre-listing statement and prospectus, or similar (**Listing Documentation**) to be published by the Company in connection with the Demerger and the proposed admission of the Company's issued and to be issued ordinary shares to:

- Trading on the "Mining" sector of the JSE as a primary listing;
- The standard listing segment of the UK Official List; and
- Trading on the LSE's Main Market for listed securities (collectively the **Offer**).

This report, which summarises the findings of SRK's review, has been prepared to satisfy the requirements of:

- A CPR as set out in Chapter 12 of the Listing Rules of the JSE (the **JSE Rules**) and follows the form and content of a Mineral Asset Valuation Report as specified by the 2016 Edition of "*The South African Code for the Reporting of Mineral Asset Valuations"* (the **SAMVAL Code**); and
- The requirements of the UK Prospectus Regulation Rules made by the Financial Conduct Authority (**FCA**) pursuant to section 73A (4) of the Financial Services and Markets Act 2000 (**FSMA**) (**UK Prospectus Regulation Rules**) and the UK version of Regulation (EU) 2017/1129) of the European Parliament and of the Council of 14 June 2017 and repealing Directive 2003/71/EC and the delegated acts, implementing acts and technical standards thereunder as such legislation forms part of retained EU law by virtue of the European Union (Withdrawal) Act 2018, in conjunction with the European Securities and Markets Authority (**ESMA**) update of the Commission of European Securities Regulators (**CESR**) recommendations for the consistent implementation of the European Commission's Regulation on Prospectuses No 809/2004 (CESR/05-054b) issued (**ESMA Recommendations**), specifically, Clauses 131 to 133 and Appendices I and II.

SRK has given and has not withdrawn its written consent to:

(i) The issue of the Listing Document with the inclusion of the references to its name; and

(ii) The inclusion of information extracted from this CPR in "Part VIII—Business Overview" of the Listing Document, and has authorised the contents of this CPR and references thereto as part of the Listing Document for the purposes of Item 1.3 of Annex 1 of Commission Delegated Regulation (EU) 2019/980 as it forms part of UK law by virtue of the European Union (Withdrawal) Act 2018.

In compliance with Item 1.2 of Annex 1 of Commission Delegated Regulation (EU) 2019/980 as it forms part of UK law by virtue of the European Union (Withdrawal) Act 2018, SRK accepts responsibility for this CPR and, to the best of SRK's knowledge, declares that the information set out in this CPR is in accordance with the facts and this CPR makes no omission likely to affect its import.

The reporting standard adopted for the reporting of the Coal Resources and Coal Reserves for Isibonelo is the 2016 Edition of "*The South African Code for the Reporting of Exploration Results, Mineral Resources and Mineral Reserves"* (The **SAMREC Code**) as prepared by the Working Group of the SSC Committee under the auspices of the Southern African Institute for Mining and Metallurgy (**SAIMM**) and the Geological Society of South Africa (**GSSA**). The definitions of the relevant terms, methodologies and estimation processes employed and the reporting for JSE purposes for the Coal Resources and Coal Reserves in this report are according to those set out in South African National Standard *"The South African guide to the systematic evaluation of coal exploration results, coal resources and coal reserves"* (**SANS10320:2020**) published by Standards South Africa, a division of the South African Bureau of Standards (**SABS**).

The reporting standard adopted for the reporting of the valuation for Isibonelo is the SAMVAL Code, as prepared by the South African Mineral Asset Valuation Working Group under the auspices of the SAIMM and the GSSA.

This report also satisfies the disclosure requirements of *"The South African Guideline for the Reporting of Environmental, Social and Governance Parameters within the Solid Minerals and Oil and Gas Industries"* (the **SAMESG** Guideline).

This report has been prepared under the direction of the Competent Persons (**CPs**) and Competent Valuator (**CV^2**) in accordance with the requirements of the SAMREC (**SR**) and SAMVAL (**SV**) Codes and the SAMESG Guideline (**ESG**). Note that two "CV" abbreviations have been used throughout this document:

- CV^1 for "Calorific Value"; and
- CV^2 for "Competent Valuator.

A shorthand notation has been adopted to demonstrate compliance with the JSE Rules and disclosure requirements of the SAMREC/SAMVAL Codes, for example:

1. [12.10(d)] represents Section 12.10(d) of the JSE Rules;
2. [SR1.1] represents Item 1.1 - Property Description of Table 1 of the SAMREC Code;
3. [SV1.4] represents Criterion T1.4 - Compliance of Table 1 in Appendix A of the SAMVAL Code; and
4. [ESG2.3] relates to Item 2.3 included in the SAMESG Guideline.

ES2: Effective Date

[12.10(a)] [SR9.1(iii)] [SV1.2, SV1.13]

The Effective Date for this CPR is 31 December 2020 (the **Effective Date**).

The Coal Resource and Coal Reserve statements set out in this CPR are reported as at 31 December 2020 and represent the Coal Resources and Coal Reserves at the Effective Date as estimated by SRK.

The declaration of Coal Reserves as at the Effective Date of 31 December 2020 includes a forecast of four months (September to December 2020) to the allocated position. However, information gained during the review is that Isibonelo has not achieved its planned production targets during the first six months of 2020: it is SRK's opinion that any variation between the planned and the actual Coal Reserves will not be significant.

The Life of Mine (**LoM**) plan and associated technical and economic parameters (**TEPs**) included in the LoM plan and techno-economic model (**TEM**) all commence on 1 January 2021 and are presented in constant money terms (cost estimates are at the Effective Date and ignore inflation and any real increase due to escalation).

The financial results for Isibonelo Colliery are taken to be correct at 31 December 2020, the Effective Date of the CPR, which is also the **Valuation Date**.

ES3: Project Outline

[12.10(h)(ii) (iii)] [SR1.1(i), SR1.2(i)] [SV1.5, SV1.2] [ESG4.5]

Isibonelo Colliery lies approximately 150 km east of Johannesburg and approximately 90 km south of eMalahleni (previously Witbank), Mpumalanga in the Govan Mbeki Local Municipality (Figure ES.2). Isibonelo produces approximately five million tonnes (**Mt**) raw Run-of-Mine (**RoM**) coal per annum to supply Sasol Synthetic Fuels (**SSF**), under the Coal Supply Agreement (**CSA**). The Number 4 Seam (**No 4 Seam**) is the only economic seam, as the Number 5 Seam (**No 5 Seam**), Number 3 Seam (**No 3 Seam**), Number 2 Seam (**No 2 Seam**) and Number 1 Seam (**No 1 Seam**) are poorly developed or not developed at all and are not economically viable. Isibonelo has been in operation for the last fifteen years. The mine operations consist of the North and the South Pits, haul and access roads, a coal handling plant with an 8 000 tonne surge bunker and an emergency stockpile, a pollution control dam and a diversion dam, offices and workshops. The pits are located approximately 16 km from the main office block and workshops, while the coal is conveyed approximately 14 km from the pit to the point of sale at the Isibonelo bunker. From this point it is conveyed a further 22 km to the SSF stockyard situated at the SSF's plant immediately south of the town of Secunda. Isibonelo was developed on the Kriel South Coal Reserves to fulfil the supply of coal to Sasol. The mine is an opencast operation which employs two Marion 8200 draglines as the primary coal mining equipment, with one dragline employed per pit.

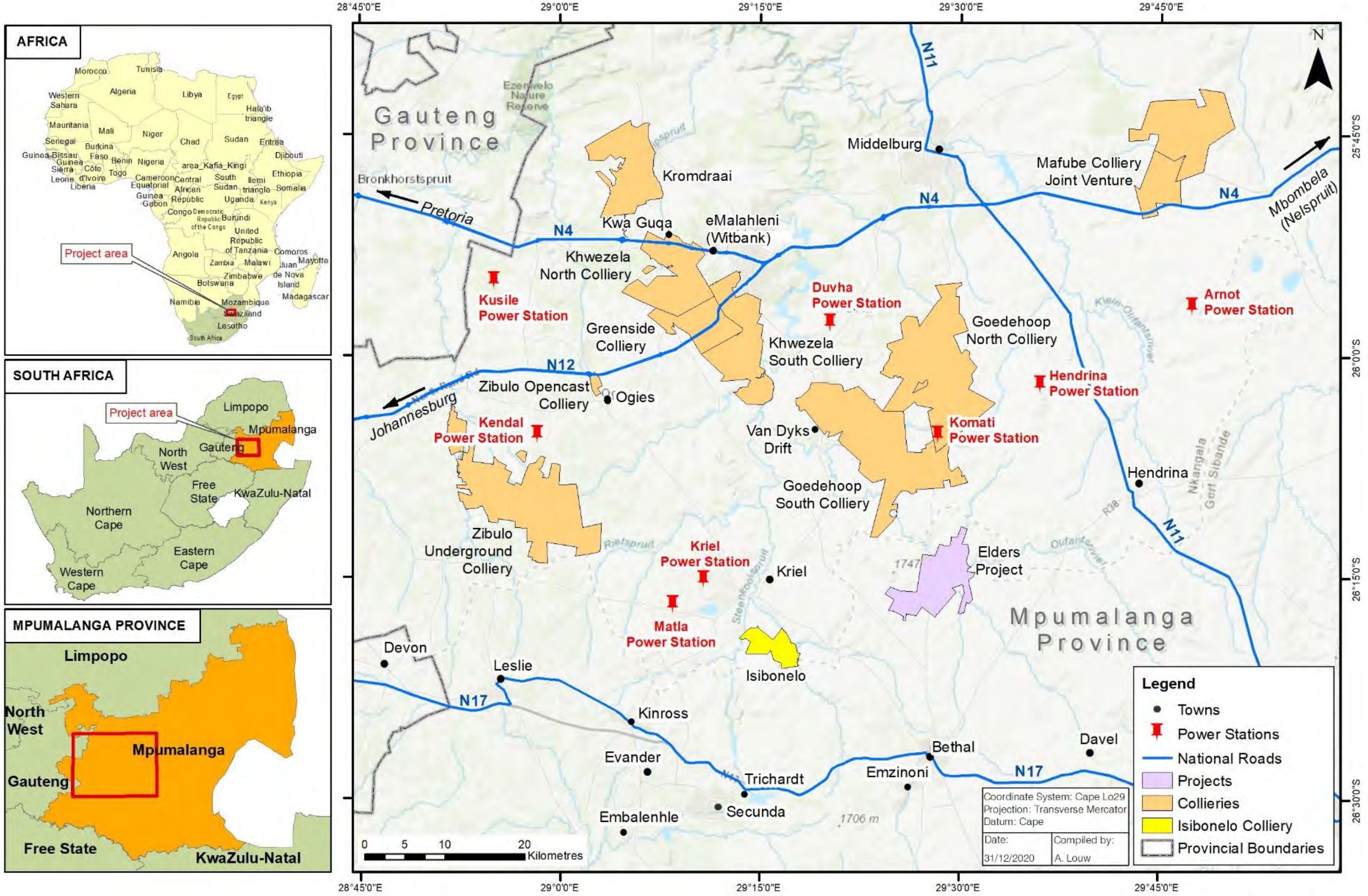
ES4: Overview of Material Assets and Legal Status

[12.10(h)(iv)] [SR1.5] [SV1.5]

A summary of the Mining Rights (**MR**) held by Isibonelo is given in Table ES-1, the Water Use Licences in Table ES-2 and extant land claims in Table ES-3.

Table ES-1: Summary of the Company's Mining Rights

Name	Number	Rights Type	Area (ha)	Grant Date	Expiry Date
Isibonelo	MP30/5/1/2/2/130MR			05/05/2008	17/11/2038
Block F	Section 102 – to incorporate Block F Triangle	Mining	2 053.3675	20/04/2018	17/11/2038
Zimele Block	Section 102 - to include Zimele Block			17/08/2018.	17/11/2038



srk consulting	**ISIBONELO COLLIERY CPR** Location of Isibonelo Colliery	Project No. 566627

Figure ES.2: Isibonelo Mine Locality Plan

Table ES-2: Summary of Water Use Licences (WUL)

Licence Number	Description	Approval Date	Comments
06/B11D/FBCGIJ/9121	Isibonelo Colliery Zimele Block WUL	19/11/2019	Amended WUL, which has replaced the original WUL (Licence No. 03/A31J/ABCFGIJ/2869 granted on 08/11/2017)
Ref. No. 2064B	Exemption for Sewerage Treatment Plant	29/03/2000	STP Exemption

Table ES-3: Summary of Extant Land Claims

Number	Farm and Portion	Claimant	Status
4	Vlaklaagte 83 JS Rem Portions 1 and 3	SS Mtshweni	In progress
5	Rietfontein101 IS R/E Ptn 1	Not indicated	In progress

SRK has had sight of copies of the Isibonelo Mining Right documents. The Isibonelo Mining Right, along with the two successful Section 102 applications to include the Zimele and Block F Triangle areas, incorporates the full area planned for mining.

The surface rights are mainly owned by the Company; however, some of the surface rights are owned by other entities. Constraints to the existing mine plan are the Zimele surface area owned by Eskom Holding SOC Ltd (**Eskom**). Negotiations with Eskom will be initiated to finalise permissions from Eskom to mine the affected areas. Negotiations with CJ Greyling for ground in the vicinity of the North Pit have recently been concluded (pers. Comm. Harding, C., 2020).

ES5: Geological Setting

[12.10(h)(v), SR2.1, SV1.2, SV1.7]

Regional Geology

[SR2.1(i)]

Coal is found in South Africa in 19 coalfields, located mainly in KwaZulu-Natal, Mpumalanga, Limpopo, and the Free State, with lesser amounts in Gauteng, the North West Province and the Eastern Cape. All the coal deposits are found in the Karoo Supergroup, the majority in the Vryheid Formation of the Ecca Group, consisting predominantly of sedimentary rocks. Isibonelo Colliery is located near the northern extent of the Highveld Coalfield, within the Mpumalanga Province of South Africa.

The Highveld Coalfield extends from Nigel in the west to Davel in the east, and approximately 90 km in a north-south direction, covering some 700 000 ha. The area is underlain by sedimentary rocks of the Karoo Supergroup, deposited 248 – 290 Ma during the Permian Period (Hancox & Götz, 2014). The thickness of the Karoo Supergroup varies from thin in the north, to over 300 m in the vicinity of Standerton, with the variation in thickness primarily due to the uneven nature of the pre-Karoo topography. This uneven pre-Karoo topography is also responsible for the controlling the presence and thickness of the Dwyka Group sequence.

Stratigraphy

The Karoo Supergroup comprises, from oldest to youngest, the Dwyka, Ecca and Beaufort Groups, with the coal seams hosted within the Vryheid Formation of the Middle Ecca Group (270 Ma).

The basal Dwyka Group sequence comprises massive diamictites with lesser matrix-supported conglomerates and coarse-grained sandstones (Hancox & Götz, 2014). Occasional siltstone interbedded with sandstone, pebbly mudstones and varved siltstones are also present. The diamictites are composed of sub-angular to sub-rounded clasts primarily comprising granites, quartzites, mudstones and calcareous sandstones.

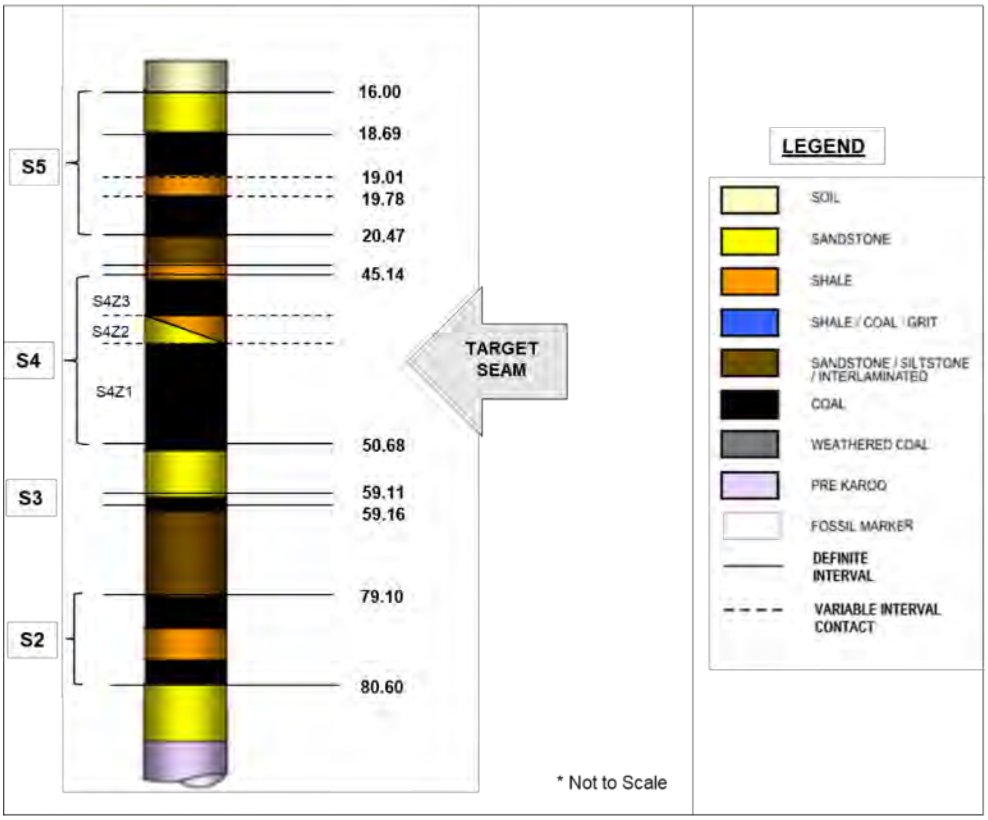
The Vryheid Formation overlies the diamictites and other glacially derived sediments of the Dwyka Group. The

Vryheid Formation sediments represent coal-capped upward fining cycles of clastic sediments, deposited in a fluviodeltaic or shallow marine environment. The formation is characterised by a variety of sandstones, mudstones and siltstones, with lesser amounts of coal and occasional gritstones. Five coal seams are present within the Vryheid Formation, the No 1, 2, 3, 4 and 5 Seams, named from the base up. The No 1 and No 3 Seams are thin and discontinuous throughout the coalfield. The No 2 Seam ranges between 1.5 and 4.0 m where it is laterally continuous, comprising mainly dull coal. The No 4 Seam averages 4.0 m and is economically the most important seam (Jeffrey, 2005). It ranges from 1 – 12 m across the coalfield, and shale intercalations are common in the upper part of the seam. The No 5 Seam is present over most of the coalfield, attaining mineable thicknesses in the northern and western portions of the field only. The No 5 Seam comprises bright to dull coal, with the presence of shale intercalations.

Local Geology

The coal seams in the Highveld Coalfield (Figure ES.3) are generally described as flat lying to gently undulating, with a regional dip to the south. The depth of the coal seams increases in a southerly direction. The Highveld coalfield has been affected by numerous dolerite dykes and sills related to the Drakensberg Formation flood basalts. Within the vicinity of the dolerite, the usual structural complications and devolatilization of the coal occurs.

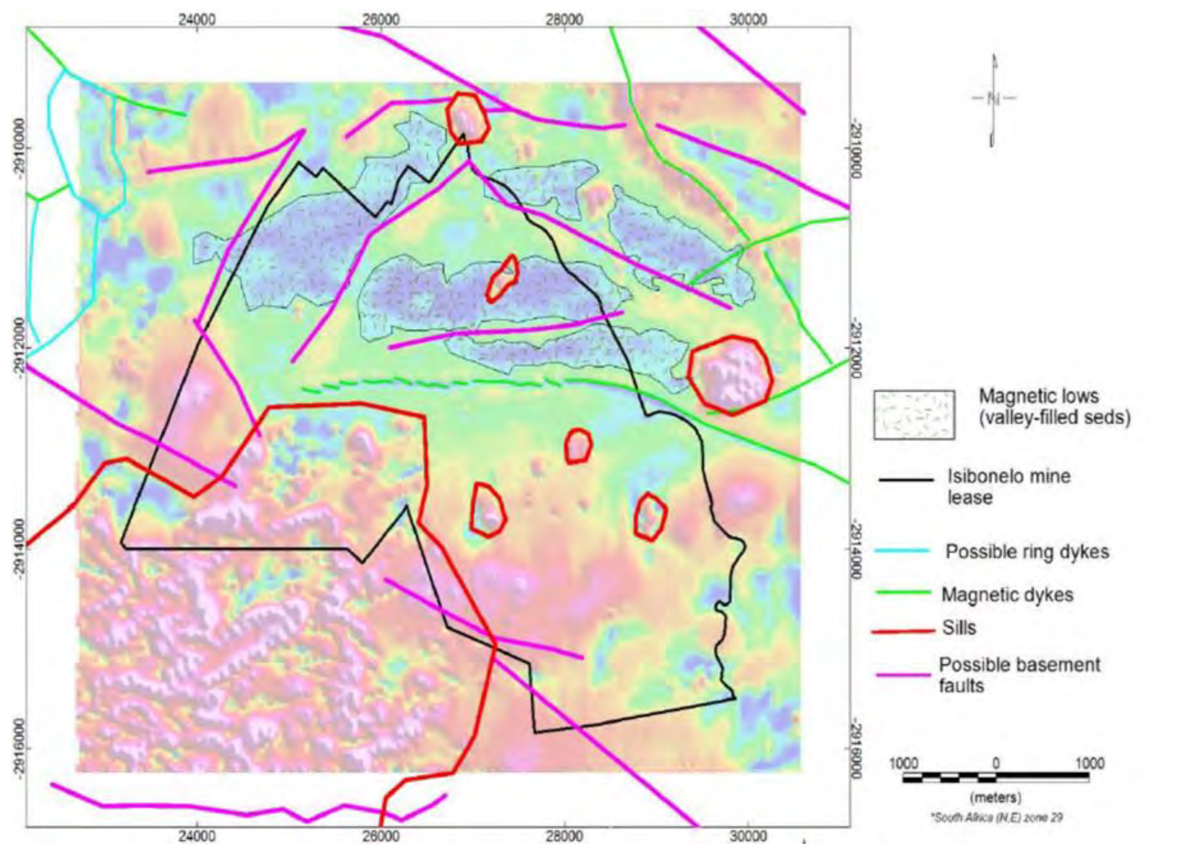
The coal within the Highveld Coalfield is economically important to the long-term life of SSF and the Sasol Chemical Industries (**SCI**), which require some 50 Mt of coal per annum.



srk consulting	**ISIBONELO COLLIERY CPR** Typical Stratigraphy at Isibonelo Colliery (Source: *Isibonelo CPR, 2017 - AAC, 2017h*)	Project No. 566627

Figure ES.3: Typical Stratigraphy at Isibonelo Colliery

No evidence of faulting has been detected during any of the drilling or mining activities. The aeromagnetic study conducted in 2014 indicated the presence of reactivated basement faults, however, there was no evidence to suggest that these faults have affected the coal formations (Khoza, 2014). Although dolerite sills are found in the surrounding area, there is no evidence of the sills transgressing the coal seams in the current mine layouts. A sill is located to the south of the North Pit, identified during the aeromagnetic study and also intersected by numerous drill holes (Figure ES.4). The sill is positioned above the No 4 Seam and has had no deleterious effect on the coal qualities thus far. Small-scale faulting may occur in the vicinity of the sill, particularly along the southwestern boundary of the North Pit. Three thin dolerite dykes have been intersected during mining activities but have had little effect on the coal seam. The possibility of additional, unidentified dykes occurring in the area must therefore not be discounted.



srk consulting	**ISIBONELO COLLIERY CPR** Structural Interpretation from Aeromagnetic Study (*Source: Khoza, 2014*)	Project No. 566627

Figure ES-4: Structural Interpretation for Isibonelo Colliery

ES6: Exploration and Drilling

[12.10(h) (vi)] [SR3.1, SR3.2(i)-(v)] [SV1.8]

The Isibonelo resource area has been well drilled and there is confidence that the geological model accurately reflects the tonnage and quality of the coal in the ground. The drill holes planned and drilled on an annual basis are for the purpose of grade control; confirming the No 4 Seam qualities destined for Sasol. The aim at Isibonelo is to complete the drilling three to four years before the end of the LoM. On average, 120 fully cored drill holes are drilled per year within the mining footprint. The drill holes are planned within the mine layouts, resulting in a grid spacing of approximately 100 m x 50 m.

All geological exploration, both planning and execution is carried out by the Company's geologists. The original hard copies of the logs are stored at the Anglo American Geological Services (**ACGS**) in eMalahleni.

A total of 2 336 exploration holes have been drilled since the 1950s; 2 325 are included in the geological model, all of which are fully cored drill holes.

Current exploration drilling is governed by the relevant sections of Anglo American Coal Standard(s).

Future Planned Exploration

A summary of the planned exploration expenditure for the period 2020 - 2022 is given in Table ES-4.

Table ES-4: Isibonelo Drilling Budget

Period	Budget (ZARm)	
	2021	2022
Drilling	7.2	7.3
Sample Analysis	0.1	0.1
Survey	0	0
Downhole Geophysics	0.4	0.4
Farmer Compensation	0.3	0.3
Geotechnical Investigation	0	0
Total	**8.0**	**8 .1**

ES7: Geological Model Review

[SR2.1(vii), SR4.1(ii) (iv) (v)]

The Isibonelo model under review was created by DJ Pretorius, a Resource Geology Specialist with the Company, using Datamine's StratModel™ Software. The model was created using StratModel™ version 4.119 Patch 01 and reviewed by SRK using StratModel™ version 7. The model is dated February 2017, with a data cut-off date of 30 January 2017.

The Isibonelo model was evaluated to assess:

- How the physical and quality drill hole data were loaded and evaluated;
- That the modelled data accurately reflected the original drill hole data;
- The interpolation parameters used to create the model;
- The interpretation of the data to ensure that the final structural model is a reasonable reflection of the coal in the ground; and
- That the Coal Resource estimation methodologies were correct and appropriate.

Model and data validations included the following:

- Topographic surface generation and evaluation – evaluating whether surveyed collar coordinates fall within one metre of the topographic surface and understanding any discrepancies;
- Evaluating any differences between the drill hole data and the model interpretation;
- Structural interpretation of dolerite intrusions, faulting, seam pinch out and subcrop etc.;
- Quality checks and evaluation - checking that the data load tables contain no sampling gaps, that all standardised coal quality values for unsampled material have been included where necessary; the sample compositing rationale (the correct method is to only composite data for which there are no missing samples or depth overlaps) and examining quality plots for "bull's eyes" which require corroboration;
- The correct application of Coal Resource cut-off limits; for example, the dry ash free volatile (DAFV) limit, minimum seam thickness, crop lines and mined out areas; and
- The polygon classification determined by SRK was in accordance with the SANS13020:2020 guidelines.

The Isibonelo model is an established model which is well understood and managed. The supporting Anglo Standards and Procedure Documents ensure that there is a high level of confidence regarding the model.

ES8: Coal Resources Summary

[12.10(h) (ix)] [SR4.5(ii) (iv) (v) (vii), SR6.1(i), SR6.3(vi)] [SV1.9]

The Coal Resource estimates were conducted in accordance with the SAMREC Code, 2016 Edition, as well as SANS10320:2020.

The Coal Resource estimate has been independently estimated by Ms K. Black of KJB GeoServices and signed off by Ms L. Jeffrey on behalf of SRK, based on the model and mining face positions supplied by the Company and verified by SRK. The Coal Resource estimate is declared as at 31 December 2020.

SRK applied the following cut-off parameters when estimating the resources:

- The seam extent was constrained by:
  - The Mining Right boundary;
  - The limit of weathering;
  - A 70 m boundary polygon between the opencast and the underground area being ceded to Sasol; and
  - A buffer zone of 500 m in the vicinity of the rivers to the west and the east of the resource area.
- Maximum ash content 50%;
- Minimum dry ash-free volatile matter content 24%; and
- Minimum seam height 0.5 m.

The Isibonelo Opencast Coal Resource on a Mineable Tonnes In Situ (**MTIS**) air-dried basis (**adb**) for the No 4 Seam amounts to 36.57 Mt for the North and South Pits combined. This estimate is made up of 27.45 Mt of Measured Coal Resources (75%) and 9.12 Mt of Indicated Coal Resources (25%). The average inherent moisture content is 5.6%.

The Coal Resources for Isibonelo on a total basis[1] (100% attributable to Isibonelo) at 31 December 2020 are summarised in Table ES-5 and the raw coal qualities (adb) are shown in Table ES-6.

The Coal Resources have been subdivided into those inside and outside the LoM Plan, which has been determined using the specified mine design parameters within the economic footprint (SANS 10320:2020, clauses 3.2.5, 8.1.1.1, 8.1.2.3 and Table F1).

Coal Resources inside the mine plan are reported inclusive of the Coal Reserves.

It should be noted that Coal Resources are only declared for the No 4 Seam as SRK is of the opinion that the No 5 Seam does not have reasonable prospects for eventual economic extraction.

[1] Note that “total basis” refers to 100% of the Coal Resources and/or Coal Reserves within the Isibonelo Mining Right and is not necessarily the percentage attributable to the holder of the Mining Right.

Table ES-5: Isibonelo No 4 Seam MTIS Coal Resource Statement as at 31 December 2020 (adb)

Block	Resource Classification Category	Mining Method	Seam	Area (ha)	Seam Thick-ness (m)	Raw ARD	Geo. Loss (%)	MTIS (Mt)
INSIDE THE MINE PLAN								
North Pit	Measured	OP	No 4	136.70	5.78	1.57	5	11.75
	Indicated	OP	No 4	67.01	5.75	1.57	5	5.73
	Subtotal	**OP**	**No 4**	**203.71**	**5.77**	**1.57**	**5**	**17.48**
South Pit	Measured	OP	No 4	143.82	5.55	1.57	5	11.94
Total Inside the Mine Plan		**OP**	**No 4**	**300.10**	**5.56**	**1.57**	**5**	**29.42**
OUTSIDE THE MINE PLAN								
North Pit	Measured	OP	No 4	46.72	5.35	1.58	5	3.76
	Indicated	OP	No 4	40.10	5.67	1.57	5	3.39
	Subtotal	**OP**	**No 4**	**86.81**	**5.50**	**1.58**	**5**	**7.14**
Total Outside the Mine Plan		**OP**	**No**	**86.81**	**5.50**	**1.58**	**5**	**7.14**
GRAND TOTAL (Inside + Outside the Mine Plan)		**OP**	**No 4**	**434.35**	**5.65**	**1.57**	**5**	**36.56**

Note:
1. Note that "total basis" refers to 100% of the Coal Resources and/or Coal Reserves within the Isibonelo Mining Right and is not necessarily the percentage attributable to the holder of the Mining Right.Minimum seam thickness cut-off of 0.5 m.
2. Ash Content <50% cut-off applied.
3. daf >24% limit applied.
4. Weighted average qualities estimated on MTIS. All seam thicknesses used are true thicknesses.
5. CV[1] - Calorific Value, VM – Volatile Matter Content, FC - Fixed Carbon, TS - Total Sulphur, IM - Inherent Moisture, DAFV – Dry Ash Free Volatile Matter Content, ARD – Apparent Relative Density.
6. Coal Resources quoted in decreasing order of geological confidence.
7. Fresh coal only, and coal within Mining Right boundary.
8. OP = Open Pit.
9. adb = air dried basis.

Table ES-6: Isibonelo No 4 Seam Average Raw Coal Qualities (adb) as at 31 December 2020

Block	Resource Classification Category	Seam	Average Raw Coal Resource Qualities (adb)						
			Ash (%)	CV[1] (MJ/kg)	DAFV (%)	FC (%)	IM (%)	TS (%)	VM (%)
INSIDE THE MINE PLAN									
North Pit	Measured	No 4	26.5	20.61	32.8	45.8	5.5	0.74	22.2
	Indicated	No 4	26.4	20.67	32.2	46.3	5.6	0.74	21.7
	Subtotal	No 4	**26.5**	**20.63**	**32.6**	**46.0**	**5.5**	**0.74**	**22.1**
South Pit	Measured	No 4	27.0	20.44	32.7	45.5	5.6	0.78	21.9
	Subtotal	No 4	**27.0**	**20.44**	**32.7**	**45.5**	**5.6**	**0.78**	**21.9**
Average Inside the Mine Plan		**No 4**	**26.7**	**20.55**	**32.6**	**45.8**	**5.6**	**0.76**	**22.0**
OUTSIDE THE MINE PLAN									
North Pit	Measured	No 4	27.6	20.17	32.3	45.4	5.6	0.86	21.5
	Indicated	No 4	27.1	20.45	32.3	45.7	5.7	0.71	21.5
	Subtotal	No 4	**27.3**	**20.30**	**32.3**	**45.5**	**5.6**	**0.79**	**21.5**
Average Outside the Mine Plan		**No 4**	**27.3**	**20.30**	**32.3**	**45.5**	**5.6**	**0.79**	**21.5**
AVERAGE (Inside + Outside the Mine Plan)		**No 4**	**26.8**	**20.50**	**32.6**	**45.7**	**5.6**	**0.76**	**21.9**

Note:
1. Minimum seam thickness cut-off of 0.5 m.
2. Ash < 50% cut-off applied.
3. DAF > 24% limit applied.
4. Weighted average qualities estimated on MTIS. All seam thicknesses used are true thicknesses.
5. CV[1] - Calorific Value, VM – Volatile Matter Content, FC - Fixed Carbon, TS - Total Sulphur, IM - Inherent Moisture, DAFV – Dry Ash Free Volatile Matter Content.
6. Coal Resources quoted in decreasing order of geological confidence.
7. Fresh coal only, and coal within Mining Right boundary.
8. OP = Open Pit.
9. adb = air dried basis.

ES9: Reconciliation with the Previous Coal Resource Estimate

[SR1.4(iii), SR4.2(v), SR4.5(vi), SR6.1(iii)]

Table ES-7 shows the reconciliation between the 2020 and 2019 Coal Resource estimates for the No 4 Seam. The 2020 estimate was done by SRK as at 31 December 2020, while the 2019 estimate was done by the Company as at 31 December 2019 (AAC, 2019y). The Company's resource estimate was originally done in 2017 (AAC, 2017h) and was then depleted by the amount of mining undertaken to 30 December 2019 (AAC, 2019y).

Table ES-7: Reconciliation between the 2020 and 2019 Coal Resource Estimates

Resources Classification Category	MTIS Coal Resources			
	Mass (Mt)		CV[1] (MJ/kg)	
	2020	2019	2020	2019[1]
Measured	27.45	27.6	20.47	20.01
Indicated	9.12	9.2	20.59	20.01
Total	**36.57**	**36.8**	**20.50**	**20.01**

The Company 2019 CPR (AAC, 2019y) includes an estimate of Coal Resources that fall outside of the current mine plan; these amount to 23.6 Mt and are located within the area that is being ceded to Sasol. SRK has <u>not</u>

included these in the resource statement and they are not included in Table ES-7. The Coal Resources that remain, as estimated by the Company in 2019 (AAC, 2019y, amount to 36.8 Mt.

The differences between the SRK Coal Resource estimates and those of the Company are explained by the following:

- The mine plan has been updated since 31 December 2019;
- The inclusion of Zimele Block by SRK (7.22 Mt) in the above estimate (2.25 Mt is included in the mine plan and 4.97 Mt falls outside the mine plan); the Zimele Block was not included by the Company in their 2019 estimates;
- The exclusion of No 5 Seam resources by SRK (4.16 Mt); SRK has excluded these resources as they do not pass the Reasonable Prospects for Eventual Economic Extraction (RPEEE) test; however, they have been included by the Company; and
- The difference in the estimation dates (SRK: 31 December 2020; the Company: 31 December 2019), which reflects the mining that took place from 1 January to 31 December 2020.

Although the differences between the Coal Resource estimates for coal inside the mine plan are material (7.38 Mt, some 20%), this is balanced by the inclusion by SRK of the resources outside the mine plan (7.15 Mt, some 19.5%). SRK believes that the differences are not material due to the reasons stated above.

ES10: Rock Engineering

[12.10(h) (vii)] [SR3.1(i), SR4.1(ii), SR4.3(ii), SR5.2(ii) (viii)]

Geotechnical aspects of Isibonelo operations from design through implementation were reviewed, with the following conclusions drawn:

- The headline geotechnical risks are well managed, with risk mitigations aligned to industry best practice;
- The site geotechnical function is well performed, with good support from the regional Central Services Office, resulting in the following aspects being considered adequate for successful management of the identified geotechnical risks. These aspects are aligned with industry best practice:
  - Slope design analysis;
  - Coal strip designs and reconciliations;
  - Operational procedures, including geotechnical inspections and reporting;
  - Dragline pad inspections and stability analysis;
  - Geotechnical soft overburden stripping design and planning;
  - Spoils design and operational reconciliations; and
  - Slope stability monitoring.
- The following aspects would benefit from additional focus, but are not misaligned with the coal industry:
  - Geotechnical data acquisition from drilling and face mapping;
  - Structural data collection, including joint surveys for rock mass fabric determinations;
  - Follow-up and close out on operational recommendations;
  - Operational geotechnical input to soft overburden stripping and scheduling;
  - Geotechnical input to limit blasting design and reconciliation; and
  - Management of surface water run-off and groundwater infiltration into the mine workings.

The overall geotechnical risk for Isibonelo Colliery is within manageable limits, with all necessary and reasonable geotechnical risk management implemented, regularly audited by the Principal Rock Engineer and reported to senior and executive leadership.

ES11: Mining

[12. 9(h) (vii)] [SR4.2(ii), SR4.3(ii), SR5.2(i)(iv), SR6.1(ii)] [SV1.10]

The mine is an opencast dragline mine mining with the assistance of a pre-strip operation in the North Pit. The main seam being exposed is the No 4 Seam, which is deep and the only other seam that is in the geological sequence, the No 5 Seam, is discarded. The mine is a sole supply to SSF and targets a minimum of 4.5 Mt per annum of coal sales for the next five years, as is prescribed in the supply contract. To achieve this and allow options to supply an additional extension period of coal, the mine was scheduled to finish both opencast pits simultaneously and maximise the reserve recovery; however, this has been compromised by the 2020 period targets not being achieved.

ES12: Historical Production

[SR1.4(iii)] [SV1.6]

Historical production per mining section for the past four years is shown in Table ES-8. The estimates for 2020 consist of eight months of actual figures and four months of forecasted figures. In the 2020 numbers, the in-pit extraction is below target by approximately 0.6 Mt due to problems with the national lockdown period; the additional sales tonnes required have been made up by buy-in coal.

Table ES-8: Historical Production

Item	Units	2017	2018	2019	2020
Tonnes Sold	Mt	4.43	4.60	4.52	4.45
Total Moisture	%	8.15	8.05	7.46	6.59
Calorific Value	MJ/kg	20.66	20.42	20.43	20.00
Volatiles	%	22.64	22.23	22.29	21.96
Ash	%	28.76	29.44	29.92	30.26
Sulphur	%	0.79	0.80	0.88	1.00
Fines	%	20.39	21.12	21.45	21.91

Note:
The figures for 2020 include bought-in coal.

ES13: Key Modifying Factors

[12.10(h) (vii)] [SR5.1(i)(ii), SR6.1(iii), SR6.2(i)] [SV1.10]

The key modifying factors in converting the Coal Resources to Coal Reserves are the factors constraining the mining layout based on the existing pit length and the coal losses due to the cleaning of the upper coal surface required to create the suitable coal product and the potential gains in the floor. Similarly, there is a coal loss against the low wall spoils due to the extreme depth which affects the overall recovery. As there are only five years remaining on the contract there is limited time and capital available for further optimising of the reserve recovery.

The following Modifying Factors were applied in Gradecon when converting No 4 Seam Coal Resources to Saleable Coal Reserves (Table ES-9):

Table ES-9: Modifying Factors

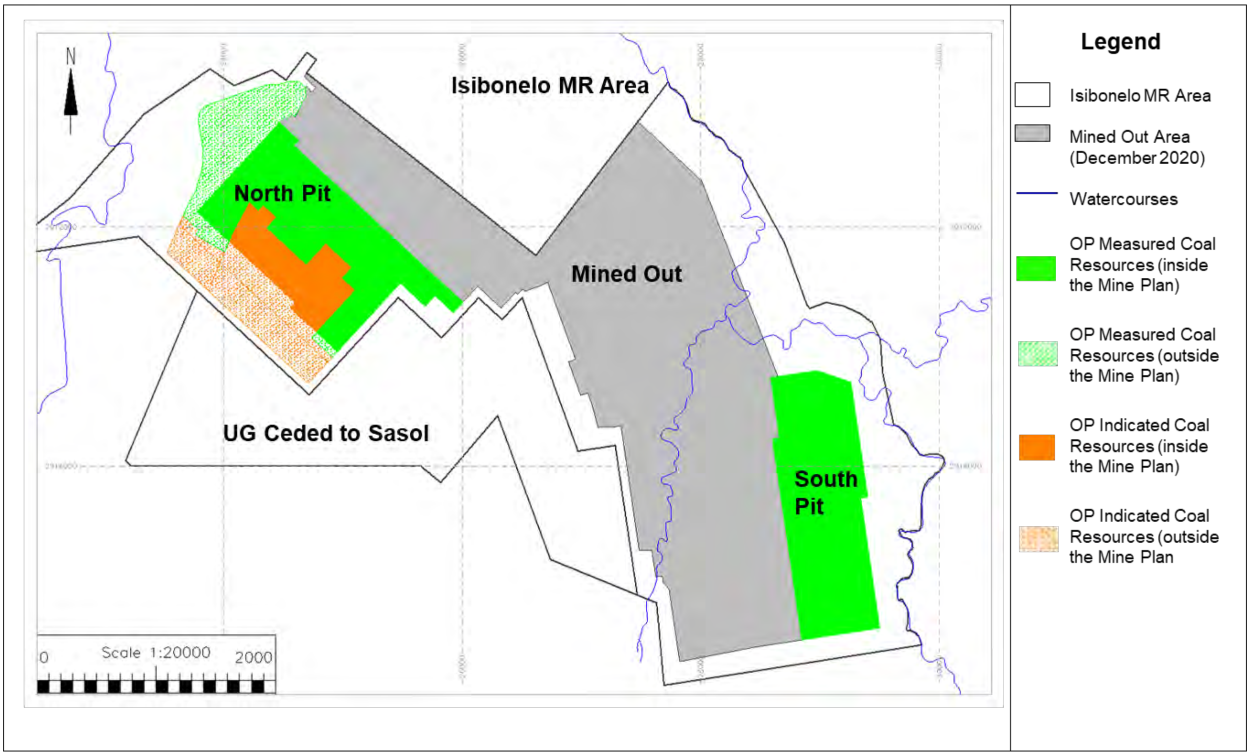
Factor	Loss (%)
Geological Loss – Indicated and Measured Resources	5%
Mining Loss - Measured	6%
Mining Extraction	94%
Contamination	2%

ES14: Coal Reserves Summary

[12.10(h) (ix)] [SR4.2(ii), SR4.5(i), SR5.1(i), SR5.2(ix), SR5.6(v), SR6.3(i) (ii)] [SV1.2, SV1.9]

The Coal Reserve estimates were conducted in accordance with the SAMREC Code, 2016 Edition, as well as the **SANS10320:2020**.

The Coal Reserve estimate has been independently estimated and signed off by Mr. N. McGeorge of SRK, based on the mining model supplied by the Company and verified by SRK. The Coal Reserve estimate is declared as at 31 December 2020. The Isibonelo Opencast Coal Reserve on a RoM basis amounts to 27.1 Mt for the North and South Pits combined. This estimate is made up of 21.9 Mt of Proved Coal Reserves (81%) and 5.2 Mt of Probable Coal Reserves (19%). The Coal Reserves are split between the North Pit (15.4 Mt) and the South Pit (11.7 Mt). The Proved Coal Reserves are derived from the Measured Coal Resources within the Mine Plan and the Probable Coal Reserves are derived from the Indicated Coal Resources within the Mine Plan. The distribution of the Coal Resources is illustrated in Figure ES.5.



srk consulting	**ISIBONELO COLLIERY CPR** Coal Resource Distribution – Isibonelo LoM Plan 2021	Project No. 566627

Figure ES.5: Coal Resource Distribution - Isibonelo LoM Plan 2021

The North Pit schedule stops when the South Pit is completed, and this line then defines the Coal Resources outside the Mine Plan that are not included in the Coal Reserves.

The Coal Reserves for Isibonelo on a total basis[2] (100% attributable to Isibonelo) at 31 December 2020 are summarised in Table ES-10. As the coal is sold on unbeneficiated, the Isibonelo Opencast Coal Reserve on a Saleable basis amounts to the same figures (Table ES-10).

It should be noted that Coal Reserves are only declared for the No 4 Seam as SRK is of the opinion that the No 5 Seam does not have reasonable prospects for eventual economic extraction.

Table ES-10: Isibonelo Coal Reserve Statement at 31 December 2020

Reserve Category Classification	RoM Coal Reserves			Saleable Coal Reserves			
	RoM (Mt)	Total Moisture (%)	CV^1_{ar} (kcal/kg)	Sales (Mt)	Practical Yield (%)	Total Moisture (%)	CV^1_{ar} (kcal/kg)
NORTH PIT:							
Proved	10.2	8	4637	10.2	100	8	4637
Probable	5.2	8	4696	5.2	100	8	4696
Subtotal North Pit	**15.4**	**8**	**4657**	**15.4**	**100**	**8**	**4657**
SOUTH PIT:							
Proved	11.7	8	4682	11.7	100	8	4682
Probable	0.0	8	4720	0.0		8	4720
Subtotal South Pit	**11.7**	**8**	**4682**	**11.7**	**100**	**8**	**4682**
Total Proved	*21.9*	*8*	*4661*	*21.9*	*100*	*8*	*4661*
Total Probable	*5.2*	*8*	*4696*	*5.2*	*100*	*8*	*4696*
Grand Total	**27.1**	**8**	**4668**	**27.1**	**100**	**8**	**4668**

Note:
1. Note that "total basis" refers to 100% of the Coal Resources and/or Coal Reserves within the Isibonelo Mining Right and is not necessarily the percentage attributable to the holder of the Mining Right.
2. Assumes Sasol supply until September 2026.
3. Contract under agreed price to June 2025, 5.93 Mt extension option still subject to agreement.
4. RoM = Run of Mine.
5. CV^1_{ar} = Calorific Value as received.

Justification for Including 5.93 Mt of Coal after 2026 in the Coal Reserve Statement

The probability that the extension period to the Sasol contract will be agreed to is high as the likely cost of the coal will not exceed the current contracted cost and an additional time period allows the fixed costs in the contract to be recovered over a longer period of time. At the current cost, this coal is cost-competitive with the Sasol underground supply (average ZAR310/t) and with all the mines within a reasonable radius of operation of approximately 50 km. Transport costs for 50 km would add approximately ZAR100/t to any competing supply. Similarly, the gasification facility at Sasol does not have a ready replacement supply for this coal.

The alternative market for any coal outside of Sasol would be supply to an Eskom Power Station by truck; at current Eskom contract prices, this material would be profitable at both the Kriel and the Matla Power Stations, where the quality would be suitable as well as the transport distances. These circumstances will only be true while both pits are operational; hence, the end date of the Mine Plan as the completion of the South Pit occurs.

ES15: Reconciliation with the Previous Coal Reserve Estimate

[SR1.4(iv), SR4.2(v), SR4.5(vi), SR6.1(iii)]

The previous estimate of Coal Reserves was conducted in 2019 with an Effective Date of 31 December 2019. The comparison between the Coal Reserves of 31 December 2019 and 31 December 2020 is illustrated in Table ES1-11.

[2] Note that "total basis" refers to 100% of the Coal Resources and/or Coal Reserves within the Isibonelo Mining Right and is 2not necessarily the percentage attributable to the holder of the Mining Right.

Table ES-11: Comparison of Isibonelo Coal Reserves at 31 December 2020 and 31 December 2019

Reserves Classification Category	RoM Coal Reserves				Saleable Coal Reserves			
	Mass (Mt)		CV^1_{ar} (kcal/kg)		Mass (Mt)	Mass (Mt)	CV^1_{ar} (kcal/kg)	CV^1_{ar} (kcal/kg)
	2020	2019	2020	2019	2020	2019	2020	2019
Proved	21.9	26.1	4 661	4 640	21.9	26.1	4 661	4 640
Probable	5.2	8.80	4 696	4 620	5.2	8.80	4 696	4 620
Total Reserves	**27.1**	**34.9**	**4 668**	**4 630**	**27.1**	**34.9**	**4 668**	**4 630**

Note:
1. Assumes Sasol supply until September 2026 for LoM 2020 plan.
2. Contract under agreed price to June 2025, 5.93 Mt extension option still subject to agreement in LoM 2020.
3. CV^1_{ar} = Calorific Value as received.

The estimated production from December 2019 to December 2020 is 3.4 Mt. The reconciliation to previous Coal Reserve estimates shows that the main contribution to the difference between the estimates is the depletion due to mining and the resources remaining in the North Pit at the end of the schedule.

ES16: Coal Processing

[12.10(h) (vii)] [SR4.3(ii), SR5.3(iii)]

The colliery does not have a coal preparation plant; the coal is simply crushed, screened and analysed. The RoM tip had an additional section added after initial commissioning to ensure that the coal is crushed to minus 50 mm. The plant is well maintained and adequate for the task. Sufficient Stay in Business (**SIB**) capital is in place for the larger capital requirements.

The coal analysis is critical for the project. Automatic samplers are positioned at various points both before and after the overland conveyor. Sampling, analysing and dispute procedures are in place to ensure quality compliance. In addition, a CoalScan machine is used, positioned close to the manual sampler before the overland conveyor. The correlation between the CoalScan results and the true, sampled results is not particularly good, but it is only used a warning of quality change and is not used for payment.

ES17: Infrastructure and Engineering

[SR4.3(ii), SR5.4(i) (ii), SR5.6(viii)]

The mine has an agreed Notified Maximum Demand (**NMD**) of 15 MVA with Sasol as per the Coal Supply Agreement (**CSA**). This supply is from Sasol's Syferfontein 132/22 kV Substation. From the Syferfontein substation power is supplied to the mine as follows:

- A 132 kV overhead line to the Anglo/Isibonelo 132/22 kV substation;
- Two 22 kV overhead lines to the 22 kV/550 V Isibonelo Overland Conveyor Substation; and
- A 22 kV overhead line to A4-SS-1 22/6.6 kV substation.

The power supply to Isibonelo Overland Conveyor Substation is a redundant system as it supplies power to critical equipment such as the overland conveyor, thus ensuring continuous supply from the other line should any of the power lines fail. Although the supply to the Anglo/Isibonelo 132/22 kV substation is a single supply, the supply to this overhead line's metering panel is from the 132 kV busbar of the Syferfontein substation and one of the incoming feeders from Eskom Quintes substation to Syferfontein substation. This allows for continuous supply to the overhead line should one of these feeders fail. A 100 kVA generator has been connected to the A4-SS-1 substation to supply power to critical equipment should power supply to this substation fail. The A4-SS-1 substation supplies power to mine support infrastructure such as workshops and main offices. In addition to the 2019 electricity bills that were reviewed, the electricity bills for the period January 2020 to October 2020 were also reviewed, and all show that the mine has never exceeded the agreed NMD. The agreed NMD is therefore enough to supply the power requirements of the mine.

Automatic fire detection and suppression systems have been installed in all substations visited, and all medium voltage substations have remote switching installed. The mobile substations are equipped with SF6 circuit breakers while the fixed substation is equipped with vacuum circuit breakers (**VCB**) for better spares management.

Telkom digital IP telephones and handheld and mobile equipment mounted radios are used for communications. There is also adequate cell phone network coverage across the mine. The control system employs Siemens S7 Programmable Logic Controller (**PLC**), which most operators in the industry are familiar with.

A Skycom system is used for access control and time and attendance for permanent employees and contractors, while visitors sign in at the main security entrance before accessing the mine. The communications, control and access control system appeared to be well designed for the requirements of the mine. The mine uses the computerised SAP Maintenance Management System, and the system is reported to be well managed for the maintenance requirements of the whole mine.

The conveyors, crushing and screening, bunkers and other plant appeared to be well designed and adequately maintained. The workshops have enough space and are equipped with proper equipment such as overhead cranes and all the equipment needed to run a successful operation.

ES18: Logistics

[SR5.4(iii)]

All the RoM coal is supplied to SSF as per the CSA between the Company and SSF. Coal from the pits is transported to the RoM tip by truck, from where it goes through the crushing and screening plant before being transported to SSF via a series of conveyors. Reference should be made to the coal processing section of this report for more information on the coal handling.

ES19: Occupational Health and Safety

[SR5.2(viii)]

Occupational Health

Coal dust is the main airborne pollutant in coal mines and the cause of Occupational Diseases such as Coal Workers Pneumoconiosis and Chronic Obstructive Airway Disease.

The Company has good dust control systems in place. All dust measurements from 2017 to 2020 were below the OEL, a commendable achievement. In terms of the medical surveillance reports from 2017 to 2020, there were no newly diagnosed occupational lung diseases. However, with occupational diseases having long lagging periods before there are any symptoms of a disease, the diagnosed cases can fluctuate from year to year.

Compared to gold mine dust, the silica content in coal dust can be classified as a low health risk (no silicosis cases recorded).

Noise Induced Hearing Loss

The Company has a good Noise Induced Hearing Loss (**NIHL**) Management Programme in place. There were zero diagnosed NIHL cases from 2017 to 2019. However, in 2020, there were four diagnosed cases. This can be ascribed to NIHL having a long lagging period before there are any symptoms of hearing loss.

Safety

The Company has good risk management and risk control procedures in place which are actively followed by all levels of management. The systems and procedures are commendable, with prompt investigation of Lost Time Injuries and implementation of the necessary remedial actions.

There were no fatalities from 2017 to 2020.

The lost time injury frequency rate increased from 0.67 in 2018 (one lost time injury) to 2.68 in 2019 (four lost time injuries) and 3.0 YTD (three lost time injuries).

In the quest towards zero harm, the Company identified focal areas to further reduce work related incidents and accidents. The improvement plans will only be effective if the safety initiatives are consistently applied by all - from the management leadership teams and supervisors down to employee level on the working faces. Zero lost time injuries in one year is achievable, as proven by Greenside Colliery in 2015.

ES20: Environmental and Social Compliance

[12.10(h)(viii)] [SR4.3(ii), SR5.2(viii)], SR5.5(i)(ii)(iv)] [ESG4.3, ESG4.4, ESG4.8] [SV1.2]

The colliery received its first environmental authorisation on 17 April 2003 for an Environmental Management Programme Report (**EMPr**[3]), under the Mineral and Petroleum Resources Development Act (Act No. 28 of 2002) (**MPRDA**); a WUL was issued in November 2008. Since the first approval of the EMPr in 2003 and the WUL in 2008, the colliery has undertaken several amendments and has applied for various other environmental authorisations as additional activities have been triggered in terms of the MPRDA, the National Environmental Management Act (Act No. 107 of 1998) (**NEMA**), the National Environment Management: Waste Act (Act No. 59 of 2008) (**NEM:WA**) and the National Water Act (Act No 36 of 1998) (**NWA**) in line with the developing mining operations.

The following EMPrs under NEMA and Environmental Assessments (EA) are in place at Isibonelo:

- Consolidated EMPr (for Isibonelo Colliery, dated October 2012 and approved February 2013 (DMR Reference Number: OT6/2/2/447, MP 30/5/1/2/3/2/1 (130)EM);
- Final Environmental Management Programme for the proposed bulk fuel storage expansion project, dated April 2013 and approved September 2015 (DMR Reference Number: MP 30/5/1/2/3/2/1 (130) EM);
- Final Environmental Impact Assessment Report/Environmental Management Programme for the Proposed Block Z Project at Isibonelo Colliery, dated March 2015 and approved September 2018, (DMR Reference Number: MP 30/5/1/2/3/2/1 (130) EM);
- Bulk Fuel Storage Exemption, approved August 2004, Reference Number: 17.2.4 EV 37;
- EA for the Bulk Fuel Storage Expansion Reference Number: 17/2/3N-184; and
- EA for Block Z Reference Number 17/2/3N-362.

A WUL application for the entire mine water use activities and conveyor was compiled and submitted to Department of Human Settlements, Water and Sanitation (**DHSWS**) in August 2004 and was issued in November 2008. Since receiving the original WUL, the following licences have been issued to Isibonelo Colliery for water use related activities, some of which are no longer valid/applicable as indicated below in brackets:

- Amendment of Controlled Release Licence: Licence in terms of Section 158 (2) of the NWA for Isibonelo Colliery – Licence Number 2484884 approved on 7 August 2013 from the DHSWS (licence has expired and is therefore no longer relevant);
- Controlled Release Licence: WUL in terms of Chapter 4 of the NWA for Isibonelo Colliery– Licence Number 2484884 approved on 01 April 2011 from the Department of Water and Sanitation (now called DHSWS) (licence has expired and is therefore no longer relevant);
- Phase 3 Channel WUL: Licensing in terms of Chapter 4 of the NWA – Licence Number 04/B11D/CI/2227 approved on 3/10/2013 by the DHSWS;
- WUL for Isibonelo Colliery-Zimele Block (Block Z) approved on 8 November 2017 (Reference Number: 27/2/2/A931/1/4 and Licence Number 03/A31J/ABCFGIJ/2869) (has been superseded by WUL no 06/B11D/FBCGIJ/9121 dated 11 November 2019);
- WUL for Isibonelo Colliery and Block Zimele (Block Z) (also known as the consolidated WUL) approved on 11 November 2019 (Reference Number: 27/2/2/B411/18/2 and Licence Number 06/B11D/FBCGIJ/9121) (supersedes Licence Number 03/A31J/ABCFGIJ/2869); and
- Exemption granted in terms of Section 21(4) of the Water Act No 54 of 1956 (now repealed) with

[3] Previously referred to as an Environmental Management Programme (or EMPR) approved in terms of the Mineral and Petroleum Resources Development Act (Act 28 of 2002) before 8 December 2014. Post 8 December 2014 the EMPR is now referred to as an Environmental Management Programme Report (or EMPr) approved in terms of the National Environmental Management Act (Act 107 of 1998).

Reference Number 2064B in respect of the sewage treatment plant on 29 March 2000 (“STP Exemption”).

Environmental management at Isibonelo is undertaken by the environmental department which includes an Environmental Coordinator and assistant. The colliery makes use of an Environmental Management System (**EMS**) to manage environmental data, incidents and reporting, which is ISO 14001:EMS:2015 accredited. The colliery undertakes annual internal ISO 14001 audits and recertification will take place in 2020. External and internal compliance audits are conducted on an annual basis on all existing environmental permits and have found that the colliery demonstrates a high level of compliance to the conditions set out in the permits. Exceedances in monitoring parameters have been observed over the past six to twelve months and the colliery is implementing action plans to address ongoing non-compliances to avoid directives or fines by the environmental authorities.

In terms of non-compliances with EMPrs and EA obligations, Shangoni compiled an EA and Performance Assessment Review Report (Reference Number: MP30/5/1/2/3/2/1 (130) EM, OT6/2/2/447, 17.2.4 EV 37, 17/2/3N-184, 17/2/3N-362), dated 22 November 2019, which identifies non-compliances with the obligations of the Isibonelo EMPrs and EAs as indicated below:

- Consolidated EMPr: No non-compliances were noted in respect of this EMPr;
- Proposed Bulk Fuel Storage Expansion EMPr: failure to provide photographs of the construction phase to the auditors [Note: the report notes that this non-compliance is administrative in nature and does not result in environmental damage or contamination];
- Block Z EMPr: No non-compliances were noted in respect of this EMPr;
- Bulk Fuel Storage Exemption: no proof was provided to confirm if 14 days written notice was given to the department prior to the commencement of construction (Note: the report notes that this non-compliance is administrative in nature and does not result in environmental damage or contamination);
- EA for the Bulk Fuel Storage Expansion: failure to appoint an independent Environmental Control Officer (ECO) and to submit monthly ECO reports to the Department and failure to submit post-construction audit; and
- Block Z EA: No non-compliances were noted in respect of this EA.

Anglo Operations (Pty) Ltd (**AOPL**) subsequently prepared a Recommendations Memorandum dated 6 December 2019, which proposes the amendments indicated below to the Isibonelo Aligned EMPr. The Recommendation Memorandum was subjected to a 30-day public participation process:

- Alignment of measures and initiatives for on-site water management that replaces the controlled release licence (now expired) previously held by Isibonelo Colliery;
- Updating of information on risks and management measures related to groundwater scenarios at closure (based on the most recent studies), including groundwater recharge rates at closure;
- Inclusion of risks and management of old borrow pits;
- Inclusion of risks and management of waste tyres;
- Inclusion of information relating to the characterisation and classification of mine residue material and the associated risks and management measures; and
- Inclusion of updated strategies to manage the spoils material located in close proximity to the Steenkoolspruit.

An External WUL Audit Report (Report Reference: ANG-COA-18-12-12) compiled by Shangoni and dated 15 January 2020, notes non-compliances with conditions of the Isibonelo WUL, as well as the Sewage Exemption, as indicated below:

Isibonelo WUL:

- Failure to calibrate flowmeter devices on a biennial basis;
- Exceedance in the volume of water stored in the Diversion Dam. The report notes that Isibonelo applied for an amendment to increase the storage capacity from 100ML to 196 ML, however the amendment was omitted from the WUL. A subsequent WULA was submitted in June 2020 and the approval of this licence is currently still pending;
- Flood protection berms (consisting of spoils material), several topsoil stockpiles and one borrow pit, were constructed within the 1:100-year flood line of the Steenkoolspruit. The report notes that 'Isibonelo is in the process of licensing these activities through a Water Use Licence Application (WULA)'. It was confirmed that the licence was submitted on 26 June 2020 and the approval of this licence is still pending;
- Failure to establish silt traps at both sides of the conveyor belt crossing. The report notes that the conveyor system was constructed prior to issuance of the WUL and a WUL has been submitted to remove this condition (submitted to DHSWS on 26 June 2020);
- Failure to submit information relating to the placement of bio-swale, bio-filters as well as silt, litter and hydrocarbon traps to minimise risk of pollutants entering the natural drainage system in the area (this condition is subject to adjustment in terms of the WUL application submitted on 26 June 2020); and
- Failure to undertake monthly monitoring of water elevation levels in wetlands (this condition is subject to adjustment in terms of the WUL application submitted on 26 June 2020).

Sewage Exemption:

- Exceedances in the volumes of effluent were noted in respect of the period February 2018 and January 2019; i.e. 120 841 m^3 as opposed to 36 500 m^3 (Note: according to the Environmental Coordinator, the colliery are currently in discussions with the DHSWS to rectify the shortcomings of the section 21(f) components of the WULA).);
- Failure to calibrate the flow meter at the sewage treatment plant (Serial Number: A1081486); and
- Failure to submit the volumes and water quality monitoring results to the DHSWS consistently on a monthly basis (Note: according to the Environmental Coordinator, the colliery is currently in discussions with the DHSWS to rectify the shortcomings of the section 21(f) components of the WULA).

A Social and Labour Plan (**SLP**) was prepared as part of the Mining Right Application (**MRA**) in terms of the requirements of the MPRDA. An updated SLP for the 2020 - 2024 period was submitted to the Department of Mineral Resources and Energy (**DMRE)** on 30 September 2020.

Isibonelo submitted its 2019 Mining Charter Scorecard report (AAC, 2019z) to the DMRE on 25 March 2020.

The sustainability review considered external factors, internal factors and sustainability reporting practices. Systematic analysis of the available information indicated that external factors such as the macro-economic environment, the impact of climate change and sustainability reporting practices pose a moderate sustainability risk to the operation. Mitigation measures for sustainability reporting practices can be implemented through bringing the necessary skillsets on board on a site level. Internal factors that pose a high sustainability risk include – power supply (manufactured capital) and social license to operate (social and relational capital). Factors such as unresolved land claims, a draft EMPr amendment with an unknown approval status and insufficient post-closure water planning (natural capital) are considered to pose a moderate sustainability risk to the operations. These high and moderate risks could be mitigated through careful management plans and should not be left unattended.

ES21: Mine Closure and Liabilities

[SR1.7(i), SR5.2(ii)]

Golder and Associates prepared documents aligned with the pending requirements of the NEMA Financial Provisioning Regulations 2019; as a result, SRK believes that the operation is well placed to comply with the pending regulations as and when required. A document entitled “Update of Isibonelo Colliery Unscheduled and Scheduled Closure Costs”, dated December 2019, indicates that the consolidated scheduled and unscheduled closure costs for Isibonelo as at December 2019 are as follows:

- Unscheduled closure cost - ZAR738 365 093; and
- Scheduled closure cost - ZAR373 410 687

SRK has been informed that these closure cost calculations have been submitted to the DMRE; however, SRK is unable to confirm whether the closure plans have been approved by the DMRE. SRK notes that the DMRE has acknowledged that the operation has completed the annual closure cost assessment and therefore assumes that the DMRE has accepted the closure costing undertaking in December 2019.

SRK has had sight of bank guarantees issued to the DMRE in respect of the Isibonelo mining operations, amounting to ZAR473 433 679. In addition to the bank guarantees, Isibonelo also has ZAR79 772 054 as a balance in the trust. It therefore appears that the mine's financial provision arrangements are up to date.

Water treatment costs have not been provided for under any of the costing methods and these costs have a potential material impact on liability costing and allocated provisions. SRK understands that the Company is addressing water treatment matters internally.

SRK understands that the Company is currently undertaking updates to the closure cost estimates in order to reflect liability as at December 2020. Once the 2020 assessments are complete and have received the necessary internal approvals, these figures will be reported to the DMRE and changes to the closure provision will be made where necessary. SRK has not interrogated the 2020 figures and has instead escalated the 2019 figures to represent a liability at the end of December 2020.

ES22: Water Management

SR3.1(i), SR4.3(ii), SR5.2(ii) (vii) (viii)]

This is a technical assessment of water management at Isibonelo. All compliance aspects are dealt with in Section 1414, and summarised in ES19 above.

Surface Water Management

There is an excess of dirty water at Isibonelo, which may result in dirty water discharging from the mine, both during operation, and post closure. This presents an environmental and reputational risk to the mine. This risk can be mitigated by constructing a water treatment facility with a capacity of approximately 4 Ml/d. The water treatment facility presents a significant financial liability during operation and post-closure (please see “Mine Closure and Liabilities section above [ES20] for details).

Annual risk assessments of dam capacities and the risk of decant/pollution are not being undertaken for Vaskop Dam, Diversion Dam and Attenuation Dam. The latest dam safety inspection reports (2019) mention several dam-related risks for Isibonelo Colliery, which should be addressed urgently.

Groundwater Management

The groundwater table is shallow, with an average depth to groundwater at 5 m. The natural hydrostratigraphy of the area is characterised by a shallow weathered Karoo aquifer and a deeper fractured rock aquifer. The current open pits and rehabilitated areas are characterised by higher recharge rates than the undisturbed areas due to the greater pore spaces, large seepage pathways and ponding of rainwater.

The groundwater is of fairly good quality, with the main concern being the elevated concentrations of heavy metals in several boreholes within the monitoring network. Negative impacts on groundwater are mostly related to the contamination of groundwater resources by seepage of contaminated water from mine infrastructure. While water inflows into the opencast mine workings do not show a high risk of acid mine drainage due to low sulphide content of the coal and interburden being mined (typically <0.2% sulphur), elevated mineralisation (up to several grams dissolved solids per litre) is of concern as well as the potential for acid generation towards the end of LoM and post closure. The main concern therefore relates to groundwater being the post-mining decant of contaminated water, which may need treatment and management into perpetuity.

It is SRK’s opinion that the total abstraction via dewatering is under-reported and requires closer monitoring to ensure that it reflects the actual abstraction volumes and any excess water released to the environment. More detailed measurements of potential ingress into the mine workings are essential to make adequate provisions for dewatering infrastructure.

ES23: Utilization and Marketing

[SR4.3(vi), SR5.6(ii)] [SV1.14]

[redacted]

ES24: Material Contracts

[SV1.13] [SR5.6(ii)(vi)]

The mine is an opencast mine using draglines to be a self-sufficient operation within the portfolio of the Company Thermal Coal mines. The mine does not have any coal supply contracts in place except for the SSF CSA.

Coal Supply Contract

[redacted]

Provision of Services

Table ES1-12 shows the main contracts for the provision of supplies and services to the mine and their estimated annual value. SRK has not reviewed these contracts but from experience of previous Anglo mines, they are normally with a preferred supplier and include clauses regarding price, escalation and volume delivery as well as quality and duration.

Table ES-12: Isibonelo Colliery's Main Services Contracts

Contract	Estimated Annual Value (ZARm)
Hitachi Maintenance Contract	60
Diesel Supply	134
Explosives Supply	127
Topsoil removal	30
Equipment hire	15

ES25: Valuation Methods

[12.9(a)(i), 12.10(f)] [SV1.2, SV1.12, SV1.14]

The valuation of Isibonelo and the contained coal deposits has been prepared in accordance with the SAMVAL Code. The three generally accepted approaches to mineral asset valuation are:

- Income Approach - The Income Approach relies on the 'value-in-use' principle and requires determination of the present value of future cash flows over the useful life of the Mineral Asset;
- Market Approach - The Market Approach relies on the 'willing buyer, willing seller' principle and requires that the monetary value obtainable from the sale of the Mineral Asset is determined as if in an arm's-length transaction. The application of certain logic in Mineral Asset Valuation, such as 'gross in-situ value' simply determined from the product of the estimate of mineral content and commodity price(s), is considered unacceptable and inappropriate; and
- Cost Approach - The Cost Approach relies on historic and/or future amounts spent on the Mineral Asset, and is a valuation approach based on the economic principle that a buyer will pay no more for an asset than the cost to obtain an asset of equal utility, whether by purchase or by construction.

SRK has valued Isibonelo utilizing the Market Approach and Income Approach.

ES26: Previous Valuations

[SV1.11]

SRK is not aware of any previous independent valuations of Isibonelo that have been published in the public domain in the previous two years.

ES27: Summary Valuation

[12.10(h)(xii)] [SR5.8(i)] [SV1.12, SV1.13, SV1.14, SV1.15]

The summary valuation for Isibonelo at the Effective Date is set out in Table ES-13. The values for Isibonelo were derived on a 100% basis and reflect SRK's preferred value derived from the Income and Market Valuation approaches. The effect of debt/loans and debt servicing was excluded in the compilation of the techno-economic model used in the Income Approach valuation method, with the necessary adjustments reflected in Table ES-13. The review of transactions in the Market Approach led to the selection of multiples that were applicable to the Reserve. The median price paid for Reserves applied to Isibonelo gave a valuation of ZAR 238 million and the median price when considered as a percentage of in situ value gave a valuation of ZAR 436 million.

Adjustments have been made in Table ES-13 for balance sheet items, which include cash on hand, medium and long-term borrowings (debt) and finished product inventories. The Company confirmed to SRK that there are no hedge or derivative contracts in force.

Entries in Table ES-13 were derived in ZAR terms and converted to United States Dollar (**USD**) terms at the ZAR:USD exchange rate projected at the Effective Date, of USD1:ZAR16.50.

Table ES-13: Isibonelo Colliery Valuation as at 31 December 2020

Contract	Selected Value		The Company's Interest (%)	Fair Value to the Company	
	ZARm	USDm		ZARm	USDm
Isibonelo Colliery					
SSF Contract	340	20.6	100%	340	20.6
Out of schedule production (1)	119	7.2	100%	119	7.2
Income Approach	459	27.8		459	27.8
Adjustments					
Cash on hand				-	-
Medium- and long-term borrowings (2)				-	-
Finished product inventories (3)				5	0.3
Exploration budget costs				Included in cash flows	
Hedge contracts – mark to market				None in force	
Environmental liabilities				Included in cash flows	
Net Isibonelo Value				**464**	**28.1**

Note:
1. Out-of-Schedule refers to the production after completion of the SSF supply agreement in June 2025 through to end of LoM
2. Medium- and long-term borrowings are intra-company amounts which are not external debt and will either be converted into equity or waived and will have no cash impact on the Company.
3. Finished product inventories are valued by the Company at the lower of cost or net realisable value. The holding value of consumables and spares inventories has been excluded.

SRK repeated the construction of Table ES-13 using the selected minimum and maximum values derived from the Income and Market valuation approaches.

Under the assumption that the Out-of-Schedule production post June 2025 can be sold at the same base price as the SSF tonnes, SRK considers that the fair value for Isibonelo is ZAR464 million (USD28.1 million), in the range of ZAR168 million (USD10.2 million) to ZAR489 million (USD29.6 million).

ES28: Material Change

[12.10(b)] [SR4.1(iv), SR4.3(viii), SR5.3(iii), SR5.5(iii) (v)] [SV1.13]

Based on the information provided by the Company, no material changes are expected in the Coal Resource and Reserve statements. Changes resulting from the national lockdown are not expected to be material regarding the overall Resource and Reserve or the remaining LoM.

ES29: Risks

[12.10(h)(x)] [SR5.7(i)]

An iterative, integrated and collaborative risk assessment was carried out as part of the study to identify existing and potential vulnerabilities that could affect the project, using inputs from each of the project disciplines.

A total of 62 risks were evaluated across the disciplines, of those:

- 36 have a **low** residual rating;
- 18 have a **medium** residual rating;
- 8 have a **high** residual risk rating and
- Zero have an **extreme** residual risk rating.

The eight risks that retained a high residual rating are:

i) Requirements to increase statutory provisions for closure, due to regulatory uncertainty;

ii) Unreliable bulk power supply caused by load-shedding with load curtailment for high power consumers;

iii) Dirty water discharge from mine due to net excess within the mine;

iv) Dam failure occurs where recommendations in Dam Safety Inspection Reports are not implemented;

v) Delays in social transitioning, post-closure;

vi) The unresolved land claims;

vii) Higher than planned SIB expenditure due to ageing equipment requiring additional maintenance; and

viii) Compensation for Sasol purchasing tonnage where production targets are not met.

Mitigation measures have been identified, as far as possible, and are considered essential in successfully managing the risk profile. A small number of risks are, however, external and limited control can be applied to these (the regulatory uncertainty around provisions for Closure, for example). In this view, of 59 risks:

- 9 residual risks are considered to be **resilient**;
- 36 residual risks are considered to be **robust**;
- 4 residual risks are considered to be **temperate**; and
- 13 residual risks are considered to be **weak**.

ES30: Opportunities

[SR7.1(ii)]

The possible opportunities identified within Isibonelo mining operation are:

- Ongoing input into regulatory development and active engagement with authorities may assist in the mine not being adversely and unreasonably affected by the requirement to allocate significant funds to meet compliance requirements, with regard to expected changes to NEMA closure planning;
- To use contracts for localised procurement;
- To supply coal to Eskom/a third party with coal that is additional to the SSF contract;
- The SSF contract allows the Company to supply up to 5.1 Mtpa and whereby additional tonnes could be bought in and sold to SSF which provides an opportunity to increase the incremental value of the Company; and
- A cost saving opportunity to shut down the plant when it is idle for more than 20 minutes, to conserve energy. However, copper theft may be experienced if the equipment is down, especially the overland conveyor.

ES31: Concluding Remarks

[SR7.1(ii)] [SV1.13, SV1.0, SV1.10]

SRK has conducted a comprehensive review and assessment of all material issues likely to influence the future operations of Isibonelo based on information available up to 31 December 2020, which is the Effective Date and Valuation Date for this CPR. The CPR and Market Valuation of Isibonelo have been done according to the requirements of the SAMREC and SAMVAL Codes.

As far as SRK has been able to ascertain, the information provided by Isibonelo was complete and not incorrect, misleading or irrelevant in any material aspect. SRK has no reason to believe that any material facts have been withheld. SRK has reviewed the information provided by Isibonelo and is satisfied that the extent of the descriptions of various rights is consistent with the maps and diagrams received from the Company. Nevertheless, this does not constitute a legal due diligence and SRK does not make any claim or state any opinion as to the validity of the Company's title to the Mining Rights held or purported to be held over the Material Asset.

This report contains statements of a forward-looking nature which are subject to a number of known and unknown risks, uncertainties and other factors that may cause the results to differ materially from those anticipated in this report. The achievability of LoM plans, budgets and forecasts is neither assured nor guaranteed by SRK. The forecasts as presented and discussed herein have been proposed by the Company's management and staff and have been reviewed and adjusted where appropriate by SRK. The projections cannot be assured as they are based on economic assumptions, many of which are beyond the control of the Company. Future cashflows and profits derived from such forecasts are inherently uncertain and actual results may be significantly more or less favourable. Nevertheless, SRK believes that the projections set out in this report should be achievable, provided that the required management resources and adequate capital necessary to achieve the projections are sustained.

The trend towards decarbonisation is relatively recent and it remains unclear how this will impact on the value of the coal assets. SRK considers the valuation to be aligned with the SAMREC and SAMVAL Codes and to represent a reasonable interpretation of value and the associated risks. Current sentiment towards coal assets is not adequately reflected in the transactional analysis. The possible gap between the price that can be realised and the valuation is exacerbated by the recent increase in the coal price.

Under the assumption that the Out-of-Schedule production post June 2025 can be sold at the same base price as the SSF tonnes, SRK considers that the fair value for Isibonelo is ZAR464 million (USD28.1 million), in the range of ZAR168 million (USD10.2 million) to ZAR489 million (USD29.6 million).

This Executive Summary is a true reflection of the full Competent Person's Report.

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Lesley Jeffrey Pr.Sci.Nat. FGSSA
Principal Geologist & Competent Person (SACNASP) (Coal Resources)
(SACNASP) (Lead Competent Person)

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Norman McGeorge Pr Eng MSAIMM
Principal Mining Engineer & Competent Person (ECSA) (Coal Reserves)

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Andrew van Zyl FSAIMM, SAMVAL
Partner, Principal Consultant & Competent Valuator (Valuation)

Disclaimer

The opinions expressed in this Report have been based on the information supplied to SRK Consulting (South Africa) (Pty) Ltd (**SRK**) by South African Coal Operations (Pty) Ltd (**SACO**). The opinions in this Report are provided in response to a specific request from SACO to do so. SRK has exercised all due care in reviewing the supplied information. Whilst SRK has compared key supplied data with expected values, the accuracy of the results and conclusions from the review are entirely reliant on the accuracy and completeness of the supplied data. SRK does not accept responsibility for any errors or omissions in the supplied information and does not accept any consequential liability arising from commercial decisions or actions resulting from them. Opinions presented in this report apply to the site conditions and features as they existed at the time of SRK's investigations, and those reasonably foreseeable. These opinions do not necessarily apply to conditions and features that may arise after the date of this Report, about which SRK had no prior knowledge nor had the opportunity to evaluate.

Glossary of Terms, Abbreviations and Units

Term	Description
basalt	a mafic igneous rock, most commonly extrusive, formed from the rapid cooling of lava rich in magnesium and iron exposed at or very near the surface
Beaufort Group	the uppermost division of the Karoo Supergroup consisting predominantly of mudstones
borehole	a term used exclusively to describe a deep, narrow hole drilled to access subterranean water
calorific value	calorific value is the amount of chemical energy stored in a coal that is released as thermal energy upon combustion
carbonaceous	containing carbon
clast	a particle of rock derived by weathering and erosion
clastic	rock or sediment composed of clasts which have been transported from their place of origin, e.g. sandstone and shale
clean water	water that does not contain waste, e.g. natural catchment runoff, as per the definitions in GNR704
conglomerate	a clastic rock with >30% clasts larger than 2 mm, usually rounded, with or without a matrix of sand and/or mud
cumulative impact	the cumulative impact of the project is the incremental impact of the project when added to impacts from other relevant past, present and reasonably foreseeable developments, as well as unplanned but predictable activities enabled by the project that may occur later or at a different location Cumulative impacts can result from individually minor but collectively significant activities taking place over a period of time The environmental and social assessment will consider cumulative impacts that are recognized as important on the basis of scientific concerns and/or reflect the concerns of project-affected parties The potential cumulative impacts will be determined as early as possible, ideally as part of project scoping
diamictite	type of lithified sedimentary rock that consists of non-sorted to poorly sorted terrigenous sediment containing particles that range in size from clay to boulders, suspended in a matrix of mudstone or sandstone
dip	the inclination of a planar surface, measured in the vertical plane perpendicular to its strike
dirty water	water containing waste, e.g. runoff from mining plant areas, as per the definitions in GNR704
discard	the coal remaining after beneficiation that cannot be sold
dolerite	igneous rock formed below the Earth's surface, a form of basalt, containing relatively little silica (mafic in composition)
Drakensberg Group	extensive flood basalts extruded during the break-up of Gondwana
drill hole	method of sampling rock that has not been exposed
Dwyka Group	glacial Permian deposit that is widespread in South Africa
dyke	thin, tabular, vertical or near vertical body of igneous rock formed by the injection of magma into planar zones of weakness
Ecca Group	the Ecca Group is divided into three groups: the Lower Ecca (containing almost 300 metres of shales), the Middle Ecca (some 500 metres of sandstone, seams of coal, and fossilized plants), and the Upper Ecca (about 200 metres of shales)
flood basalts	an extrusion of basaltic lava onto the Earth’s surface in very large volumes
fluviodeltaic	sediment transported and deposited by rivers, coupled to a subaqueous delta, where transport and deposition occur via slope failure (avalanching), settling of fine-grained sediments from suspension in the water column and deposition of sediment by wind and tide generated currents
geophysical	quantitative observation of the physical properties of the deposit
geotechnical	geotechnical engineering is the branch of civil engineering concerned with the engineering behaviour of earth materials
gritstone	a hard, coarse-grained sandstone
Highveld Coalfield	a coalfield in the southwest of Mpumalanga
Karoo Supergroup	a sequence of mostly nonmarine units deposited between the Late Carboniferous and Early Jurassic periods
lithological	the gross physical character of a rock or rock formation

Term	Description
livelihood	a livelihood encompasses the capabilities, assets and activities accessed by an individual or household in order to support their means of making a living Livelihoods are considered sustainable when they can cope and recover from shocks or stresses, whilst maintaining or enhancing their capabilities and assets
matrix	the fine-grained material separating the clasts in a sedimentary rock
Mining Charter	a Charter to facilitate the sustainable transformation and development of the South African mining industry
mudstone	a clastic sedimentary rock with particles of mud size
Permian period	the geologic period from about 299 to 252 million years ago
pre-Karoo	igneous, sedimentary or metamorphic rocks predating Dwyka glaciation and forming the basement underlying the Karoo Supergroup
roof	the strata immediately above a coal seam
sandstone	a clastic sedimentary rock with >25% of clasts of sand by volume
seam	defined layers of coal
sedimentary	pertaining to rocks formed by the accumulation of sediments, formed by the erosion of other rocks
shale	fine-grained sedimentary rock whose original constituents were clay minerals or muds
sill	a thin, tabular, horizontal to sub-horizontal body of igneous rock
silt	a sediment whose particles have a size range of 4 – 625 microns
siltstone	a clastic sedimentary rock with particles of silt size
softs	the waste material excavated without prior use of explosives; refers to the topsoil and weathered waste material
stakeholder/s	a person or group of people who may be exposed to positive or negative impact of financial, safety, environmental and social aspects of company operation as well as those who show interest in the company or influence it
stakeholder engagement	Communication / exchange of information with interested parties (using various means) to identify priorities in social and environmental issues in order to improve the decision-making process and implementation of these decisions in the company
strata	a layer of material, naturally or artificially formed, often one of a number of parallel layers one upon another
stratigraphy	study of stratified rocks in terms of time and space
strike	the direction of a horizontal straight line constructed on an inclined planar surface, at a direction of 90° from the true dip direction
strip ratio	the measure of waste material moved in bank cubic metres in order to expose one tonne of coal in an open pit
tectonic	relating to a major Earth structure and its formation, usually by deformation
tillite	coarsely graded and extremely heterogeneous sediments of glacial origin
true thickness	the thickness of a layer measured perpendicular to the strike of the layer
UK Prospectus Regulation Rules	UK Prospectus Regulation Rules made by the FCA, pursuant to Section 73A (4) of the FSMA
varve	a sedimentary bed, layer, or sequence of layers deposited in a body of still water within a year or season Also known as glacial varve
volatile matter	the components of coal (except for moisture) which are liberated at high temperature in the absence of air, consisting predominantly of hydrocarbons and some sulphur
Vryheid Formation	the main coal-bearing unit of the Karoo Supergroup, consisting mostly of interbedded sandstones, shales, mudstones and coal seams

Abbreviation	Description
2015 Provisioning Regulations	Section 24P of NEMA and the Financial Provisioning Regulations, 2015
2019 Provisioning Regulations	Section 24P of NEMA and the Financial Provisioning Regulations, 2019
AAC	Anglo American Coal
AAC SRD	Anglo American Coal Standard(s) and Requirements Document
AAIC	Anglo American Inyosi Coal (Pty) Ltd
AASW	Anglo American Social Way
ACGS	Anglo American Geological Services
ad	air-dried
adb	air-dried basis
adc	air-dried contaminated basis
AEL	Atmospheric Emission Licence
AIDS	Acquired immunodeficiency syndrome
AOPL	Anglo Operations (Pty) Ltd
ar	As received
B-BBEE	Broad-Based Black Economic Empowerment
BEE	Black Economic Empowerment
Capex	capital expenditure estimates
CESR	Committee of European Securities Regulators
CIT	Corporate Income Tax
COAD	Chronic Obstructive Airway Disease
CoalScan	CoalScan CS 9500
CoP	Code of Practice
CP	Competent Person
CPR	Competent Person's Report
CRM	Certified Reference Material
CSA	Coal Supply Agreement
CTA	Carbon Tax Act (2019)
CV[1]	calorific value
CV[2]	Competent Valuator
CWP	Coal Workers Pneumoconiosis
daf	dry ash-free basis
DAFV	dry ash-free volatiles
db	dry (or moisture-free) basis
DCF	Discounted Cash Flow
DEA	Department of Environmental Affairs
DEFF	Department of Environment, Forestry and Fisheries (as of 29/05/2019)
DHSWS	Department of Human Settlements, Water and Sanitation (as of 29/05/2019)
DME	Department of Minerals and Energy (now called DMRE)
DMR	Department of Mineral Resources (now called DMRE)
DMRE	Department of Mineral Resources and Energy (as of 29/05/2019)
DOH	Direct Operating Hours
DTI	Department of Trade and Industry
DTM	Data Terrain Model
DWS	Department of Water and Sanitation (now called DHSWS)
EA	Environmental Authorisation
EC	Electrical Conductivity
ECA	Environmental Conservation Act (Act 73 of 1989)
ECO	Environmental Control Officer
ECSA	Engineering Council of South Africa
EE	Economic Empowerment
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
EMPr	Environmental Management Programme Report (after 8/12/2014, under NEMA)
EMPR	Environmental Management Programme Report (before 8/12/2014, under the MPRDA; now called EMPr)
EMS	Environmental Management System
Environmental Minister	The Minister for Environment, Forestry and Fisheries
EQA	Equipment Availability
ESD	Enterprise and Supplier Development

Abbreviation	Description
ESG	Environmental and Social Governance
Eskom	Eskom Holdings SOC Limited
ESMA	European Securities and Markets Authority
ESOP	Employee Share Ownership Plan
FC	fixed carbon
FCA	Financial Conduct Authority
FSMA	Financial Services and Markets Act (2000) (UK)
GHG	Greenhouse Gas
GIMS	Geological Information Management System
Glencore	Glencore Operations SA
GN1147	Financial Provisioning Regulations, 2015 GNR.1147
GNR	Government Notice Regulation
Golder	Golder Associates Africa (formerly Golder Associates)
GSSA	Geological Society of South Africa
HDSA	Historically Disadvantaged South African
HR	Human Resources
IAR	Isibonelo Area of Responsibility
ICMM	International Council on Mining and Metals
IFC	International Finance Corporation
IIRF	International Integrated Reporting Framework
iLanda	iLanda Africa Consulting Engineers
IM	inherent moisture
IRP	Integrated Resource Plan
IRR	Internal Rate of Return
ISO	International Organization for Standardization (ISO/IEC 17025:2017)
IWUL	Integrated Water Use Licence
IWWMP	Integrated Waste and Water Management Plan
JSE	JSE Ltd
LED	Local Economic Development
LIMS	Laboratory Information Management System
LoM	Life-of-Mine
LRA	Labour Relations Act (Act 66 of 1995)
LSE	London Stock Exchange
LTI	Lost Time Injury
LV	Low voltage
mamsl	metres above mean sea level
MCC	Motor Control Centre
MCI	Mining Charter (1st iteration, 2004)
MCII	Mining Charter (2nd iteration, 2010)
MCIII	Mining Charter (3rd iteration, 2018)
MHSA	Mine Health and Safety Act, (Act 29 of 1996) and amendments
MOA	Memorandum of Agreement
MOU	Memorandum of Understanding
MPRDA	Mineral and Petroleum Resources Development Act (Act 28 of 2002)
MPTRO	Mineral and Petroleum Titles Registration Office
MQA	Mining Qualifications Authority
MR	Mining Right
MRA	Mining Right Application
MTIS	Mineable Tonnes In Situ
MV	Medium voltage
MWP	Mine Works Programme
NEM:AQA	National Environmental Management: Air Quality Act (Act 39 of 2004)
NEM:BA	National Environmental Management: Biodiversity Act (Act 10 of 2004)
NEM:PAA	National Environmental Management: Protected Areas Act (Act 57 of 2003)
NEM:WA	National Environmental Management: Waste Act (Act 59 of 2008)
NEM:WAA	National Environmental Management: Waste Amendment Act (Act 26 of 2014)
NEMA	National Environmental Management Act (Act 107 of 1998)
NEMLAA4	National Environmental Management Laws Amendment (Act 4) Bill

Abbreviation	Description
NERSA	National Energy Regulator of South Africa
NFA	National Forests Act (Act 84 of 1998)
NGER	National Greenhouse Gas Emission Reporting Regulations
NHRA	National Heritage Resources Act (Act 25 of 1999)
NIHL	Noise-Induced Hearing Loss
NMD	Notified Maximum Demand
No 1 Seam	Number 1 Seam
No 2 Seam	Number 2 Seam
No 3 Seam	Number 3 Seam
No 4 Seam	Number 4 Seam
No 5 Seam	Number 5 Seam
NPV	Net Present Value
NUM	National Union of Mineworkers
NWA	National Water Act (Act 36 of 1998)
OC	opencast
OEE	Operational Effectiveness
OEL	Occupational Exposure Limit
OES	One Environment System
Opex	operating expenditure estimates
PAR	Performance Assessment Review
PCD	Pollution Control Dam
PES	Present Ecological State
PiT	Person in Training
PLC	Programmable Logic Controller
plc	Public Limited Company
PoO	Point of Observation
PS	Performance Standard
Ptn	Portion
QA/QC	Quality Assurance/Quality Control
R&R	Coal Resources and Coal Reserves
RD	relative density
Resources Minister	The Minister of Mineral and Petroleum Resources Development
RMF	Regional Maximum Flood
RoM	Run-of-Mine
Royalty Act	Mineral and Petroleum Resources Royalty Act (Act 28 of 2008)
Royalty Bill	Mineral and Petroleum Resources Royalty Bill (2008)
RPEEE	Reasonable Prospects for Eventual Economic Extraction
RSRD	Residue Stockpiles and Residue Deposit
Rsv	Coal Reserves
S4Z1	Number 4 Seam Lower Zone
S4Z2	Number 4 Seam Middle Zone
S4Z3	Number 4 Seam Upper Zone
S5B	Number 5 Seam Base
S5P	Number 5 Seam Parting
S5T	Number 5 Seam Top
SABS	South African Bureau of Standards
SACNASP	South African Council for Natural Scientific Professions
SACO	South Africa Coal Operations (Pty) Ltd (also referred to as “the Company”)
SAIMM	Southern African Institute for Mining and Metallurgy
SAMESG Guideline	South African Guideline for the Reporting of Environmental, Social and Governance Parameters within the Mining and Oil and Gas Industries (2017 Edition)
SAMREC	South African Mineral Resource Committee
SAMREC Code	The South African Code for the Reporting of Exploration Results, Mineral Resources and Mineral Reserves (The SAMREC Code), 2016 Edition
SAMVAL	South African Mineral Asset Valuation Committee
SAMVAL Code	The South African Code for the Reporting of Mineral Asset Valuation (The SAMVAL Code), 2016 Edition
SANAS	South African National Accreditation System

Abbreviation	Description
SANS 10320:2004	South African National Standard 10320: *"The South African guide to the systematic evaluation of coal resources and coal reserves"* 1st Edition
SANS 10320:2020	South African National Standard 10320: *"The South African guide to the systematic evaluation of coal exploration results, coal resources and coal reserves"* 2nd Edition
SCADA	Supervisory Control and Data Acquisition
SCI	Sasol Chemical Industries
SEAT	Socio-Economic Assessment Toolkit
SEP	Stakeholder Engagement Plan
SI	Système Internationale
SIB	Stay in Business
SLP	Social and Labour Plan
SM	Sasol Mining
SRK	SRK Consulting (South Africa) (Proprietary) Limited
SRK Work Products	SRK work product or other deliverable (including reports, analysis, opinion or similar)
SSC	SAMCODES Standard Committee
SSF	Sasol Synfuels
TARP	Trigger Action Response Plan
TB	Tuberculosis
TCM	Total Cubic Metres
TDS	Total Dissolved Solids
TEM	techno-economic model
TEPs	techno-economic parameters
TMM	Trackless Mechanised Mining
TS	total sulphur
UEA	Use of Availability
UKLA	UK Listing Authority
UKLA Listing Rules	Listing Rules LR13.4.6
USBM	United States Bureau of Mines
UKLA Listing Rules	Listing Rules LR13.4.6
VAT	Value Added Tax
VCB	Vacuum Circuit Breaker
VM	volatile matter
WACC	Weighted Average Cost of Capital
Water Minister	The Minister of Water, Human Settlements and Sanitation
WCS	Working Cost Suspense
WML	Waste Management Licence
WUL	Water Use Licence
WW	Webber Wentzel Attorneys

Unit	Description
°	a degree
° C	degrees Celsius
'	a minute
"	a second
%	percentage
bcm	bank cubic metres
bcm/t	stripping ratio as bcm of waste per tonne of coal
cm	a centimetre
ha	a hectare (10 000 m^2)
kcal	a thousand calories
kcal/kg	a thousand calories per kilogram
kg	a kilogramme
km	a kilometre (one thousand metres)
kt	a kilotonne (one thousand metric tonnes)
kV	a thousand volts
kVA	a thousand volt amperes
m	a metre
m^3	a cubic metre
Ma	a million years ago
mamsl	metres above mean sea level
mg/l	milligrams per litre
MJ/kg	megajoules per kilogram
Ml/d	megalitres per day
mm	a millimetre
Mt	a million metric tonnes
Mtpa	a million metric tonnes per annum
MVA	a million volt amperes
t	a metric tonne
TCM	Total Cubic Metres
TCM/hr	Total Cubic Metres per hour
tph	metric tonnes per hour
USD	United States Dollar
USDm	a million United States Dollars
V	a volt
Y%	mineral royalty percentage rate
ZAR	South African Rand
ZARm	a million South African Rand
ZAR/t	South African Rand per tonne

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1. Introduction

1.1. Background

[12.10(h)(i)] [SR1.1(i), SR7.1(i)] [SV1.3, SV1.4, SV1.5]

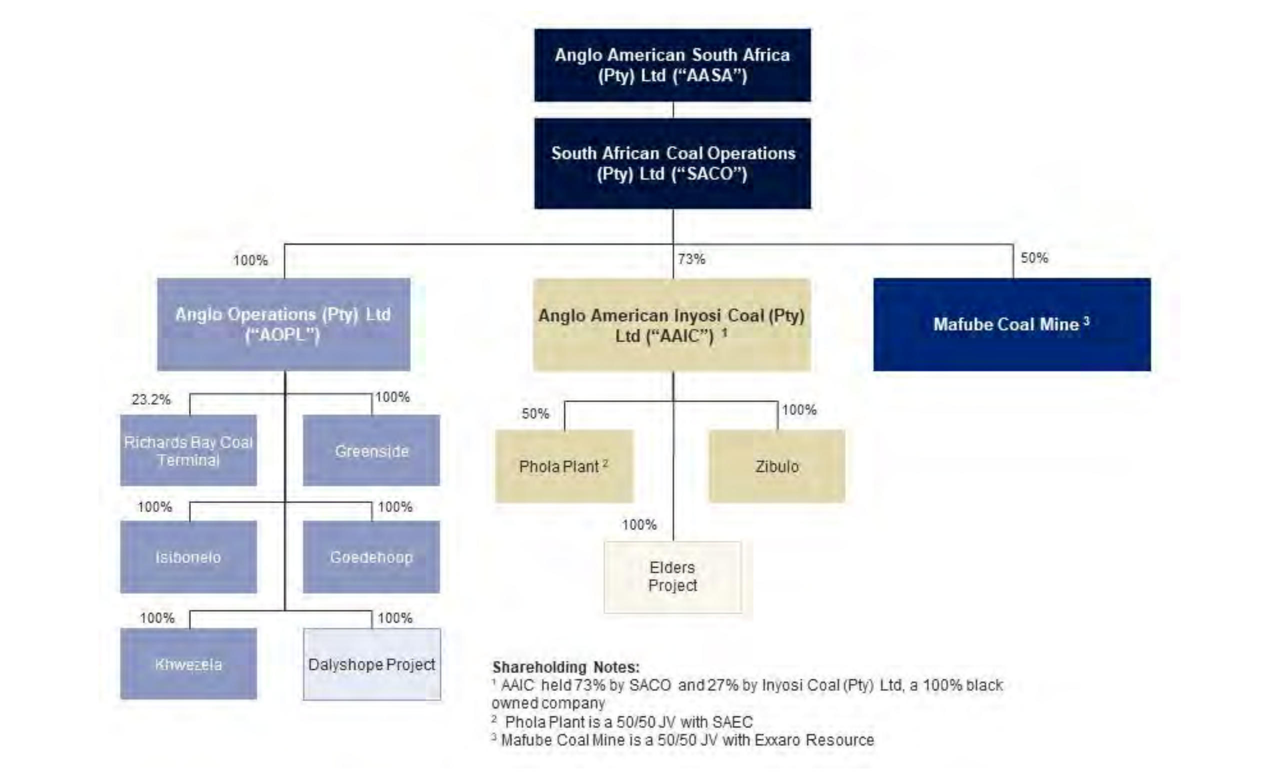
SRK Consulting (South Africa) (Pty) Ltd (**SRK**) was commissioned by South Africa Coal Operations (Pty) Ltd (**SACO**), to compile a Competent Person's Report (**CPR**) on Isibonelo Colliery (**Isibonelo**) in Mpumalanga, South Africa. The Anglo American Group will be separating its South African thermal coal operations, which comprise the operations held by SACO, by way of a demerger ("**Demerger**") and the transfer of such operations to Thungela Resources Limited (the **Company**). The Company is incorporated in South Africa and all of the issued, and to be issued, Shares of the Company are expected to be admitted to the main board of the JSE Limited (**JSE**) as a primary listing and admitted to the standard listing segment of the UK Official List and to trading on the main market for listed securities on the London Stock Exchange (**LSE**). Any reference to the Company in this report should be read to also include SACO, as relevant.

1.1.1. Ownership

[12.10(h)(iii)] [SR1.5(i) (ii)] [SV1.2] [ESG4.1]

SACO holds a 100% indirect interest in the Isibonelo coal operations as shown in the proposed corporate structure (Figure 1-1), located near the town of Kriel in Mpumalanga Province (Figure 1-2).

Isibonelo is an opencast operation with a crush-and-screen facility.



srk consulting	**ISIBONELO COLLIERY CPR** Illustrative Existing Group Structure and Interests in Coal Assets *(Source: pers. Comm. Harding, C., 2020.)*	Project No. 566627

Figure 1-1: Illustrative Existing Group Structure and Interests in Coal Assets

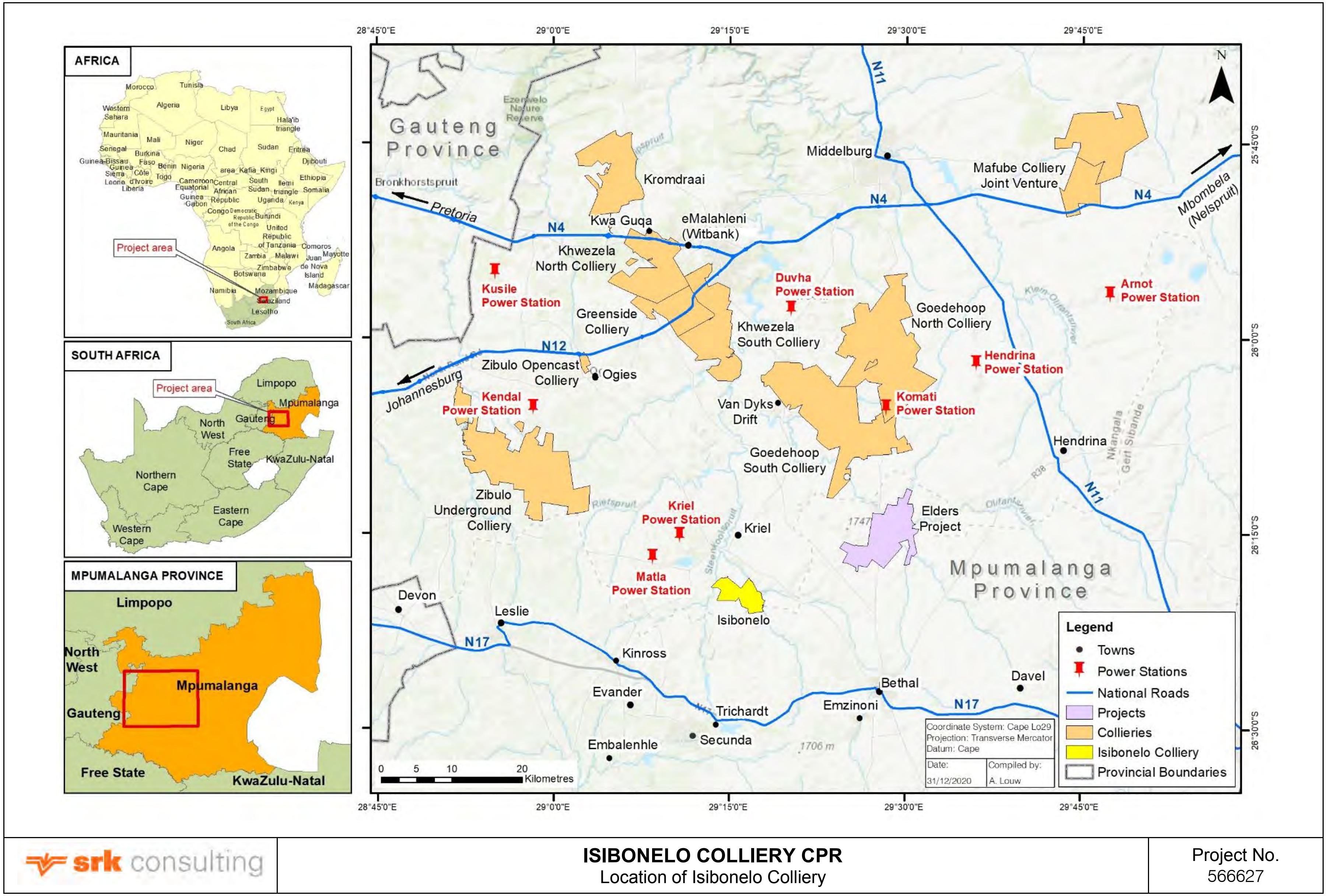


Figure 1-2: Isibonelo Mine Locality Plan

1.2. Terms of Reference, Reporting Compliance and Sources of Data

[12.10(h)(i)] [SV1.2, SV1.3]

1.2.1. Purpose of Report

[12.10(h)(i), SR1.1(i), SV2.2]

This report has been prepared by SRK for inclusion in the pre-listing statement and prospectus, or similar (**Listing Documentation**) to be published by the Company in connection with the Demerger and the proposed admission of the Company's issued and to be issued ordinary shares to

- Trading on the "Mining" sector of the JSE as a primary listing;
- The standard listing segment of the UK Official List; and
- Trading on the LSE's Main Market for listed securities (the **Offer**).

This report, which summarises the findings of SRK's review, has been prepared to satisfy the requirements of:

- A Competent Person's Report as set out in Chapter 12 of the Listing Rules of the JSE (the **JSE Rules**) and follows the form and content of a Mineral Asset Valuation Report as specified by the 2016 Edition of "*The South African Code for the Reporting of Mineral Asset Valuations"* (the **SAMVAL Code**); and
- The requirements of the UK Prospectus Regulation Rules made by the Financial Conduct Authority (**FCA**) pursuant to Section 73A (4) of the Financial Services and Markets Act 2000 (**FSMA**) (**UK Prospectus Regulation Rules**) and the UK version of Regulation (EU) 2017/1129) of the European Parliament and of the Council of 14 June 2017 and repealing Directive 2003/71/EC and the delegated acts, implementing acts and technical standards thereunder as such legislation forms part of retained EU law by virtue of the European Union (Withdrawal) Act 2018, in conjunction with the European Securities and Markets Authority (**ESMA**) update of the Commission of European Securities Regulators (**CESR**) recommendations for the consistent implementation of the European Commission's Regulation on Prospectuses No 809/2004 (CESR/05-054b) issued (**ESMA Recommendations**), specifically, Clauses 131 to 133 and Appendices I and II.

SRK has given and has not withdrawn its written consent to:

(i) The issue of the Listing Document with the inclusion of the references to its name; and

(ii) The inclusion of information extracted from this CPR in "Part VIII—Business Overview" of the Listing Document, and has authorised the contents of this CPR and references thereto as part of the Listing Document for the purposes of Item 1.3 of Annex 1 of Commission Delegated Regulation (EU) 2019/980 as it forms part of UK law by virtue of the European Union (Withdrawal) Act 2018.

In compliance with Item 1.2 of Annex 1 of Commission Delegated Regulation (EU) 2019/980 as it forms part of UK law by virtue of the European Union (Withdrawal) Act 2018, SRK accepts responsibility for this CPR and, to the best of SRK's knowledge, declares that the information set out in this CPR is in accordance with the facts and this CPR makes no omission likely to affect its import.

1.2.2. Reporting Compliance

[12.10(e)] [SV1.0, SV1.4]

SRK has reviewed the practice and estimation methods undertaken by the Company and is of the opinion that they are in compliance with the JSE Rules and the SAMREC and SAMVAL Codes, as well as the UKLA Listing Rules, Prospectus Rules, Prospectus Directive and ESMA update of the CESR Recommendations. In this report, all Coal Resources have been substantiated by evidence obtained from SRK's site visits and observation, and are supported by details of exploration results, analyses and other evidence supplied by the management of the Company and its subsidiaries.

The reporting standard adopted for the reporting of the Coal Resources and Coal Reserves for Isibonelo is the

2016 Edition of "*The South African Code for the Reporting of Exploration Results, Mineral Resources and Mineral Reserves"* (The **SAMREC Code**) as prepared by the South African Mineral Resource Committee Working Group under the auspices of the Southern African Institute for Mining and Metallurgy (**SAIMM**) and the Geological Society of South Africa (**GSSA**). The definitions of the relevant terms, methodologies and estimation processes employed and the reporting for JSE purposes for the Coal Resources and Coal Reserves in this report are according to those set out in the *"The South African guide to the systematic evaluation of coal exploration results, coal resources and coal reserves"* (**SANS 10320:2020**) published by Standards South Africa, a division of the South African Bureau of Standards (**SABS**).

The reporting standard adopted for the reporting of the valuation for Isibonelo is the SAMVAL Code, as prepared by the South African Mineral Asset Valuation Working Group under the auspices of the SAIMM and the GSSA.

This report also satisfies the disclosure requirements of *"The South African Guideline for the Reporting of Environmental, Social and Governance Parameters within the Solid Minerals and Oil and Gas Industries"* (the **SAMESG** Guideline).

SRK confirms that this CPR complies with the disclosure and reporting requirements of the JSE Rules, SAMREC and SAMVAL Codes (together the "**Codes**"), the UKLA Listing Rules as well as Clause 133 and Appendix II of the ESMA update of the CESR Recommendations.

This report has been prepared under the direction of the Competent Persons (**CP**s) and Competent Valuator (**CV^2**) in accordance with the requirements of the SAMREC and SAMVAL Codes and the SAMESG Guideline (**SAMESG**), who assume overall professional responsibility for the document. SRK confirms that the staff employed to compile this CPR satisfy the requirements of CP and CV^2 as set out by the Codes. Note that two "CV" abbreviations have been used throughout this document:

- CV^1 for "Calorific Value"; and
- CV^2 for "Competent Valuator.

A shorthand notation has been adopted to demonstrate compliance with the JSE Rules and disclosure requirements of the SAMREC (**SR**) and SAMVAL (**SV)** Codes and SAMESG Guideline (**ESG**), for example:

- [12.10(d)] represents Section 12.10(d) of the JSE Rules;
- [SR1.1] represents Item 1.1 - Property Description of Table 1 of the SAMREC Code;
- [SV1.4] represents Criterion T1.4 - Compliance of Table 1 in Appendix A of the SAMVAL Code; and
- [ESG2.3] relates to Item 2.3 included in the SAMESG Guideline.

The shorthand notation is included under all section headings, as relevant, to indicate what compliance aspects that section is addressing. Summary tables showing compliance to Chapter 12 of the JSE Listing Rules, SAMREC/SAMVAL Codes and SAMESG Guidelines are included at the end of this report (Appendices 4 – 6).

1.2.3. Sources of Data

[SV1.19]

Details of the information used to prepare this report are:

- Electronic information received from the Company's Isibonelo Box (Data Room); and
- Discussion with the relevant Company staff members at the operation.

1.3. Reporting Standard and Reliance

1.3.1. Reporting Standard

[12.9(a)(i), 12.10]

The reporting standard adopted for the reporting of the Coal Resources and Coal Reserves for the Coal Asset is the SAMREC Code (2016 Edition) as prepared by the South African Mineral Resource Committee Working Group under the auspices of the SAIMM and the GSSA through the SAMCODES Standard Committee (**SSC).** The

SAMREC Code is an international reporting code that is acceptable to the JSE Listing Rules [Chapter 12].

The reporting standard adopted for the reporting of the value for the Coal Asset is the SAMVAL Code (2016 Edition) as prepared by the South African Mineral Asset Valuation Committee Working Group under the auspices of the SAIMM and the GSSA through the SSC.

1.3.2. Reliance on SRK

[SR9.1(i)] [SV1.0]

The CPR is addressed to and may be relied upon by the Company, the Directors of the Company and the Company's various financial, legal and accounting advisors (the **Advisors**) in support of the Proposed Transaction, specifically in respect of compliance with the requirements of the Listing Rules and the Codes. SRK agrees that the CPR may be made available to and relied upon by the Advisors.

SRK is responsible for the CPR and for all the technical information contained therein. SRK declares that it has taken all reasonable care to ensure that this CPR and the technical information contained therein is, to the best of its knowledge, in accordance with the facts and makes no omission likely to affect its import.

SRK confirms that the presentation of technical information contained elsewhere in the Listing Documentation released by the Company which relates to information in the CPR is accurate, balanced and not inconsistent with the CPR.

SRK believes that its opinion should be considered as a whole and selecting portions of the analysis or factors considered by it, without considering all factors and analyses together, could create a misleading view of the process underlying the opinions presented in this CPR. The preparation of a CPR is a complex process and does not lend itself to partial analysis or summary.

SRK has no obligation or undertaking to advise any person of any development in relation to the Coal Asset which comes to its attention after the date of the CPR or to review, revise or update the CPR or opinion in respect of any such development occurring after the date of the CPR.

1.4. Effective Date and Valuation Date

[12.10(a)] [SR9.1(iii)] [SV1.2, SV1.13]

The Effective Date for this CPR is 31 December 2020 (the **Effective Date**).

The Coal Resource and Coal Reserve statements set out in this CPR are reported as at 31 December 2020 and represent the Coal Resources and Coal Reserves at the Effective Date as audited by SRK.

The declaration of Coal Reserves as at the Effective Date of 31 December 2020 includes a forecast of four months (September to December 2020) to the allocated position. However, information gained during the review is that Isibonelo has not achieved its planned production targets during the first six months 2020; it is SRK's opinion that any variation between the plan and the actual Coal Reserves will not be significant.

The Life of Mine (**LoM**) plan and associated technical and economic parameters (**TEPs**) included in the LoM plan and techno-economic model (**TEM**) all commence on 1 July 2020 and are presented in constant money terms (cost estimates are at the Effective Date and ignore inflation and any real increase due to escalation).

The financial results for Isibonelo Colliery are taken to be correct at 31 December 2020, the Effective Date of the CPR, which is also the **Valuation Date**.

1.4.1. Material Change

[12.10(b)] [SR4.1(iv), SR4.3(viii), SR5.5(iii)] [SV1.13]

The valuation of the Coal Asset is correct at 31 December 2020, the Valuation Date.

No material changes are expected in the Coal Resource and Coal Reserve statements. Changes resulting from the national lockdown are not expected to be material regarding the overall Coal Resources and Coal Reserves or the remaining LoM.

1.4.2. Units and Currency

Throughout this report, SRK has used the Système Internationale (**SI**) of units. All units used in the CPR are defined in the glossary of terms.

All monetary values used in this CPR are expressed in 2020 constant money terms in South African Rand (**ZAR**).

1.4.3. Sufficiency of Rehabilitation Funding

[SR1.7(i)]

The closure liability has been assessed to ZAR248.6 million using the approach currently required by legislation as documented in the Department of Mineral Resources (**DMR**) 2005 Guideline Document. Note that the DMR is now known as the Department of Mineral Resources and Energy (**DMRE**). SRK understands that a provision (based on information to end of 2019) of ZAR553 million has been made to the DMRE. SRK is of the opinion that Isibonelo has met its legal obligations around assessing and making provision for the liability. SRK considers that the Isibonelo assessment of liability based on commercial costs, which indicates a liability of ZAR738 million for unplanned closure, this is likely to be a more accurate reflection of liability as a more focussed approach has been used to determine this liability.

There are potential risk items which could increase the closure liability, with these being the residual risk related to water treatment. This could add ZAR150 to ZAR200 million to the liability.

SRK is of the opinion that Isibonelo has met statutory requirements and has an understanding of what the liability is, with future work required to refine the estimate as the end of life of mine approaches.

SRK understands that the Company is currently undertaking updates to the closure cost estimates in order to reflect liability as at December 2020. Once the 2020 assessments are complete and have received the necessary internal approvals, these figures will be reported to the DMRE and changes to the closure provision will be made where necessary. SRK has not interrogated the 2020 figures and has instead escalated the 2019 figures to represent a liability at the end of December 2020.

1.5. Verification and Validation

[SR3.1(ii)] [SV1.0]

SRK has conducted a review and recalculation (Isibonelo Coal Resources and Reserves) and assessment of all material issues likely to influence the future performance of the mine and the resulting TEPs which included the following:

- Inspection visits to Isibonelo;
- A review of the Coal Resource and Coal Reserve statements for Isibonelo;
- Reporting of the Coal Resource and Coal Reserve Statements based on information provided by Isibonelo as at 31 December 2019 and depleted by planned production to 31 December 2020, the Effective Date of this CPR; and
- Measured and Indicated Resources are inclusive of those Coal Resources modified to produce Coal Reserves, i.e. Coal Resources are reported on an inclusive basis of the Coal Reserves.

SRK hereby gives confirmation that it has performed all verification and validation procedures deemed necessary by SRK in order to place an appropriate level of reliance on the technical information provided by the Company and Isibonelo.

1.6. Limitations, Reliance on Information, Declaration, Consent and Cautionary Statements

1.6.1. Limitations

[SR1.7(i)] [SV1.10]

Coal Reserve estimates are based on many factors, including data with respect to drilling and sampling. Coal Reserves are derived from estimates of future technical factors, operating expenditure (**Opex**) and capital expenditure (**Capex**), product prices and the exchange rate between the various currencies and the United States Dollar (**USD**). The Coal Reserve estimates contained in this report should not be interpreted as assurances of economic life of the Coal Asset. As Coal Reserves are only estimates based on the factors and assumptions described herein, future Coal Reserve estimates may need to be revised. For example, if production costs increase or product prices decrease, a portion of the current Coal Resources, from which the Coal Reserves are derived, may become uneconomical to recover and would therefore result in lower estimated Coal Reserves. Furthermore, should any of the assumed factors change adversely, the TEPs and value for the Coal Asset as reported herein may need to be revised and may well result in lower estimates.

This CPR contains statements of a forward-looking nature. These forward-looking statements are estimates and involve several risks and uncertainties that may cause the actual results to differ materially from those anticipated in the CPR. The achievability of the projections, LoM plans, budgets and forecast TEPs as included in this CPR is neither warranted nor guaranteed by SRK. The projections as presented and discussed herein have been proposed by Isibonelo management and have been adjusted where appropriate by SRK. The projections cannot be assured as they are based on economic assumptions, many of which are beyond the control of Isibonelo and the Company. Future cash flows and profits derived from such forecasts are inherently uncertain and actual results may be significantly more or less favourable.

The trend towards decarbonisation is relatively recent and it remains unclear how this will impact on the value of the coal assets. SRK considers the valuation to be aligned with the SAMREC and SAMVAL Codes and to represent a reasonable interpretation of value and the associated risks. Current sentiment towards coal assets is not adequately reflected in the transactional analysis. The possible gap between the price that can be realised and the valuation is exacerbated by the recent increase in the coal price.

The COVID-19 pandemic has led to significant volatility and uncertainty in the global economy. The potential impact of the evolving COVID-19 situation on consumers, supply chains, commercial agreements, geopolitical outcomes, operating conditions and future decisions that the Company may have to make means that the financial forecasts may differ materially from those set out in this report.

Unless otherwise expressly stated, all the opinions and conclusions set out in this CPR are those of SRK.

1.6.2. Reliance on Information

[12.9(d), 12.9(e), 12.10(e), 12.10(h)(iv)]

SRK has relied upon the accuracy and completeness of technical, financial and legal information and data:

- Furnished by or through the Company or Isibonelo, including information and data originating with the Company or Isibonelo Advisors; and
- In respect of publicly available information published by the Company from time to time, including but not limited to any Coal Resource and Coal Reserve statements and technical studies contained in such information or data.

The Company has confirmed that, to its knowledge the information provided by it to SRK was complete and not incorrect or misleading in any material aspect. SRK has no reason to believe that any material facts have been withheld.

Whilst SRK has exercised all due care in reviewing the supplied information, SRK does not accept responsibility for finding any errors or omissions contained therein and disclaims liability for any consequences of such errors or omissions.

The technical views in this report are based on information provided by the Company and its advisors throughout the course of SRK investigations, which in turn reflect various technical-economic conditions prevailing at the date of this report. In particular, the Coal Reserves, TEPs and value of the Coal Asset are based on expectations regarding commodity prices/Sasol coal supply contract prevailing at the Effective Date of this CPR. These can change significantly over relatively short periods of time. Should these change materially, the TEPs could be materially different in these changed circumstances.

SRK has reviewed the information provided by the Company and is satisfied that the extents of the properties described in the various rights are consistent with the maps and diagrams received from the Company. SRK has placed reliance on Mr Christopher Harding, [Project Manager] for the Company, regarding the accuracy of all legal information in this CPR and the validity of the Company's title to the Mining Rights and surface rights held over the Coal Asset.

SRK believes that its opinion must be considered as a whole and selecting portions of the analysis or factors considered by it, without considering all factors and analyses together, could create a misleading view of the process underlying the opinions presented in this CPR. The preparation of a CPR is a complex process and does not lend itself to partial analysis or summary.

SRK has no obligation or undertaking to advise any person of any development in relation to the Coal Asset which comes to its attention after the date of the CPR or to review, revise or update the CPR or opinion in respect of any such development occurring after the date of the CPR.

This report includes technical information, which requires subsequent calculations to derive subtotals, totals and weighted averages. Such calculations may involve a degree of rounding and consequently introduce an error. Where such errors occur, SRK does not consider them to be material.

1.6.3. Declaration (Independence)

[12.9(b), 12.10(c), 12.12(a)] [SV1.0]

SRK will be paid a fee for this work at commercial rates in accordance with normal professional consulting practice. Payment of fees is in no way contingent upon the conclusions to be reached in the CPR.

Neither SRK nor any of its employees or associates to be employed in the CPR of Isibonelo, nor any of the Competent Persons and/or Competent Valuators who are responsible for authoring this CPR, nor any directors of SRK have at the date of this report, nor have had within the previous two years, any material shareholding in the Company, Isibonelo, any of the Company's Advisors, or any other pecuniary, economic or beneficial interest, or the right to subscribe for such interest, whether direct or indirect, in the Company, Isibonelo, any of the Company's advisors or the outcome of the work.

Consequently, SRK, the Competent Persons and the Competent Valuator consider themselves to be independent of the Company, its directors, senior management and Advisors.

In this CPR, SRK provides assurances to the Board of Directors of the Company, in compliance with the requirements of the reporting standards (being the SAMREC Code, SAMVAL Code and SAMESG Guideline), that the Coal Reserves, TEPs, including production profiles, operating expenditures and capital expenditures for Isibonelo, as provided to SRK by the Company and reviewed and where appropriate modified by SRK, are reasonable given the information currently available.

In compliance with Item 1.2 of Annex 1 of Commission Delegated Regulation (EU) 2019/980 as it forms part of UK law by virtue of the European Union (Withdrawal) Act 2018, SRK accepts responsibility for this CPR and, to the best of SRK's knowledge, declares that the information set out in this CPR is in accordance with the facts and this CPR makes no omission likely to affect its import.

1.6.4. Consent

[12.12(a)] [SV1.0]

SRK consents to the issuing of this report in the form and context in which it is to be included in the Listing Documentation and the registration document.

SRK has given and has not withdrawn its written consent for the inclusion of this CPR in the Listing Documentation in support of the Offer.

SRK has given and has not withdrawn its written consent to:

- The issue of the Listing Document with the inclusion of the references to its name: and
- The inclusion of information extracted from this CPR in "Part VIII – Business Overview" of the Listing Document and has authorised the contents of this CPR and references thereto as part of the Listing Document for the purposes of Item 1.3 of Annex 1 of Commission Delegated Regulation (EU) 2019/980 as it forms part of UK law by virtue of the European Union (Withdrawal) Act 2018.

1.6.5. Cautionary Statements

[SV1.15]

The reader and any potential or existing shareholder or investor is cautioned that the Company is involved in mining the Coal Asset and there is no guarantee that any unmodified part of the Coal Resources will ever be converted into Coal Reserves nor ultimately extracted at a profit.

1.7. Indemnities provided by the Company

The Company has provided the following indemnities to SRK:

- In the event that the Company discloses or distributes any SRK work product or other deliverable (including reports, analysis, opinion or similar) (the "SRK Work Products") to any third party, the Company shall procure that such third party complies *mutatis mutandis* with various of the Company's obligations to SRK that are contained in the engagement letter between Webber Wentzel Attorneys (**WW**) and SRK, and, unless otherwise agreed in writing by SRK, no such third party shall be entitled to place reliance upon any information, warranties or representations which may be contained within the SRK Work Products and the Company shall indemnify SRK against all and any such claims, losses and costs which may be incurred by SRK arising from the breach by the Company of this obligation. This indemnity shall not apply in relation to the provision by the Company of drafts of this CPR to its advisors and the JSE and in relation to, or following, the public release of this CPR in the Listing Documentation; and

- The Company has confirmed to SRK that, to its knowledge, the information provided by it to SRK was complete and not incorrect or misleading in any material aspect. SRK has no reason to believe that any material facts have been withheld. Whilst SRK has exercised all due care in reviewing the supplied information, SRK does not accept responsibility for finding any errors or omissions contained therein and disclaims liability for any consequences of such errors or omissions.

1.7.1. Copyright

Copyright in all text and other matter in this document, including the manner of presentation, is the exclusive property of SRK. It is a criminal offence to publish this document or any part of the document under a different cover, or to reproduce and/or use, without written consent, any technical procedure and/or technique contained in this document. The intellectual property reflected in the contents resides with SRK and shall not be used for any activity that does not involve SRK, without the written consent of SRK.

1.8. Qualifications of Consultants

[SR9.1(i)(ii)] [SV1.0]

SRK is part of an international group (the SRK Group) that comprises almost 1 400 staff, offering expertise in a wide range of resource engineering disciplines. The SRK Group's independence is ensured by the fact that it holds no equity in any project and is totally owned by its employees. This permits SRK to provide its clients with conflict-free and objective recommendations on crucial judgement issues.

SRK has a demonstrated track record in undertaking independent assessments of Resources and Reserves, project evaluations and audits, CP Reports, Resource and Reserves Compliance Audits, Independent Valuation Reports and independent feasibility evaluations to bankable standards and valuation of mineral properties on behalf of exploration and mining companies and financial institutions world-wide. The SRK Group has also worked on a large number of major international mining operations and their projects, providing mining consultancy service inputs. SRK has specific in commissions of this nature.

The following are the CPs responsible for the signing off on Isibonelo Coal Resources, Coal Reserves and Coal Asset Valuation:

- The CP assuming overall responsibility of the CPR and for the reporting of Coal Resources is Ms Lesley Jeffrey, PrSciNat (Reg. No. 400115/01). A Fellow of the GSSA and a Member of the Fossil Fuel Foundation of Africa, who is a Principal Geologist with SRK. Ms Jeffrey is a geologist with over 35 years' experience in coal specializing in exploration, geological modelling, resource estimation; Competent Persons reporting and

- The CP assuming responsibility for the reporting of Coal Reserves is Mr. Norman McGeorge, PrEng (Reg. No. 20080141). A member of the SAIMM, who is a Principal Mining Engineer at SRK. Mr McGeorge is a mining engineer with more than 34 years' experience in the mining industry. He has worked on numerous collieries in mine planning, engineering design, Competent Persons reporting, mine valuation and feasibility studies both locally and internationally; and
- The CV[2] with responsibility for the Coal Asset Valuation is Mr Andrew van Zyl, BEng (Chemical), M.Com (Financial Economics). A Fellow of the SAIMM, who is a Principal Consultant at SRK. He is the current chairman of SAMVAL and has more than 20 years' experience in mining and engineering with more than 10 years in the valuation of Mineral Projects and Assets.

Please refer to Appendix 3 for the Certificates of the Competent Persons and Competent Valuator.

This CPR has been prepared based on a technical and economic review by a team of consultants sourced from SRK's offices in South Africa. These consultants are specialists in the field of geology, Resource and Reserve estimation and classification, opencast mining, geotechnical engineering, mineral processing, hydrology and hydrogeology, infrastructure, mine closure, environmental, social and asset valuation. The consultants who have carried out the work have extensive experience in the mining industry and are members in good standing of appropriate professional institutions. Details of their qualifications and discipline are set out in Table 1-1.

1.9. Site Visits

[SR1.1(iii)]

SRK personnel visited Isibonelo operations as part of the inspection of surface facilities, coal crushing/screening facilities and geotechnical conditions of the open pit. SRK personnel also met with personnel representing relevant disciplines of Isibonelo as indicated in Table 1-2.

The purpose of the site visit included but was not limited to the following:

- Review of the engineering infrastructure and discussions of the maintenance management systems;
- Review and discussion of the database informing the Coal Resources;
- Review of the LoM planning process and the conversion of Coal Resources to Coal Reserves;
- Review and discussion of major contracts;
- Review of the coal plant recovery methods; and
- Review and discuss the status quo involving the permitting, key environmental and social aspects.

The CP for Coal Resources was personally unable to attend the site visit due to prior commitments and a decision to divide the workload between the CP and Ms K. Black. Reliance is therefore placed on Ms K Black, a CP with 13 years' experience, to conduct the site visit, as well as Mr N McGeorge, a CP with over 30 year's appropriate coal experience, who also attended the site visit.

Table 1-1: Consultant Contributors

Name	Qualification	Registration	Contribution
Andrew van Zyl	BEng, MCom (Financial Economics & Econometrics)	FSAIMM	Asset Valuation, CV[2]
Ansu Louw	BA (Geography), MA (Environmental Management)		GIS and Graphics
Ashleigh Maritz	BSc, MSc (Biochemistry)	EAP and Pr.Sci.Nat.	Environmental Permitting, Compliance
Benedict Mabenge	BSc (Hons), MSc (Hydrogeology)	Pr.Sci.Nat.	Groundwater (Hydrogeology)
Bjanka Korb	BEng (Hons)	PrEng	Surface Water (Hydrology)
Carrie Zermatten	BSc (Hons), MSc	Pr.Sci.Nat.	Risk Assessment
Connan Hempel	BSc, MSc (Geology)	Pr.Sci.Nat.	Geology
Darryll Killian	BA, MA (Environmental and Geographical Science)	CEAPSA	Environmental Permitting, Compliance
Desmond Mossop	NDip (Geotechnology), BTech (Engineering Geology)	Pr.Sci.Nat.	Rock Engineering
Jaques van Eyssen[1]	MEC		Occupational Health and Safety, Ventilation
Jessica Edwards	BSocSci (Hons), MA		Social permitting and stakeholder relations
Katherine Black	BSc (Hons), GDE	Pr.Sci.Nat.	Geology, Coal Resources, Exploration
Kenny Mahuma	N6 Diploma (Electrical Engineering)	PrTechEng	Electrical, Control, Communication, Maintenance Management, Project Management, Reporting
Lesley Jeffrey	BSc (Geology), MSc (Mining)	Pr.Sci.Nat.	Geology, Exploration, Coal Resources, Project Management, Reporting, Coal Resources and Lead CP
Lisl Fair	BA, MA (Communications Pathology)		Sustainability aspects
Nico Lotheringen[1]	Dip (Advanced MRM) BTech (Architectural Technology)	PrEng	Review of Life of Mine Scheduling
Norman McGeorge	BSc (Mining), MSc (Mining)	PrEng	Mining, Scheduling, Coal Reserves, Coal Reserves CP
Peter Hand	BSc (Hons)		Coal Processing
Peter Shepherd	Pr Sci Nat (400104/95), BSc (Hons) in Hydrology	Pr.Sci.Nat.	Surface Water (Hydrology)
Pierre Mans	NDip (Mining)		Mining (Technical)
Ray Mayne	BSc (Hons), MSc	Pr.Sci.Nat.	Mine Closure and Rehabilitation Requirements
Susan Benedict			Graphics
Vanessa Snyman	BCom, BCom (Hons) (CA) SA		Asset Valuation
Vassie Maharaj	BSc (Biochemistry, Physiology)		Social permitting and stakeholder relations
Willie Schoeman[1]	BSc (Mechanical Engineering)	PrEng	Mechanical Engineering

Note:
1. Independent SRK Consultant

Table 1-2: Site Visits

Date	Location	Name	Topic
27/11/2019	Isibonelo	Ashleigh Maritz	Environmental
		Bjanka Korb	Surface Water
		Desmond Mossop	Geotechnical
		Jessica Edwards	Social
		Katherine Black	Geology, Coal Resources
		Kenny Mahuma	Electrical Infrastructure, Control and Communications
		Norman McGeorge	Mining, Coal Reserves
		Peter Hand	Plant Recovery Methods
		Ray Mayne	Closure
		Willie Schoeman	Mechanical Infrastructure
27/11/2019	eMalahleni – Central Services	Andrew van Zyl	Techno-economic model
03/12/2019	eMalahleni – Central Services	Norman McGeorge	Mining, Coal Reserves
05/12/2019	Isibonelo	Andrew van Zyl	Techno-economic model
23/01/2020	Isibonelo	Bjanka Korb	Surface Water
31/01/2020	Isibonelo	Ray Mayne	Closure

2. Description of Asset and Location

[12.10(h)(ii)(iii)] [SR1.2(i)]

The description and location of the Coal Asset in relation to adjacent properties is discussed in detail in the following section. This section includes discussion on access, climate, physiography and regional infrastructure in the general vicinity of the Coal Asset.

2.1. Property Location

[12.10(h)(ii) (iii)] [SR1.2(i)] [SV1.5] [ESG4.5]

Isibonelo Colliery lies approximately 150 km east of Johannesburg and approximately 90 km south of eMalahleni (previously Witbank). The colliery is situated near the northern margin of the Highveld Coalfield of the Mpumalanga Province. The mine falls within the Govan Mbeki Local Municipality, within the Gert Sibande District Municipality. Approximately 8 km to the south of the property lies the town of Kriel, with Secunda lying approximately 13 km west of the property.

The mine was opened in 2005 with the sole purpose of supplying thermal coal to Sasol Synthetic Fuels (**SSF)**. The Sasol contract commenced in July 2005 and is still active. The mine offices and workshops are located approximately 12 km south of the mining area, at what was formerly known as Sasol's Syferfontein Opencast Colliery. Isibonelo took over the infrastructure associated with Syferfontein Opencast Colliery in April 2005.

The GPS coordinates for Isibonelo are as follows:

- Isibonelo Office: 26º 26' 13.38" S 29º 12' 33.03" E
- Isibonelo Colliery: 26º 19' 35.10" S 29º 16' 13.89" E

2.2. Co-ordinate System

[SR1.2(i)]

All survey information is based on the LO29 trigonometrical system that has the co-ordinates of the origin as y, x = ± 0 and the constants used as Y, X = 0; the elevation is measured in metres above mean sea level (**mamsl**).

The Isibonelo Colliery Benchmark is the K2 survey benchmark, a concrete beacon, located 75.89 m to the southwest of the No. 1 incline shaft at Kriel Colliery. Its co-ordinates are shown in Table 2-1.

Table 2-1: Co-ordinates of the Isibonelo Benchmark

Projection: Gauss Conform (LO System) Ellipsoid: Clark 1880 Modified LO 29 East				Projection: Gauss Conform (WGS System) Ellipsoid: WGS 1984 LO 29 East			
LO Co-ordinates		Geographical Co-ordinates		WGS29 Co-ordinates		Geographical Co-ordinates	
Y	X	Latitude	Longitude	Y	X	Latitude	Longitude
-18 838.040	+2 905 271.600	26°15'31.26"S	29°11'18.85"E	-2 905 567.881	+18 810.478	26°15'33.21"S	29°11'17.87"E
Elevation:	1 614.950 mamsl						

2.3. Adjacent Properties

[SR1.3(i)]

2.3.1. Kriel Colliery

Kriel Colliery lies to the northwest of Isibonelo and is owned by Seriti Resources. The colliery was established in 1975 to exclusively supply thermal coal to Eskom Holding SOC Ltd's **(Eskom)** Kriel Power Station. The underground operation is mined by mechanised board and pillar methods, while the opencast operation uses both dragline and truck and shovel methods.

The coal is mined from the Number 4 Seam (**No 4 Seam**), while the Number 2 Seam (**No 2 Seam**) and Number 5 Seam (**No 5 Seam**) are classified as low potential Coal Resources. Annual production is in the order of 5 Mtpa, and there are sufficient Coal Resources in expansion areas to supply the power station until 2029.

2.3.2. Matla Colliery

Matla Colliery is situated immediately west of and adjacent to Kriel Colliery and is owned by Exxaro Resources. The colliery was established in 1976 to exclusively supply thermal coal to Eskom's Matla Power Station. The three mines in the complex are all fully mechanised underground operations employing mainly bord and pillar methods, as well as continuous mining and shortwall methods.

Both the No 2 Seam and No 4 Lower Seam are mined, currently producing in the order of 7 Mtpa. Once the various expansion projects receive final approval, this can be increased to approximately 10 Mtpa. There are approximately 230 Mt of Coal Reserves remaining.

2.3.3. Syferfontein Mine

Syferfontein Colliery is located south of Isibonelo and is owned by Sasol Mining, having been established in 1989. It was originally an opencast strip mine but has since progressed to a purely underground operation. The colliery supplies coal to SSF as gasification feedstock for the production of fuel and petrochemicals. Bord and pillar methods are used to extract the No 4 Seam and produce in the order of 10 Mtpa. It has close to 292 Mt of Coal Reserves.

2.4. Access, Infrastructure, Climate, and Physiography

[SR1.1(ii)] [SR5.4(i)(ii)]

2.4.1. Accessibility

[SR1.1(ii)]

The greater area around the towns of Kriel, Trichardt and Secunda is well served by several provincial, district and farm roads, leading to the neighbouring towns of Ogies, Kinross and Bethal. The main tarred road (R545) connecting Ogies and Bethal runs approximately 2 km to the northeast of the property.

Access to Isibonelo offices is mainly by road and is via the N17 and R547, with the opencast operation accessed via the internal Isibonelo Colliery access roads. Haul roads are used to transport coal from the pit to the crusher plant. Access control into the mine is via the manned security at the main access gate to the mine. There is enough parking for visitors close to the main security entrance.

2.4.2. Infrastructure

[SR1.1(ii), SR5.4(i)(ii)]

Regional infrastructure includes roads, water supply and power supply. Sasol is responsible for supplying the mine with potable water and power as part of the Coal Supply Agreement (the Syferfontein Agreement). Potable water is supplied via the Rand Water pipeline which runs directly to the main offices, workshops and change houses. Water required for the crusher, service systems and dust suppression is extracted from the dirty water system.

Isibonelo's power supply agreement is with Sasol, as per the CSA. The mine does not have any power supply agreement with Eskom. The agreed Notified Maximum Demand of 15 MVA is supplied from Sasol's 132/22 kV Syferfontein substation. The 132 kV and 22 kV network supplying the whole mine from Syferfontein substation is appropriately sized to supply the power requirements of the whole mine.

Coal is delivered to Sasol using a network of conveyor belts.

2.4.3. Climate

[SR1.1(ii)] [ESG4.4]

The normal Highveld weather conditions prevail, with warm to hot summers and cold winters. The rainy season during summer is normally from October to April with a typical rainfall being in the region of 690 mm. Temperatures range from 9°C to 32°C in summer and from 6°C to 22°C in winter. The prevailing winds vary from northwest to northeast, with generally low velocities of around 15 km per hour.

The area receives predominantly summer rainfall as a result of low-pressure troughs that form over the central plateau. Due to the Highveld climate this area is the driest, and has the highest and lowest temperatures, of any other area in the Mpumalanga province.

2.4.4. Physiography

[SR1.1(ii)] [ESG4.4]

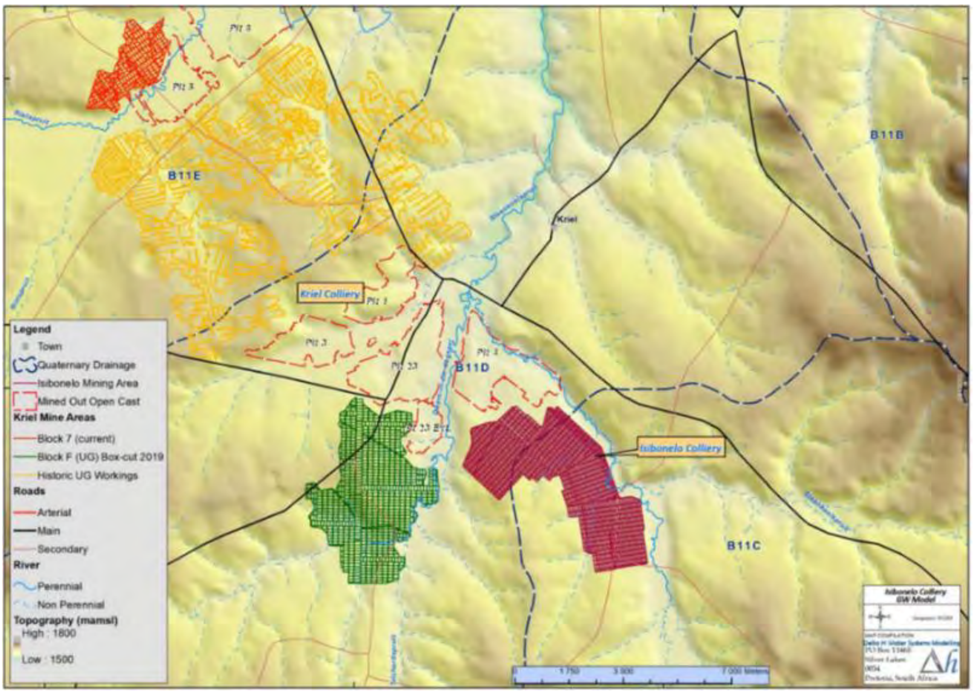
The colliery is located near the northern margin of the Highveld coalfield and supplies the SSF plant with coal directly from the pit via conveyor following a primary and secondary crushing process. No beneficiation of the coal takes place on the mine.

The mine is located on the gently undulating Mpumalanga Highveld. The topography of the area is comprised of moderately flat to undulating terrain with rolling hills and shallow open drainage ways with elevation varying across the site from 1 696 mamsl to 1 540 mamsl. Predominant land uses in the area are agriculture and mining.

The western and eastern boundaries of the area are formed by two physical features, namely the northerly flowing Dwars-In-Die-Weg Spruit in the west and the north-westerly flowing Steenkoolspruit in the east.

Close to the junction of the two rivers in the north is a wide flood plain, the western portion of which was mined as Pit 4 by Kriel Colliery. The eastern part of this flood plain forms part of Isibonelo opencast mine. Both rivers are perennial and meandering within a wide valley, which in some places is up to 1.5 km in width. The valleys along the two rivers tend to be marshy and can be flooded during heavy summer rains. The boundary of the topographically flat flood plain generally defines the 1:50 year flood line. Figure 2-1 shows the surface drainage map.

Agriculture is widespread in the area with the main crops being maize and soya beans. Growing of flowers and tomatoes has become an additional source of income for some of the farmers. Some parts of the area in the south, where dolerite rocks outcrop on the surface, can only be considered as grazing land.



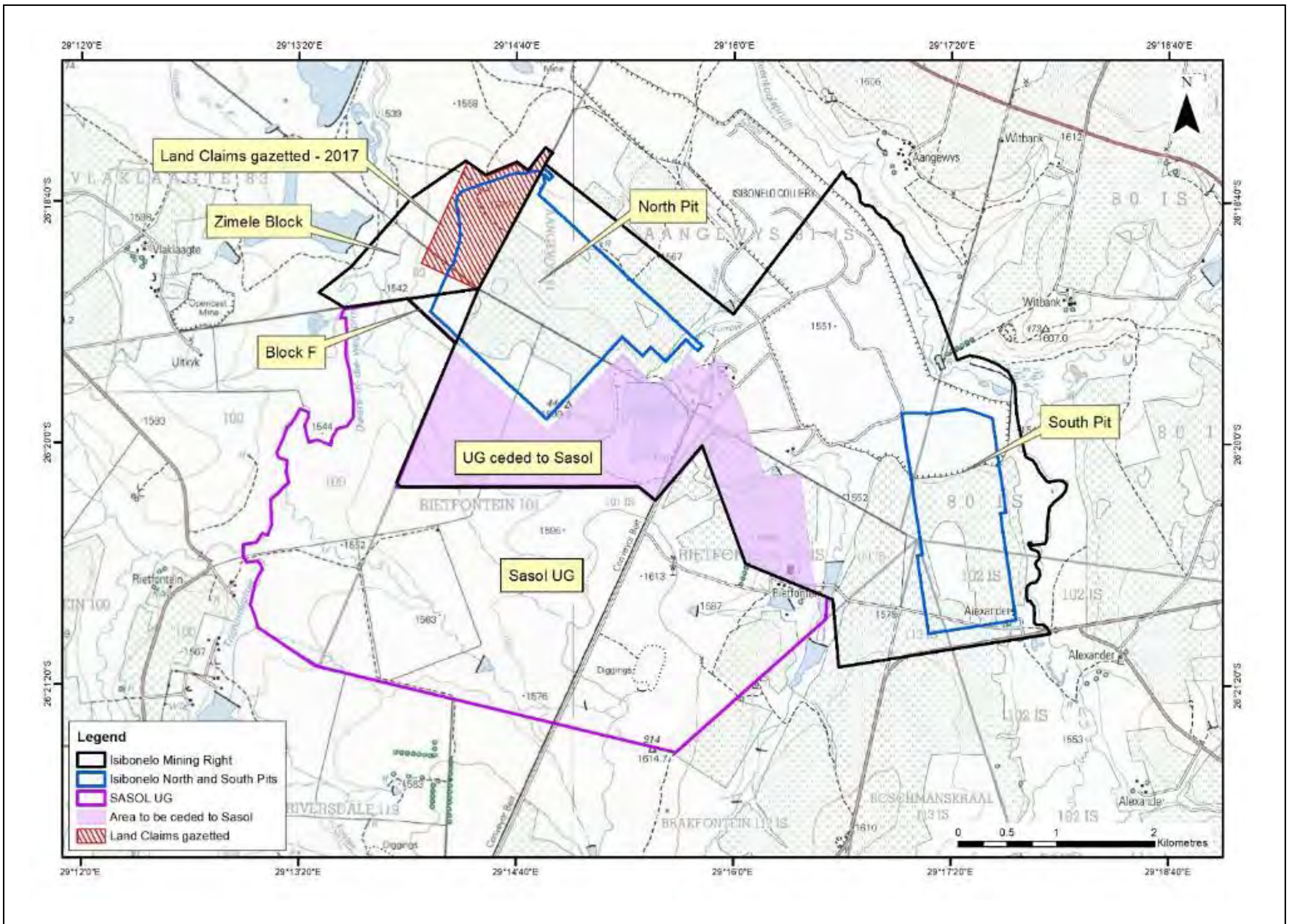
srk consulting	**ISIBONELO COLLIERY CPR** Surface Drainage Map (*Source: Delta-H, 2019*)	Project No. 566627

Figure 2-1: Isibonelo Colliery Surface Drainage Map

2.4.5. Current Mining and Future Mining Areas

Isibonelo is a medium-sized opencast operation in the Highveld Coalfield, producing approximately five million tonnes of coal per annum and has been in operation for the last 16 years. The colliery was developed on the South Kriel Coal Reserves and utilizes the dragline strip-mining method as a means of coal removal from the coal seams and the truck and shovel method to remove the overlying material. Currently, the No 4 Seam is the only economic seam, as the No 5 Seam, No 2 Seam and Number 3 Seam (**No 3 Seam**) are poorly developed and not economically viable in this area.

The colliery produces raw Run-of-Mine (**RoM**) coal from both the North and the South Pits to supply SSF. Coal is conveyed 14 km from the pits to point of sale at the Isibonelo bunker. From this point it is conveyed a further 22 km to the Sasol coal stockyard situated at the SSF plant immediately south of the town of Secunda. Isibonelo Colliery has recently received approval for mining operations at Zimele Block (Block Z) and Block F Triangle (Figure 2-2), which will both be mined as extensions to the existing North Pit operation. The portion indicated in purple in Figure 2-2 formed part of the original Isibonelo Mining Right (**MR**); however, it is currently in the process of being ceded to Sasol, and therefore will not form part of this report.



srk consulting	**ISIBONELO COLLIERY CPR** Current Mining Areas (North Pit and South Pit)	Project No. 555850

Figure 2-2: Current Mining Areas (North Pit and South Pit)

2.5. Mining History

[SR1.4] [SV1.6]

2.5.1. Historical Development

[SR1.4(i) (ii)] [SV1.6]

Isibonelo has been in operation since 2005 with the sole purpose of supplying SSF with thermal coal. The mine was established as a result of the Anglo American Coal (**AAC**) strategy to diversify coal sales market by accessing supply to synthetic fuels market. The discussions with Sasol Mining (**SM**) began in 1996 and culminated into a “reserves to market” Coal Supply Agreement (**CSA**) where the Company would cease the Mining Rights of 100 million tonnes in exchange for an equivalent market share to supply SSF.

A study was initiated in 2000 by the Company and Sasol to consider the development of the Kriel South Coal Reserves in Mpumalanga province, South Africa. An agreement was reached in July 2003 for Anglo Coal to establish a new opencast operation on the northern portion of the coalfield and Sasol was granted access to the southern portion of the Kriel South coalfield, through the expansion of its underground operations at the Syferfontein Colliery.

On 1 July 2005, Anglo Coal’s Isibonelo Colliery supplied its first consignment of coal to Sasol Limited. The USD65 million coal mine commenced production on time and on budget.

Table 2-2: Isibonelo Historical Development Summary

Date	Activity
1996	Discussions between the Company and SM regarding the CSA
2000	Study on development of the Kriel South Coal Reserves initiated
2003	Agreement reached for the Company to establish a new opencast operation on the Kriel South coalfield
2005	Isibonelo supplies its first consignment of coal to Sasol

2.5.2. Prior Ownership

[SR1.4(i) (ii)] [SV1.6]

Isibonelo has been owned by the Company since its inception. No change of ownership has happened since its inception to the Effective Date of this report.

2.5.3. Historical Operating Statistics

[12.9(c)] [SR1.4(i) (iii) (iv)] [SV1.6]

Table 2-3 shows the historical production for Isibonelo from 2017 to 2020.

Table 2-3: Historical Production

Item	Units	2017	2018	2019	2020
Tonnes Sold	Mt	4.43	4.60	4.52	4.45
Total Moisture	%	8.15	8.05	7.46	6.59
Calorific Value	MJ/kg	20.66	20.42	20.43	20.00
Volatiles	%	22.64	22.23	22.29	21.96
Ash	%	28.76	29.44	29.92	30.26
Sulphur	%	0.79	0.80	0.88	1.00
Fines	%	20.39	21.12	21.45	21.91

Note:
1. The figures for 2020 include bought-in coal.

2.5.4. Historical Operating Performance

Table 2-4 shows the historical operating performance for Isibonelo since 2017.

Table 2-4: Historical Operating Performance

Parameter	Units	2017	2018	2019	2020
<u>**Production:**</u>					
RoM Coal Mined	(kt)	4 059	4 511	4 003	4 205
Saleable (incl. bought-in coal)	(kt)	4 249	4 605	4 520	4 449
<u>**Revenue:**</u>					
[redacted]					
<u>**Operating Costs:**</u>					
[redacted]					
<u>**Unit costs:**</u>					
[redacted]					

2.6. Regional Profile

2.6.1. Environmental Profile

[SR1.2(ii) (iii), SR1.5(i), SR5.5(i) (iii)] [SV1.2] [ESG4.2, ESG4.4]

Isibonelo's Mining Right covers an area of approximately 2 053.3675 ha with mining currently taking place in North and South Pits. Central pit has largely been rehabilitated. All three pits are boarded by the Steenkoolspruit to the northeast. All surface activities are located within the boundaries of colliery's approved mining license lease area on the farms Alexander 102 IS, Witbank 80 IS, Boschmanskraal 113 IS, Brakfontein 117 IS, Aangewys 81 IS, Onverwacht 70 IS, Vlaklaagte 83 IS, Rietfontein 100 IS and Rietfontein 101 IS.

The mine is situated within the Olifants Water Management Area and falls within the upper parts of the Olifants River catchment. There are three key surface water features near the site, namely the Steenkoolspruit, the Dwars-in-die-Wegspruit and the DeBeerspruit. Current water monitoring data has indicated that surface and groundwater quality is of fair to poor quality. Several wetland types occur with the Mining Right area where the present ecological state (**PES**) ranges from moderately to seriously modified due to mining activities.

Isibonelo is located within the Highveld Priority Area which is a national air pollution hotspot in terms of Section 18(1) of the National Environmental Management: Air Quality Act (Act No. 39 of 2004). High levels of noise are experienced in the area due to the surrounding coal mine operations as well as the N17 highway, which crosses to the south of Isibonelo Colliery.

2.6.2. Social Profile

[SR1.2(ii) (iii), SR5.5(i)(iii)(v), SR7.1] [ESG4.1, ESG4.2, ESG4.5]

In terms of the location of Isibonelo operation, the applicable local authority is the Govan Mbeki Local Municipality, which is within the Gert Sibande District Municipality. Based on the information presented in the Stakeholder Engagement Plan (**SEP)** (AAC, 2019w), host communities include Tweedraai, Holfontein, Charl Cilliers, Bethal, eMbalenhle, Emzinoni, Evander, Ga-Nala, Kinross, Leandra, Lebohang, Leslie, Secunda, Trichardt and farm dwellers from surrounding farms. There are no traditional authorities or tribal land in the area, as land is owned by private individuals including Mr Swart, Mr Dunn, Mr Mahlangu and Mr De Wet.

Isibonelo's Social Performance function implements the Anglo American Social Way (**AASW**). AASW audits take place on an annual basis to measure progress against the Company's Socio-Economic Assessment Toolbox (**SEAT**). The AASW and SEAT requirements are not legislated and are rather in addition to the requirements set out in the MPRDA. Outputs are incorporated into Isibonelo's Community Engagement Plans, which are updated on an annual basis. The AASW audit (AAC, 2019u) confirmed that Isibonelo has several engagement forums that address a range of social issues, however, according to the audit results, Isibonelo may need to re-evaluate the effectiveness of the engagement forums for the Ga-Nala community. The AASW audit reports that Isibonelo has not communicated the SEAT to the Ga-Nala community (an identified impacted community). This is as a result of internal conflict amongst leaders and the subsequent breakdown of communication in the engagement platform. The AASW audit (AAC, 2019u) highlighted this unplanned engagement as a key gap.

Isibonelo includes an office complex which is mainly used for administrative duties by the management. As indicated in the Social and Labour Plan (**SLP**) (2020 to 2024) (AAC, 2020b), the Company's vision for housing is long-term home ownership and is in the process of moving away from housing provision. The aim is for employees to be accommodated in their own formal accommodation located within the municipal context of its operations.

Based on the 2019 Mining Charter Scorecard report, the site meets the requirements in terms of ownership, mine community development and housing and living conditions. Isibonelo achieved more than half of its target on employment equity, procurement, supplier and enterprise development, and human resource development (AAC, 2019z).

3. Regulatory Environment and Tenure

[12.10(h)(iv)] [SR1.5] [SV1.5] [ESG4.1]

This section covers a brief overview of the South African regulatory environment within which the Company operates and the status of Isibonelo Colliery with respect to the requirements of the applicable laws.

3.1. South African Regulatory Environment

12.10(h)(iv)] [SR1.5] [SV1.5]

The relevant South African regulatory framework is summarised below.

3.1.1. Constitution of the Republic of South Africa Act (Act No. 108 of 1996)

Section 24 of the *Constitution of the Republic of South Africa (Act No 108 of 1996)* states: "everyone has the right to an environment that is not harmful to their health or well-being; and to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that:

- Prevent pollution and ecological degradation;
- Promote conservation; and
- Secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development."

The Constitution is the supreme law of the country, and all conduct and legislation inconsistent with its contents is unlawful and will be set aside.

3.1.2. Mineral Framework: The Minerals and Petroleum Resources Development Act (Act No 28 of 2002)

The Mineral and Petroleum Resources Development Act (**MPRDA**) is the primary legislation used to regulate the mining industry since it came into effect on 1 May 2004. The DMRE is the national department tasked with implementing the MPRDA and regulating the mining industry. Until 30 April 2004, the right to prospect for and to mine was primarily regulated by the Minerals Act. The Minerals Act vested the right to mine a particular mineral in the holder of the mineral rights in respect of the relevant mineral in relation to the land in question.

The MPRDA extinguished private ownership of mineral rights and replaced it with a system of State grant of the right to prospect and mine. South Africa's mineral and petroleum resources were placed under the State's custodianship. A key element of the MPRDA is the change from a legal framework within which mineral rights formed an inherent element of immovable property, which encompassed the right to prospect and mine (subject to regulation by the State), to a system where the State, acting through the Minister, will grant the right to prospect and mine.

Owing to the change brought about by this new system, provision had to be made for a transition from the old regime, in which the role of the State was regulatory in nature and in which the right to prospect and mine vested in the holder of mineral rights, to the new current regime which provides for the State, acting through the Minister, to grant Prospecting Rights, mining permits and Mining Rights.

Those holding mineral rights when the MPRDA came into effect were afforded an opportunity in terms of the transitional arrangements contained in Schedule II to the MPRDA to apply to convert their old order rights into prospecting or Mining Rights, thus protecting the security of tenure of those holding rights before the MPRDA came into effect. Upon conversion, or failure to convert within the specified time periods, the old order rights ceased to exist. Such cessation to exist also terminated any contractual provisions relating to the use of the surface of the land for prospecting and/or mining activities. Upon the conversion of old order right into a Prospecting Right or Mining Right, the right to use the surface of land is primarily regulated by the MPRDA and practically by agreements between the holder and the landowner.

Under the MPRDA, applicants can apply for Prospecting Rights for the prospecting of minerals and Mining Rights for mining of minerals. Prospecting rights are granted for a period of up to five years with a right to renew the Prospecting Right once for a period up to three years. Mining permits are granted for a period not exceeding two years for an area less than five hectares in extent. Mining permits may be renewed for three periods each not exceeding one year. Mining Rights are granted for a period up to thirty years with a right to renew the Mining Right twice, assuming that the holder can justify that it can continue mining operations.

Under the MPRDA, rights are granted to entities by the State on a “first come, first served” basis in terms of an application system. Applicants must meet certain requirements set out in the MPRDA, and on meeting such requirements, the Minister must grant the right. A failure to grant a right is an administrative action that is capable of internal appeal before the DMRE. After an internal appeal, a judicial review process is available to aggrieved applicants. The MPRDA does provide that administrative processes must be conducted, or administrative decisions must be taken within a reasonable time and in accordance with the principles of lawfulness, reasonableness and procedural fairness and that these decisions must be given in writing and accompanied by written reasons. Once rights are granted to applicants, the right must be executed in the form of a notarial deed and registered at the Mineral and Petroleum Titles Registration Office (**MPTRO**) in order for the right to be a limited real right enforceable against the third parties.

Holders of rights in terms of the MPRDA must comply with the provisions of the MPRDA and the terms and conditions on which the right was granted, as well as the provisions of the Original Mining Charter for effecting entry of Historically Disadvantaged South Africans (**HDSA)** into the mining industry. Holders of Mining Rights must comply with the SLP approved in conjunction with the grant and execution of the Mining Right. The SLP relates to the obligations placed on the Mining Right holder to, amongst other things, train employees of the mine in accordance with prescribed training methodologies, achieve employment equity and human resource development in the mining company, improve housing and living conditions of employees and set up local economic development projects. A failure to implement the SLP could attract the issuing of a directive or notice by the DMRE to rectify non-implementation of the SLP. Failure to comply with the directive or notice could result in the imposition of fines and ultimately, in suspension or cancellation of the Mining Right.

Holders of Mining Rights must also comply with the Mine Works programme (**MWP**) approved as part of the Mining Right upon execution thereof. The MWP relates to the obligations in relation to mining methods, expected production and other technical aspects of the mining operations. If the plan or expected production is changed over the life of the project, then there is a provision to amend the MWP with the consent of the Minister in terms of Section 102 of the MPRDA.

Renewal of a Mining Right

Applicant's for the renewal of a Mining Right must provide a report reflecting the extent of the compliance with the requirements of the approved Environmental Authorisation (**EA**) and include a detailed MWP for the renewal. In addition, the applicant in terms of Section 24(3) has to demonstrate that it ,as the holder of the Mining Right, has complied with the requirements of the prescribed SLP, which does not apply to Prospecting Right renewal.

The maximum period of a renewal of a Mining Right is 30 years, but it can be renewed for further periods (each of which may not exceed 30 years at a time).

In terms of Section 25(1) of the MPRDA, the holder of a Mining Right has the exclusive right to apply for and be granted a renewal of the Mining Right in respect of the mineral and mining area in question.

The Holder of a Prospecting Right has the Exclusive Right to apply for a Mining Right

In terms of Section 19(1)(b) of the MPRDA, the holder of a Prospecting Right has the exclusive right to apply for and be granted a Mining Right in respect of the mineral and prospecting area in question. Therefore, up until the expiry of the Prospecting Right (including the rights conferred in terms of Section 18(5) and the renewal period), the holder has the exclusive right to apply for a Mining Right and no third party may lodge a valid application during such exclusivity period. Furthermore, once the holder of the Prospecting Right has lodged the Mining Right application, it is protected in terms of Section 9 of the MPRDA, which provides for a first-come first-served application procedure.

The holder of the Prospecting Right would still have to comply with all of the requirements for applications set out in Section 22 of the MPRDA and for the grant of a Mining Right set out in Section 23 of the MPRDA. Section 22 deals with the formalities for the lodgement of a valid application. Section 23 in turn deals with the criteria for the grant of a Mining Right. Essentially the Minister must grant a Mining Right if:

- The mineral can be mined optimally in accordance with the MWP;

- The applicant has access to financial resources and has the technical ability to conduct the proposed mining operation optimally;
- The financing plan is compatible with the intended mining operation and duration thereof;
- The mining will not result in unacceptable pollution, ecological degradation or damage to the environment;
- The applicant has provided for the prescribed SLP;
- The applicant has the ability to comply with the relevant provisions of the MHSA;
- The applicant is not in contravention of any provision of the MPRDA; and
- The grant of the right will further the objectives set out in Section 2(d) and (f) and in accordance with the charter contemplated in Section 100 of the MPRDA and the prescribed SLP.

Protection of Ownership of Mining Assets and Relevant Licences

While the MPRDA does not expressly provide for the protection of ownership of mining assets, Section 25 of the South African Constitution protects the right to property, including mine assets. To this extent, Section 25 provides that no one may be deprived of property except in terms of a law of general application, and no law may permit arbitrary deprivation of property. Property may, however, be expropriated only in terms of a law of general application for a public purpose or in the public interest; and subject to compensation. Therefore, although the South African government (including the Minister) is empowered to expropriate land and rights in land, provision is made for payment of compensation. However, in 2018 an amendment of Section 25 was proposed, this amendment would permit the expropriation of land and property without compensation, in order to address historic wrongs of land dispossession, as well as ensuring fair access to land and empowering the majority of South Africans.

Section 5 of the MPRDA states that a Prospecting Right or a Mining Right which has been registered at the MPTRO is considered to be a limited real right in respect of the mineral and land to which such right relates. The holder of a Mining Right has ownership of the mineral resources once the minerals have been severed from the land, which is enforceable against all third parties.

Security and continuity of tenure are listed in Section 2(g) as among the objects of the MPRDA. Continuity is preserved from prospecting to mining in that the holder of a Prospecting Right has the exclusive right to apply for and be granted a Mining Right. Continuity is further achieved during applications for renewals in that a Prospecting Right or Mining Right in respect of which an application for renewal has been lodged remains in force until the application has been granted or refused. Furthermore, security of tenure and continuity is assured by provisions in the MPRDA to the effect that an application for a right will not be accepted if another person holds a Prospecting Right, Mining Right, mining permit or retention permit for the same mineral and land in respect which such application is made.

3.1.3. Mineral Framework: The Mining Charter

Mining Right holders were initially required to comply with the Original Mining Charter for effecting entry of HDSAs into the mining industry. Among other things, the Original Mining Charter required:

- Each mining company to achieve a 15% HDSA ownership of mining assets within five years of the Mining Charter coming into effect and a 26% HDSA ownership of mining assets within ten years of the Mining Charter coming into effect;
- The mining industry as a whole to agree to assist HDSA companies in securing finance to fund participation in an amount of R100 billion over the first five years; and
- Mining companies to spell out plans for achieving employment equity at management level with a view to achieving a baseline of 40% HDSA participation in management and 10% participation by women in the mining industry, in each case within five years.

Following a review, the DMRE released the 2010 Mining Charter. The requirement under the 2010 Mining Charter for mining entities to achieve a 26% HDSA ownership of mining assets by the year 2014 was retained. The 2010 Mining Charter included the requirements, inter alia, that mining companies:

- Facilitate local beneficiation of mineral commodities;
- Procure a minimum of 40% of capital goods, 70% of services and 50% of consumer goods from HDSA suppliers (i.e. suppliers in which a minimum of 25% + 1 vote of their share capital must be owned by HDSAs) by 2014 (exclusive of non-discretionary procurement expenditure);
- Ensure that multinational suppliers of capital goods contribute a minimum of 0.5% of their annual income generated from South African mining companies into a social development fund from 2010 towards the socio-economic development of South African communities;
- Achieve a minimum of 40% HDSA demographic representation by 2014 at executive management (board) level, senior management (executive committee) level, core and critical skills, middle management level and junior management level;
- Invest up to 5% of annual payroll in essential skills development activities; and
- Implement measures to improve the standards of housing and living conditions for mineworkers by converting or upgrading mineworkers' hostels into family units, attaining an occupancy rate of one person per room and facilitating home ownership options for all mineworkers in consultation with organised labour, all of which must be achieved by 2014.

In addition, mining companies were required to monitor and evaluate their compliance with the 2010 Mining Charter and must submit annual compliance reports to the DMRE. The Scorecard for the Broad-Based Socio-Economic Empowerment Charter for the South African Mining Industry, attached to the 2010 Mining Charter, made provision for a phased-in approach for compliance with the above targets over the period ending in 2014. For measurement purposes, the Scorecard allocated various weightings to the different elements of the 2010 Mining Charter.

On 27 September 2018, the 2018 Mining Charter came into effect. The content of the 2018 Mining Charter is similar to the 2010 Mining Charter in terms of targets and requirements in relation to ownership, procurement and employment equity. Importantly, the 2018 Mining Charter has given recognition, although to a limited extent, to the concept of "once-empowered always-empowered" by providing that an existing Mining Right holder who has achieved a minimum of 26% HDSA shareholding shall be recognised as compliant for the duration of the Mining Right. However, this does not apply to renewals and to transfers of such a right. For renewals and transfers, the new requirements for new Mining Rights have to be satisfied, namely that there must be a minimum of 30% HDSA shareholding distributed as to a 5% non-transferrable carried interest to qualifying employees, a 5% to non-transferrable carried interest to host communities and a 20% effective ownership for a HDSA entrepreneur. Disposals of HDSA shareholding after 27 September 2018 will be subject to certain restrictions set out in paragraph 2.1.6 of the 2018 Mining Charter in order for the Mining Right holder to maintain its empowerment credentials.

There are certain procurement targets set out in the 2018 Mining Charter such that in relation to mining goods a minimum of 70% of mining goods procurement spend (excluding non-discretionary spend) must be on South African manufactured goods, with a percentage allocation to 21% to be spent on South African manufactured goods produced by an HDSA, 5% on manufactured goods produced by women or youth owned and controlled companies and 44% to be spent on South African manufactured goods produced by a HDSA compliant company.

In relation to services, 80% of the total spend on services must be sourced from South African based companies. The 80% of the total spend on services must be allocated in the following percentages; 50%, must be spent on services supplied by HDSAs and controlled companies, 15% is to be spent on services supplied by women owned and controlled companies, 5% must be spent on services supplied by youth, and 10% must be spent on services supplied by Broad-Based Black Economic Empowerment (**B-BBEE**) compliant companies. The procurement targets must be progressively complied with, within five years from the date of the granting of the right. In relation to employment equity, a Mining Right holder must within five years, progressively implement the targets set out in the 2018 Mining Charter in relation to board composition, executive management, senior management, middle management, junior management and employees with disabilities. There are also obligations in relation to core and critical skills and career progression plans.

Furthermore, the 2018 Mining Charter deals with obligations in relation to mine community development, housing and living conditions and reporting by Mining Right holders. There is a scorecard for the Broad-Based Socio-Economic Empowerment Charter attached to the 2018 Mining Charter and for measurement purposes the scorecard allocates various weightings to the different elements of the 2018 Mining Charter.

3.1.4. Mineral and Petroleum Resources Royalty Act

[SR1.6(i)]

On 3 June 2008, the fourth and final Mineral and Petroleum Resources Royalty Bill (**2008 Royalty Bill**) was released, for technical comment only. It was enacted as the Mineral and Petroleum Resources Royalty Act on 1 May 2009 (**Royalty Act**).

The Royalty Act imposes a royalty on mining companies in favour of the National Revenue Fund on the transfer of Mineral Resources with effect from 1 March 2010.

Any person holding a Prospecting Right or Mining Right; retention permit; exploration right; mining permit or production permit; or a lease or sublease in respect of such a right; or any person who has recovered a mineral or petroleum resource in South Africa is subject to a levy in terms of the Mineral Royalty Act.

The Royalty Act embodies a formula-derived royalty rate regime, since it provides necessary relief for mines during times of difficulties (low commodity prices or marginal mines) and allows the fiscus to share in the benefits during time of higher commodity prices. As the final product can be either refined or unrefined, two separate formulae are given.

Royalties imposed differ between refined and unrefined Mineral Resources but in both instances are based on a percentage of gross sales, derived from a pre-determined formula measuring the ratio of earnings before interest and tax and the gross revenue realised. The Royalty Act allows the holder of a Mining Right to enter into an agreement with the tax authorities to fix the percentage royalty that will be payable in respect of all mining operations carried out in respect of that resource for the life of the mine. The holder may withdraw from such agreement at any time.

The royalty in respect of unrefined minerals is calculated by dividing earnings before interest and taxes ("**EBIT**") by the product of nine times gross revenue of refined mineral resources calculated as a percentage, plus an additional 0.5%. EBIT refers to taxable mining income (with certain exceptions, such as no deduction for interest payable and foreign exchange losses) before assessed losses, but after capital expenditure. A maximum royalty limit of 5% of revenue applies to unrefined minerals.

Both formulae calculate the royalty rate based on a company’s earnings before interest and taxes and its aggregate gross sales for the assessment period. The Royalty Act prescribes what EBIT may include and what EBIT must exclude, when applying the formula. EBIT refers to taxable mining income (with certain exceptions, such as no deduction for interest payable and foreign exchange losses) before assessed losses, but after capital expenditure. While the gross sales figure used in the formulae excludes transportation and handling costs, these are considered in the determination of the EBIT figure. The mineral royalty percentage rate (Y%) is based on the following formulae:

Refined Minerals:

$$Y(\%) = 0.5 + \frac{\text{EBIT}}{\text{Gross Sales} \times 12.5} \times \frac{100\%}{1}$$

Unrefined Minerals (e.g. coal):

$$Y(\%) = 0.5 + \frac{\text{EBIT}}{\text{Gross Sales} \times 9.0} \times \frac{100\%}{1}$$

The maximum percentage rates for refined and unrefined minerals are 5.0% and 7.0% respectively. According to Schedule 2 of the Royalty Act, all grades of coal are deemed unrefined minerals.

The implementation of the Royalty Act commenced on 1 May 2010.

The Royalty Act allows the holder of a Mining Right to enter into an agreement with the tax authorities to fix the percentage royalty that will be payable in respect of all mining operations carried out in respect of that resource for the life of the mine. The holder may withdraw from such agreement at any time.

3.1.5. Taxes

[SR1.6(i), SR5.6(vii)]

Corporate Income Tax

Corporate Income Tax (**CIT**) is a tax imposed on companies' resident in the Republic of South Africa, that is those companies that are incorporated under the laws of, or which are effectively managed in the Republic, and which derive income from within or outside the Republic. Non-resident companies which operate through a branch or which have a permanent establishment within the Republic are subject to tax on all income from a source within the Republic. CIT is payable at a rate of 28%.

For the purposes of this CPR, the income taxation determined has been undertaken at the asset level and does not take into consideration any benefits that may or may not accrue from a corporate overlay with regards Corporate Income Tax.

Carbon Tax

The Carbon Tax Act of 2019 (**CTA**) came into effect on 1 June 2019. The carbon tax is imposed on entities in the country that operate emissions generation facilities at a combined installed capacity equal to or above the carbon tax threshold.

In terms of Section 3 of the CTA, a person is liable to pay carbon tax if that person conducts an activity in South Africa resulting in GHG emissions above the defined threshold. A detailed list of activities and sectors, as well as their capacity thresholds and applicable allowances are provided in Schedule 2 to the CTA. Activities carried out at the Group's operations may fall within a number of these categories.

The carbon tax is being introduced in a phased manner, with the first phase running until 31 December 2022. The CTA imposes a carbon tax of ZAR120 per tonne CO_2 equivalent, which will increase annually at a rate of inflation plus 2% until 31 December 2022, and in line with inflation thereafter. The carbon tax liability is calculated as the tax base (sum of GHG emissions from combustion, industrial processes and fugitive emissions in accordance with a reporting methodology approved by the Department of Environment, Forestry and Fisheries, proportionately reduced by certain tax-free allowances) multiplied by the rate of the carbon tax.

A number of transitional tax-free allowances are, however, applicable during the first phase of implementation of the CTA, which aim to ensure a smooth transition to a low carbon economy. Schedule 2 of the CTA sets out the first phase maximum percentages of each permissible allowance for each listed activity conducted.

On 29 November 2019, the Minister of Finance ("**Finance Minister**") gazetted the Regulations on Carbon Offsets under Section 19 of the CTA (Carbon Offsets Regulations). This sees the first material mechanism which allows companies the discretion to reduce their carbon tax liability between 5 to 10 % of their total GHG emissions through investment in a carbon offset programme and has retrospective effect to 1 June 2019. On 19 June 2020, the Finance Minister finalised the next set of regulatory mechanisms applicable to the CTA which included regulations in relation to trade exposure allowance, regulations stipulating greenhouse gas emissions intensity benchmarks for purposes of the performance allowance, and a notice regarding renewable energy premium.

The carbon tax must be levied in respect of the sum of the greenhouse gas (**GHG**) emissions of a taxpayer in respect of a tax period expressed as the carbon dioxide (CO_2) equivalent of those GHG emissions resulting from fuel combustion, industrial processes and fugitive emissions in accordance with the emission factors determined in accordance with a reporting methodology approved by the Department of Environment, Forestry and Fisheries (**DEFF**) (previously known as Department of Environmental Affairs (**DEA**).

Significant industry specific tax-free emissions ranging from 60% to 95% will result in a modest nett carbon tax rate ranging from ZAR6 to ZAR48 per ton of CO_2. It is thus crucial for current emitters to transition their operations to cleaner technologies through investments in energy efficiency, renewables and other low carbon measures.

The calculation of the amount of tax payable is as follows:

$$X = < \{[(E - S) \times (1 - C)] - [D \times (1-M)]\} + \{P \times (1 - J)\} + \{F \times (1 - K)\}> \times R$$

Where:
E = number in respect of the total fuel combustion related greenhouse gas emissions expressed as a CO2 equivalent;
S = greenhouse gas emissions, expressed in terms of CO2 equivalent that were sequestrated as verified and certified by the Department of Environmental Affairs;
C = sum of the percentages of allowances determined under sections 7, 10, 11, 12, and 13;
D = petrol and diesel related greenhouse gas emissions expressed as a CO2 equivalent;
M = sum of the percentages of the allowances under sections 7, 12 and 13;
P = total industrial process related greenhouse gas emissions expressed as a CO2 equivalent;
J = sum of the percentages of the allowances determined under sections 8, 10, 11, 12 and 13;
F = total fugitive greenhouse gas emissions expressed as a CO2 equivalent;
K = sum of the percentages of the allowances determined in terms of sections 7, 9, 10, 11, 12 and 13; and
R = represents the rate of tax prescribed (The first phase has a carbon tax rate of ZAR120 per ton of CO2 equivalent emissions. This rate will increase annually by inflation plus 2 per cent until 2022, and annually by inflation thereafter. This was however amended in the 2020 Budget Speech where Carbon tax will increase by 5.6% for the rest of the 2020 calendar year. The carbon tax rate will increase to ZAR127 per tonne of CO2)

Transaction Taxes

Value Added Tax

Value Added Tax (**VAT**) is levied on "taxable supplies", which are supplies of goods or services made by a "vendor" in the course or furtherance of an enterprise wholly or partially owned by the vendor in South Africa.

The supply of Mining Right by a vendor is subject to VAT at a rate of 15%. Approval should be sought from the DMRE where Mining Rights are ceded, supplied or transferred to persons.

3.1.6. Mining Legislative Risk

Mining companies in South Africa are exposed to typical mining industry risks associated with rising costs, labour wage demands, resource and social licence to operate. The other risk that has been experienced recently is the reliability of bulk power supply and the power tariff increases, which are above the Consumer Price Index (**CPI**). Additional country risk is raised through legislative uncertainty, political interference and bureaucratic ineptitude.

3.1.7. South African Environmental Legislation

This section provides a brief, high-level summary of selected aspects of environmental legislation applicable to the mining industry in South Africa. Colliery-specific information can be found in Section 14.

Environmental Regulations

The following legislation is (among others) relevant in an environmental and heritage context to the operations of a mining company in South Africa:

- The Constitution;
- The MPRDA and the regulations promulgated thereunder;
- The National Water Act No 36 of 1998 (**NWA**);
- The National Environmental Management Act No 107 of 1998 (**NEMA**);
- The National Environmental Management: Air Quality Act No 39 of 2004 (**NEM:AQA**);
- The National Environmental Management: Waste Act No 59 of 2008 (**NEM:WA**);
- The National Heritage Resources Act No 25 of 1999 (**NHRA**), and
- The National Nuclear Regulator Act No 47 of 1999 (**NNRA)**.

All environmental statutes and the common law principles must be viewed within the constitutional framework. The Constitution is the supreme law of South Africa and any law that is inconsistent with its provisions may be declared to be invalid. Section 24 of the Constitution compels the South African government to make legislation and to take other measures to protect the environment, prevent pollution and ecological degradation, promote conservation and secure sustainable development in South Africa.

On 8 December 2014, the 'One Environment System' (**OES**) was implemented in South Africa. The OES introduced a shift in the regulation of environmental matters in the mining and petroleum industries from the MPRDA to NEMA and other environmental statutes. The legislative changes that have been associated with this shift have streamlined the licensing processes for Mining Rights, EAs and Integrated Water Use Licences (**IWUL**). Under the OES, it is clear that an EA is required for the commencement of any activity which requires a Mining Right or Prospecting Right, among others.

Environmental Authorisations

NEMA is the overarching legislation which gives effect to the environmental right protected in Section 24 of the Constitution of South Africa, and which provides the underlying framework and principles underpinning the coordinated and integrated management of environmental activities. In terms of NEMA, an EA is required in order to commence a listed activity. Listed activities in terms of NEMA include, among others, undertaking an activity which requires a Prospecting Right in terms of Section 16 of the MPRDA and any activity including the operation of that activity which requires a mining permit in terms of Section 27 of the MPRDA. These activities are currently listed in GNR 983-985 of 8 December 2014, (as amended) ("**NEMA Listed Activities**"). The commencement of a NEMA Listed Activity without an EA is an offence under NEMA.

Under the OES, the requirement to obtain an Environmental Management Programme or Environmental Management Plan (**EMP**), as the case may be, in terms of the MPRDA has been removed. Prospective rights holders are now required to apply for and obtain an EA under NEMA instead. The Minister of Mineral and Petroleum Resources Development (**Resources Minister**) is the competent authority for issuing EAs and waste management licences (**WML**) in terms of NEMA and NEM:WA, respectively, for prospecting and mining related activities, as well as activities in respect of the primary processing of minerals. The Minister for Environment, Forestry and Fisheries (**Environmental Minister**) remains the appeal authority in respect of any appeals against the issue of an EA or WML. The Environmental Minister is the competent authority for issuing EAs in respect of any non-mining related listed activities. Applicants are also required to follow stringent requirements in the public participation process to enable consultation with all interested and affected parties.

Under the OES, applicants for EAs in terms of NEMA are required to submit an Environmental Management Programme Report (**EMPr**) containing, among others, information on the pre-mining environment; identification and quantification of any potential environmental, economic and social impacts and providing appropriate mitigating measures to minimise any negative impacts caused by the mining operations and enhance any positive impacts.

Water Use Licences

South Africa's water resources are regulated by the NWA. A Water Use Licence (**WUL**) is required in order to undertake any of the water uses which are specified under Section 21 of the NWA; provided that:

- The water use is not generally authorised in terms of the NWA; or
- Is a Schedule 1 use[4]; or
- Constitutes an existing lawful water use in terms of the NWA.

Water uses include, among others: the taking of water from a water resource, the diversion of water courses, mine dewatering, discharge of wastewater and the disposal of waste on land. Most mining operations require a WUL in order to conduct their operations, particularly for activities relating to water abstraction, storage, effluent discharge, diversions, and facilities which have the potential to pollute groundwater resources. WULs are difficult to obtain and usually involve a lengthy and delayed application process.

The Minister of Water, Human Settlements and Sanitation (**Water Minister**) is the competent authority in respect of the issuing of WULs. Regulations in relation to the procedural requirements for WULs and appeals were

[4] Schedule 1 water uses are generally low-volume, low-impact activities that are consistent with domestic use, livestock watering, recreational use and the use of water for emergencies. This water use is permissible and does not require licensing or registration.

published by the Water Minister in 2017. For the first time since the NWA came into force, these regulations provide for specific timeframes and steps to be taken in the processing of a WUL application. Furthermore, the regulations provide for security that may be required to be provided by the applicant to the Department of Water, Human Settlements and Sanitation in relation to a WUL application. Where such security is required, it will be valid for a period of at least five years after the WUL activities have lapsed.

Mines are also required to comply with the regulations which were specifically published for the use of water for mining and related activities in the Government Gazette GNR 704 on 4 June 1999. The regulations provide for limitations on the location of mining infrastructure, requirements for separation of dirty and clean water systems and the design of certain water management infrastructure.

Waste Management Licences

A WML is required in terms of NEM:WA in order to undertake certain waste management activities that are listed in regulations Gazetted by the Environmental Minister. The Environmental Minister may, by notice, in the Gazette, prohibit or restrict the granting of a WML by the licencing authority for a listed activity in a specified geographical area if deemed necessary to ensure the protection of the environment, conservation of resources, sustainable development or human health and well-being.

As a result of the implementation of the OES, mine waste is currently managed in terms of NEM:WA in South Africa. Under NEM:WA, a WML is required for the establishment or reclamation of residue stockpiles or residue deposits resulting from activities which require a Prospecting Right, mining permit, Mining Right, exploration right or production right. This requirement does not apply retrospectively to existing stockpiles and deposits as the relevant transitional provisions appear to suggest that if they were authorised in an EMPr or EMP, as the case may be, in terms of the MPRDA, they will be considered lawful or authorised for the purposes of the Waste Act. In addition to licensing, mines must also comply with the management measures prescribed for residue stockpiles and deposits in the Regulations for Residue Stockpiles and Residue Deposits from a Prospecting, Mining, Exploration or Production Operation in the Government Gazette GNR 632 of 24 July 2015, which impose certain liner/barrier requirements.

This position is anticipated to change once the National Environmental Management Laws Amendment Act Bill (**NEMLAA4**) is enacted as law. One of the main objectives of NEMLAA4 is to address the incongruous treatment of residue stockpiles and residue deposits under the waste and landfill provisions by removing their regulation from the ambit of NEM:WA and placing them under the regulation of NEMA. *Note: as at July 2020, the Select Committee considering the Bill was still to schedule further meetings on this Bill. Bill Progress to be monitored and information to be updated accordingly.*

As of May 2014, NEM:WA also regulates contaminated land, whether or not the contamination occurred before the commencement of NEM:WA or at a different time from the actual activity that caused the contamination. Consequently, historic, as well as present or future arising, contaminated land which is identified as an investigation area by the environmental authorities, or which is notified as being contaminated by the landowner must be assessed and reported on. A directive requiring site remediation may follow depending on the level of risk associated with the contamination.

Atmospheric Emissions Licences (AELs)

NEM:AQA requires the Environmental Minister to establish a national framework for achieving the objectives of NEM:AQA, which must include, among others, minimum emission standards and norms and standards. An AEL is required in terms of NEM:AQA to undertake certain listed activities which are published in terms of NEM:AQA, including, among others, certain mining related and processing activities. Local government is entrusted with the competence to manage air pollution, with municipalities being the licensing authority for purposes of issuing AELs.

The measurement and monitoring of atmospheric emissions is regulated through various tools, such as the air dispersion modelling framework, the declaration of priority pollutants and pollutant areas and the mandatory reporting of data and information from identified point, non-point and mobile sources of atmospheric emissions to the National Air Emission Inventory System. The Department of Environment, Forestry and Fisheries' declaration of greenhouse gases as priority air pollutants in 2017 has been followed by the imposition of a regulatory framework for greenhouse gas emission reporting, which forms the basis and input for imposition of the carbon tax which commenced on 1 June 2019.

Historic and Cultural Heritage

Pursuant to the promulgation of the NHRA, the removal or demolition of any articles of historic or cultural importance requires a permit from the South Africa Heritage Resources Agency or relevant provincial authority, as the case may be. Burial grounds and graves are also protected under the NHRA and a permit is required to destroy, alter or remove such articles.

The National Nuclear Regulator

The NNRA requires that a nuclear authorisation be acquired from the National Nuclear Regulator for certain activities which involve radioactive materials. The authorisation issued can be in the form of either, a nuclear installation licence, nuclear vessel licence, certificate or registration or certificate of exemption. In the case of mining, the duty to obtain a certificate or registration can be triggered when there are trace amounts of radioactive materials in mineral waste, particularly where the reef that is mined contains uranium. The certificate of registration would govern the handling, storage, transportation and disposal of these materials.

Financial Provisioning

Companies undertaking mining activities must make financial provision for rehabilitation liabilities to the satisfaction of the DMRE. This means that the holder must set aside provisioning for rehabilitation of the mining activities for concurrent rehabilitation, rehabilitation upon closure and the costs of managing latent and residual post closure impacts. Financial provisioning for the remediation of environmental damage is regulated in terms of Section 24P of NEMA and the Financial Provisioning Regulations, 2015 (**2015 Provisioning Regulations**).

Section 24P of NEMA provides that an applicant for an EA relating to prospecting, exploration, mining or production must, before the Environmental Minister issues the EA; comply with the prescribed financial provision for the rehabilitation, closure and on-going post decommissioning management of negative environmental impacts.

The 2015 Provisioning Regulations have resulted in significantly increased closure costs compared with the financial provisioning requirements that were previously included in the MPRDA. This is due, in part, to the qualification that latent or residual environmental impacts which may become known in the future now include the pumping and treatment of polluted or extraneous water. The regulation of financial provision is currently in a state of flux and the 2015 Financial Provisioning Regulations are expected to be replaced by a new set of regulations in the near future. A revised draft set of Financial Provisioning Regulations was published in November 2017 and in 2019 (**2019 Provisioning Regulations**), which are yet to be finalised.

Existing rights holders have until June 2021 to ensure that the amount of financial provisioning that is required to be set aside in terms of the 2015 Financial Provisioning Regulations is put forward. Some of the fundamental changes proposed by the 2019 Provisioning Regulations include the imposition of criminal sanctions for financial institutions which fail to notify the various South African government ministries (being the Departments of Environment, Forestry and Fisheries; Mineral Resources and Energy as well as National Treasury) and the holder of a Mining Right, of an intention to cancel or withdraw financial guarantees provided, thus introducing strict liability, and a penalty of up to ZAR10 million and that costs for annual rehabilitation be provided for in the operation budget of applicants and holders of Mining Rights, rather than having to be included in the separate financial provision vehicles provided for.

In relation to mine closures and the issuance of closure certificates, mines will have to comply with the requirements set out in Section 43 of the MPRDA and its corresponding regulations, NEMA and the 2015 Provisioning Regulations. The 2019 Financial Provisioning Regulations will, in relation to mine closures, require the use of financial guarantees for post-closure obligations to remediate and manage residual and latent impacts with a provision for an automatic call up of such guarantees on the issuing of a closure certificate;

Environmental Liability

Mining companies operating in South Africa are subject to extensive environmental laws and regulations with respect to environmental matters. These environmental laws and regulations change frequently and are generally becoming more stringent, and the costs associated with compliance with the laws and regulations are substantial.

The requirements of NEMA are far reaching, particularly Section 28 thereof (commonly referred to as "the duty of care provision"), which provides that every person who causes, has caused or may cause significant pollution or degradation of the environment must take reasonable steps to prevent such pollution or degradation from occurring, continuing or recurring, or insofar as such harm to the environment is authorised by law or cannot reasonably be avoided or stopped, to minimise and rectify such pollution or degradation of the environment. It is arguable that Section 28 of NEMA may have introduced the principle of strict liability with respect to the causation of environmental impacts.

A similar duty of care exists under the NWA, in terms of which the owner of land and controllers or occupiers of land on which any activity or process is or was performed that causes, has caused or is likely to cause the pollution of a water resource, must take all reasonable measures to prevent such pollution from occurring, continuing or recurring. The Department of Water, Human Settlements and Sanitation may issue administrative directives to the abovementioned persons to take reasonable measures to prevent pollution from occurring, continuing or recurring where such measures have not been taken. The Department of Environment, Forestry and Fisheries may similarly issue directives against persons who fail to comply with the Section 28 duty of care under NEMA. In addition to this, these authorities can order the suspension of part or all of a company's operations for non-compliance. Contravention of NEMA and the NWA is an offence and an offender may be liable for significant penalties in the form of a fine and/or imprisonment.

A person may also be held liable for pollution and/or environmental harm caused by it during mining operations notwithstanding the cessation of mining activities, the issuance of a closure certificate and or the sale or transfer of the mining operation. This liability arises in terms of the duty of care provisions under NEMA and the NWA.

Furthermore, Section 24R of NEMA provides that every holder, holder of an old order right and owner of works remains responsible for any environmental liability, pollution or ecological degradation, the pumping and treatment of polluted or extraneous water, the management and unsustainable closure thereof notwithstanding the issuing of a closure certificate by the Resources Minister in terms of the MPRDA to the holder or owner concerned. This position also applies where an asset has been sold or otherwise transferred to a third party. The previous owner/operator will remain liable for any remediation or avoidance of further pollution as a result of pollution caused by it during its operations. This liability also arises from the duty of care to avoid, mitigate and rehabilitate pollution or environmental degradation established in terms of Section 28 of NEMA and Section 19 of the NWA.

The National Environmental Management Act (Act No 107 of 1998)

NEMA is regulated by the **DEFF.** Responsibility for the implementation of NEMA is generally delegated to the relevant provincial environmental departments. This Act over-arches South African environmental legislation and lays down basic environmental principles including duty of care, polluter pays and sustainability.

NEMA provides for co-operative environmental governance based on the principles that everyone has the right to an environment that is not harmful to one’s health or well-being and enabling the administration and enforcement of other environmental management laws. Sections 28 (1) and (3) of NEMA set out the duty of care principle, which is applicable to all types of pollution and must be considered in considering any aspects of potential environmental degradation.

Every person who causes, has caused or may cause significant pollution or degradation of the environment must take reasonable measures to prevent such pollution or degradation from occurring, continuing or recurring, or, in so far as such harm to the environment is authorised by law or cannot reasonably be avoided or stopped, to minimize and rectify such pollution or degradation of the environment. A series of regulations have been promulgated in terms of NEMA including:

- NEMA EIA Regulations, 2014: These regulations were developed for the preparation, evaluation, submission, processing and consideration of, and decision on, applications for environmental authorisations; and
- NEMA Regulations pertaining to the Financial Provision for Prospecting, Exploration, Mining or Production Operations, 2015: The purpose of these regulations is to regulate the financial provision as contemplated in the Act for the costs associated with the undertaking of management, rehabilitation and remediation of environmental impacts from prospecting, exploration, mining or production operations through the lifespan of such operations and latent or residual environmental impacts that may become known in the future. The regulations also include detailed descriptions of the wording required in the documentation to support the provisioning for liability using Bank Guarantees and Trust Funds. It also provides details on the information to be contained in the following plans: annual rehabilitation plan; final rehabilitation, decommissioning and mine closure plan; environmental risk assessment report; and care

and maintenance plan.

National Environmental Management: Waste Act (59 of 2008)

The National Environmental Management: Waste Act (**NEM:WA**) came into effect on 1 July 2009 and seeks to encourage the prevention and minimization of waste generation, whilst promoting reuse and recycling of the waste and only considers disposal of waste as a last resort. It provides for the licensing of waste management activities. A series of regulations have been promulgated in terms of NEM:WA including:

- NEM:WA Regulations regarding the Planning and Management of Residue Stockpiles and Residue Deposits (2015): These regulations specify the design approach and considerations for Residue Stockpiles and Residue Deposit (RSRD). They also specify that these facilities must comply with the Norms and Standards;
- NEM:WA Waste Classification and Management Regulations: These regulations require that waste generators must ensure that the waste they generate be classified in accordance with SANS 10234 within 180 days of generation (Chapter 2, 4(2)). If the waste is to be disposed of to landfill, the waste must be assessed in accordance with the Norms and Standards for Assessment of Waste for Landfill Disposal (Chapter 2 (8)1) (a); and
- NEM:WA National Norms and Standards for the Remediation of Contaminated Land and Soil Quality (2014): The purpose of these norms and standards is to: provide a uniform national approach to determine the contamination status of an investigation area; limit uncertainties about the most appropriate criteria and method to apply in the assessment of contaminated land; and provide minimum standards for assessing necessary environmental protection measures for remediation activities.

The National Environmental Management: Waste Amendment Act (Act No. 26 of 2014)

The National Environmental Management: Waste Amendment Act (**NEM:WAA**) came into effect on 2nd September 2014. In terms of this Act, Schedule 3 was amended to include mining residue deposits and stockpiles as hazardous waste. The intention of the amendment is that residue deposits and stockpiles will now be regulated in terms of NEM:WA. For new waste facilities a Waste Management Licence (**WML**) may be required under NEM:WAA. Mine residues are excluded from the Act, but the disposal of other wastes on a mine, for example general wastes, would need to be licensed if no Section 20 permit is in place. If a mine subcontracts waste disposal, the subcontractor must be in possession of the appropriate permit/licence.

National Environmental Management: Air Quality Act (Act No 39 of 2004)

NEM:AQA regulates atmospheric pollution and repealed the Atmospheric Pollution Prevention Act. The Act came into full effect on 1 April 2010 and entrusts the DEFF with the task of preventing pollution and ecological degradation, while at the same time promoting justifiable economic and social development. Metropolitan and District Municipalities are charged with issuing atmospheric emission licenses for certain listed activities. It must be shown that the best practical means are being employed to limit air pollution before these certificates will be issued. Penalties and criminal sanctions are imposed for non-compliance with NEM:AQA. On 1 April 2010, the DEFF established a list of activities, which require atmospheric emission licenses. The Department has published the minimum emission standards resulting from these listed activities. These include the permissible amount, volume, emission rate or concentration of that substance or mixture of substances that may be emitted into the atmosphere and the manner in which measurements of such emissions must be carried out. The consequences of the listing of these activities is that no person may, without a provisional atmospheric emission licence or an atmospheric emission license, conduct an activity listed on the list anywhere in the Republic or listed on the list applicable in a province anywhere in that province.

The National Greenhouse Gas Emission Reporting Regulations (**NGER**), under Section 53(A), (o) and (p) of NEM:AQA, were instituted in 2017 (General Notice Regulation (**GNR**) 275 of 2017). The regulations provide a list in Annexure 1 of activities and operations that are required to report their GHG emissions through a national system. NGER classifies data providers as follows:

- Category A: any person in control of or conducting an activity marked in the Category A column above the capacity given in the threshold column of the table in Annexure 1 to these Regulations; and

- Category B: any organ of state, research institution or academic institution, which holds GHG emission data or activity data relevant for calculating GHG emissions relating to a category identified in the table in Annexure 1 to these Regulations.

If the Colliery conducts any activity equal to or above the thresholds specified in Annexure 1 of NGER, they will be considered as a Category A data provider and hence will have to register as a data provider and report to the Competent Authority by 31 March every year. Monitoring and reporting should cover all process, fugitive and combustion emissions from all greenhouse gas emission sources and source streams belonging to activities listed in Annexure 1 of NGER. It is recommended that the Colliery reviews their current operations to ensure they are below the specified thresholds relating to stationary combustion, fugitive emissions from fuel, incineration of waste, and wastewater treatment and discharge.

National Water Act (Act No 36 of 1998)

The NWA is regulated by the Department of Human Settlements, Water and Sanitation (**DHSWS**, previously known as the Department of Water and Sanitation (**DWS**). Chapter 4 of the NWA stipulates that water uses (abstraction, storage, waste disposal, discharge, removal of underground water and alteration to watercourses) must be licensed. There are transitional arrangements to enable permits under the former 1956 Water Act to be converted into water use licences (**WUL**s). The Act also has requirements relating to pollution control, protection of water resources (Regulation 704 relates to mines), dam safety (for dams with a capacity greater than 50 000 m^3 and a dam wall higher than 5 m) and water-use tariffs.

National Heritage Resources Act (Act No 25 of 1999)

This Act is regulated by South African Heritage Resource Agency or relevant Provincial departments where these have been established. This Act controls sites of archaeological or cultural significance. Such sites must be investigated and, where necessary, protected for the nation. Procedures for the relocation of graves are also given.

National Environmental Management: Biodiversity Act (Act No 10 of 2004)

The National Environmental Management: Biodiversity Act (**NEM:BA**) seeks, amongst other things, to manage and conserve biological diversity, to protect certain species and ecosystems, to ensure the sustainable use of biological resources and to promote the fair and equitable sharing of benefits arising from bio-prospecting involving those resources. The NEM:BA includes a regulation related to the management of threatened and protected species. A similar regulation is applied to Threatened Ecosystems. NEM:BA has a set of norms and standards for the development of management plans for both species (e.g. Threatened or Migratory Species) and ecosystems (Endangered or Critically Endangered).

National Environmental Management: Protected Areas Act (Act No 57 of 2003)

Protected areas such as nature reserves and special nature reserves are declared and managed in terms of the National Environmental Management: Protected Areas Act (**NEM:PAA**). Depending on the nature of the protected area, certain activities (such as mining) may require Ministerial consent or be prohibited outright. The Act also aims to promote the sustainable use of protected areas and the participation of local communities in such areas. In addition, it provides for the continued existence of the South African National Parks.

National Forests Act (Act No 84 of 1998)

The National Forests Act (**NFA**) is enforced by DAFF. The NFA supports sustainable forest management and the restructuring of the forestry sector, as well as protection of indigenous trees in general.

Environmental Conservation Act (Act No 73 of 1989)

The Environmental Conservation Act (**ECA**) is regulated by DEFF and DHSWS. The waste sections of this Act (Section 20) were repealed and replaced by the NEM: WA, which came into effect on 1 July 2009.

Hazardous Substances Act (Act No 15 of 1973)

This Act is regulated by the Department of Health and controls the declaration of hazardous substances and control of declared substances. It allows for regulations relating to the manufacturing, modification, importation, storage, transportation and disposal of any grouped hazardous substance.

Mine Health and Safety Act (Act No 29 of 1996)

The Mine Health and Safety Act (**MHSA**) and amendments are regulated by the DMRE. This Act deals with the protection of the health and safety of persons in the mining industry but has some implications for environmental issues due to the need for environmental-health monitoring within mine operations.

3.2. Broad-Based Black Economic Empowerment

3.2.1. B-BBEE/HDSA Ownership of Rights

The Company's B-BBEE/HDSA ownership calculation methodology is derived from Code 100 Statement 102 of the B-BBEE Codes issued under the Broad-Based Black Economic Empowerment Act No 53 of 2003 read together with the Mining Charters of 2004, 2010 and 2018. In accordance with that methodology, it is possible for the value of assets disposed of into black ownership to exceed the value of the selling company, thereby producing a recognisable ownership equivalency in excess of 100%.

The MPRDA seeks to facilitate participation by HDSAs in the mining industry. Complying with the B-BBEE requirements and HDSA regime set by the South African government is a prerequisite for the grant of Prospecting and Mining Rights. Every application for a Mining Right under the MPRDA must demonstrate that the granting of such right will:

- Substantially and meaningfully expand opportunities for HDSAs, including women, to enter the mineral and petroleum industry in order to benefit from the exploitation of South Africa's mineral and petroleum resources; and
- Promote employment and advance the social and economic welfare of all South Africans.

Pursuant to the MPRDA, the Resources Minister developed Mining Charter I (**MCI**). MCI required that mining companies achieve 15% HDSA ownership of mining assets by 2009 and required that mining companies achieve a minimum target of 26% HDSA ownership of mining assets by 2014. MCI and its scorecard were amended by the Resources Minister on 13 September 2010 - Mining Charter II (**MCII**).

On 4 April 2018, the High Court of South Africa, Gauteng Division, Pretoria handed down a landmark judgment in the matter between the *Chamber of Mines of South Africa versus the Minister of Mineral Resources and Another* (case number 41661/2015), in which it was found as follows:

- Once the Resources Minister or his/her delegate is satisfied in terms of Section 23(1)(h) of the MPRDA that the grant of a Mining Right applied for in Section 22 will further the objects of the MPRDA referred to in Section 2(d) and (f) in accordance with the applicable Charter, the holder thereof is not legally obliged to restore the percentage ownership, however measured, controlled by HDSAs to the 26% target referred to in MCI and MCII where such percentage falls below 26%, unless such obligation is specified as an obligation in terms of the conditions stated in the right;
- A failure by a holder of a Mining Right or converted Mining Right to meet the requirements of MCI and MCII does not constitute a breach of a material term or condition of the Mining Right for the purposes of Section 47(1)(a) of the MPRDA, and further does not constitute an offence, for purposes of Section 98(a)(viii), read with Section 99, unless an obligation to meet such a requirement is specified as an obligation in the terms and conditions; and
- Neither MCI nor MCII require the holder of a Mining Right to enter into further HDSA empowerment transactions to address losses in participation ownership once it has been achieved, unless otherwise specified.

Although the High Court's decision in this matter remains unchallenged, it may still be taken on appeal or review and thus subject to change.

The Broad-Based Socio-Economic Charter for the Mining and Minerals Industry, 2018 was published on 27 September 2018 - Mining Charter III (**MCIII**). MCIII regulates six elements, namely:

- Ownership;
- Mine community development;
- Employment equity;
- Procurement, supplier and enterprise development; and
- Housing and living conditions and human resource development.

On 27 March 2019, the Minerals Council South Africa applied for a judicial review of certain elements of the Mining Charter III, primarily citing challenges to provisions relating to continuing consequences of previous empowerment transactions. This review is still pending.

An existing Mining Right holder who achieved a minimum of 26% B-BBEE shareholding shall be recognised as compliant for the duration of the Mining Right. This recognition is not applicable upon renewal of the right and is not transferrable to a new owner in the case of a transfer or sale of a Mining Right. The renewal of an existing Mining Right will be subject to the MCIII requirements which are applicable at the time that the Mining Right renewal application is lodged.

In the event that a Black Economic Empowerment (**BEE**) Entrepreneur's shareholding is disposed of, a Mining Right holder's empowerment credentials will be recognised for the duration of the Mining Right where:

- The holder has complied with the requirements of MCIII at the time of such disposal;
- The BEE Entrepreneur has held empowerment shares for at least a third of the duration of the Mining Right;
- The recognition of the empowerment credentials will only be applicable to measured effective ownership which vested in the BEE shareholder; and
- An agreement detailing exit mechanisms and the BEE shareholders' remaining financial obligations constituting a contract between the Mining Right holder and BEE shareholders is submitted to the DMRE.

The recognition of consequences of previous transactions shall not be claimed against future Mining Rights or Mining Right renewal applications.

The Company is able to claim the equivalent of an 109.9% BEE/HDSA shareholding in it by virtue of prior empowerment deals, as summarised in Table 3-1. The equivalent BEE/HDSA shareholding in the empowerment deals is premised on the percentage of production tonnes transferred relative to the Company's remaining production tonnes or the percentage of resource tonnes transferred relative to the remaining resource tonnes held by the Company. The formula for estimating the claim is:

$$A / (A + B)$$

Where:
A = production/resources transferred; and
B = the Company's remaining production/resources.

Table 3-1: Prior BEE/HDSA Empowerment Deals

Transaction	Date	Metric	Asset Units (Mt)	Units Transferred (Mt)	Equivalent Ownership Claimed (%)	Source Documents/ Comments
Leeuw Mining	May 2003	Resource	145.7	145.7	3.6%	WW
Phembani	2003	Resource	1.9	1.9	0.0%	WW
Mafube	2006	Production	1.1	0.5	0.9%	AA AFS 2005 (p117)
AAIC – Kriel	2010	Production	11.2	3.0	5.1%	AA AFS 2009 (p174)
AAIC – Elders	2010	Resource	293.0	79.1	3.3%	AA AFS 2009 (p168)
AAIC – Zibulo	2010	Resource	372.9	100.7	4.1%	AA AFS 2009 (p167)
AAIC – New Largo	2010	Resource	675.6	182.4	7.5%	AA AFS 2009 (p168)
AAIC – Heidelberg	2010	Resource	338.6	91.4	3.8%	AA AFS 2009 (p168)
Wonderfontein	2012	Resource	75.0	75.0	2.8%	AA AFS 2011 (p188)
Panfontein	2013	Resource	281.0	281.0	10.1%	AA Transformation Report 2012 (p54)
Rietvlei	Jan 2015	Resource	42.0	42.0	1.5%	
Siyaphambili ESOP	2008	Free Shares	-	-	0.1%	Of AAC plc capitalisation
Seriti – Kriel	Mar 2018	Production	5.4	3.9	7.9%	AA AFS 2017 (p200)
Seriti – New Vaal	Mar 2018	Production	15.1	15.1	30.3%	
Seriti – New Denmark	Mar 2018	Production	3.4	3.4	6.7%	
New Largo	Aug 2018	Resource	571.6	417.3	16.3%	Ore & Res 2017 (p37)
PIC investment	2019	Shares	-	-	6.1%	In: Anglo plc (Letter MCIII 2019 Ed)
Total					**109.9%**	

Note:
1. AAIC = Anglo American Inyosi Coal (Pty) Ltd
2. ESOP = Employee Share Ownership Plan

Apart from Exxaro's 50% shareholding held in the Mafube Colliery and Anglo American Inyosi Coal (Pty) Ltd's (**AAIC**) 27% shareholding in the Zibulo Colliery, the Company far exceeds the BEE/HDSA ownership requirements of the MPRDA and MCIII. The DMRE has confirmed that the equivalent BEE shareholding as calculated per Table 3-1 is acceptable and fully satisfies the required BEE/HDSA shareholding/ownership requirements.

3.2.2. B-BBEE Scorecard

All mining companies in South Africa are required to report their mining scorecard against the B-BBEE requirements set out in the MCIII. Isibonelo's MCIII compliance is between 70 - 80% which is equivalent to Level 3 of the DTI codes. The snapshot of Isibonelo's performance against the B-BBEE scorecard is summarized in Table 3-2.

Table 3-2 shows that Isibonelo fully complies with the MCIII requirements for mine community development and housing and living conditions. With regard to employment equity, procurement supplier and enterprise development and human resource development, Isibonelo's performance meets between 50% and 100% of the MCIII requirements.

Table 3-2: Isibonelo Colliery– B-BBEE Scorecard performance

MCIII Pillars	Weighing	Score	Results (Shortfall against Target)
Ownership			
Existing rights	Y/N	N/A	OK
New rights	Y/N	N/A	OK
Pending applications	Y/N	N/A	OK
Mine Community Development	Y/N	Y [1, 2]	OK
Housing and Living Conditions	Y/N	Y [1, 2]	OK
Employment Equity	30%	21.5% [3]	(8.5%0
Procurement Supplier and Enterprise Development	40%	36.6% (	(3.4%)
Human Resource Development	30%	17.1% [3]	(12.9%)
Total	100%	75.1% [2]	(24.9%)
Meet all ring-fenced elements		Y	
MCIII Level (DMRE Scorecard)		3	
Final Result		Compliant	

Note:
1. Meets ring-fenced MCIII pillar requirements.
2. Complies 100% with MCIII pillar requirement.
3. Between 50% and 100% MCIII requirement met.

Source: Mining Charter Reporting 2020 March.pptx.

Isibonelo satisfies Level 3 on the DMRE Scorecard, i.e. ring-fenced elements + 70 - 80%, and is therefore compliant with the B-BBEE requirements of the MCIII.

3.3. Isibonelo Colliery Title and Rights

[12.10(h)(iv)] [SR1.5] [SV1.5] [ESG4.1]

3.3.1. Mining and Prospecting Rights

The Isibonelo Old Order Mining Right (MP 30/5/1/2/2/130MR), originally covering 1 856.82 ha, was granted on 5 October 2004, was converted to a New Order Mining Right on the 18 November 2008 and expires on the 17 November 2038. On the 23 April 2018, a Section 102 amendment to the MR was granted whereby the Block F Triangle was included as part of the Isibonelo MR, with the inclusion of a portion of Portion 12 of the farm Rietfontein 100 IS. A second Section 102 was granted on 17 August 2018, whereby the Zimele Block was included as part of the Isibonelo MR (Portion 3; a portion of the remainder of Portion 1 of the farm Vlaklaagte 83 IS; and a portion of Portion 21 and a portion of the remainder of Portion 1 of the Farm Onverwacht 70 IS were included into the Isibonelo MR). The Company owns 100% of the Mining Right. This is summarised in Table 3-3 and shown in Figure 3-1.

The section of the MR shown in purple in Figure 3-1 is the underground portion in the process of being transferred to Sasol. Sasol is currently mining the area under a contractor's agreement and is responsible for the area in terms of its appointment letter signed in June 2017. The Isibonelo MR covers an area of 2 053.3675 ha (including Block F Triangle and Zimele Block), as illustrated in Figure 3-1.

SRK is not aware of any Prospecting Rights pertaining to Isibonelo.

Table 3-3: Mining Rights covering Isibonelo

Name	Number	Rights Type	Area (ha)	Grant Date	Expiry Date
Isibonelo	MP30/5/1/2/2/130MR	Mining	2 053.3675	05/05/2008	17/11/2038
Block F	Section 102 – to incorporate Block F Triangle	Mining (included in the above MR)	196.5475 (included in the above)	20/04/2018	17/11/2038
Zimele Block	Section 102 - to include Zimele Block			17/08/2018.	17/11/2038

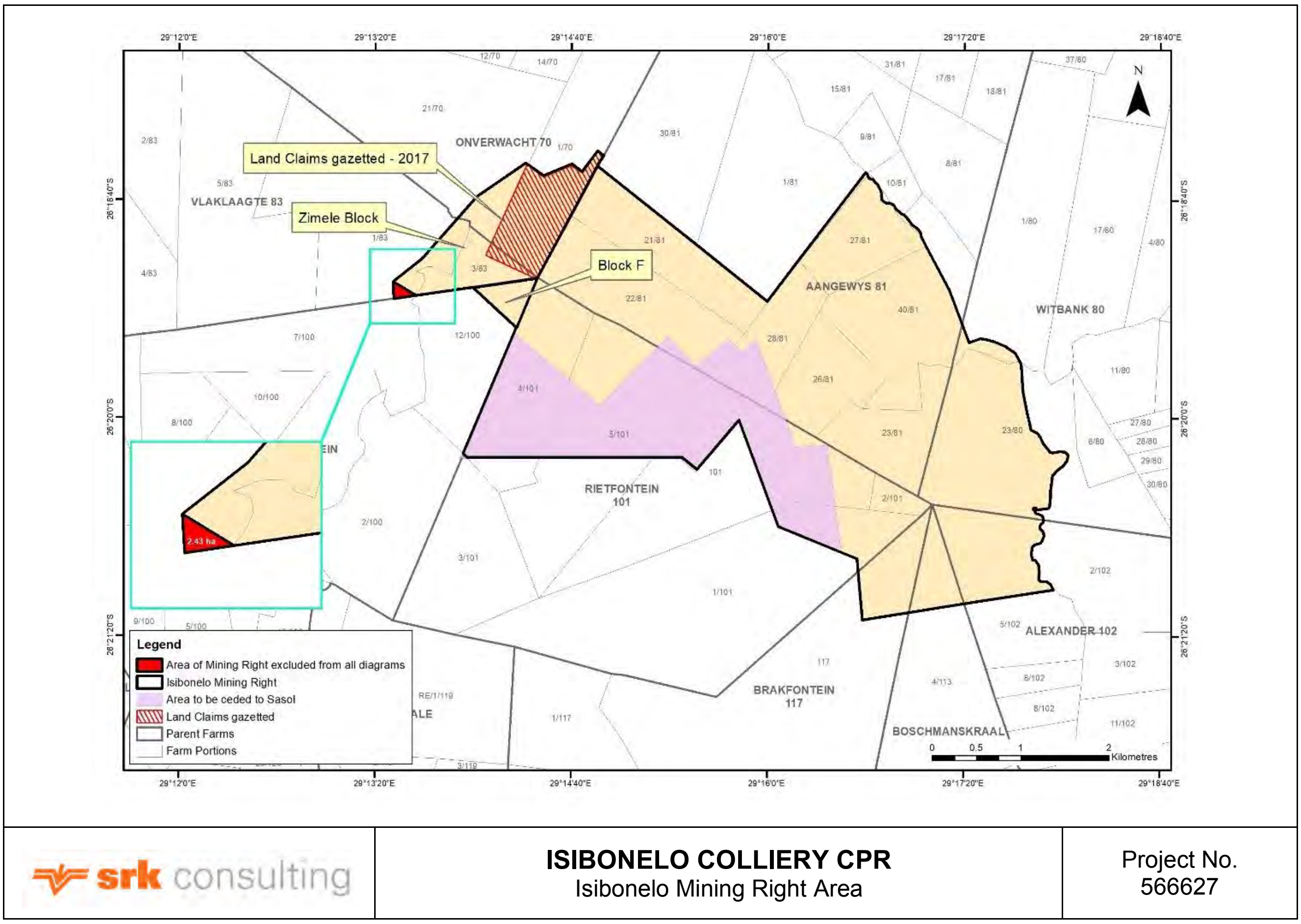


Figure 3-1: Isibonelo Mining Right Area[5]

3.3.2. Surface Rights

The Isibonelo Colliery Mining Right area is situated on nine adjacent farms, the surface details of which are included in Table 3-4.

[5] Some later diagrams have omitted the western corner of the Zimele Block; this area only amounts to 2.43 ha and has no impact on any of the estimates or diagrams.

Table 3-4: Isibonelo Surface Rights Owners

Farm Name and Number	Surface Rights Owner	Farm Subdivision	Deed	Area (ha)	Potential Impact on Mining
Aangewys 81 IS	Anglo Operations (Pty) Ltd (**AOPL**)	22	T60512/2004	164.5774	-
Aangewys 81 IS	AOPL	RE/23	T60512/2004	100.9104	-
Aangewys 81 IS	AOPL	25	T60512/2004	96.5906	-
Aangewys 81 IS	AOPL	26	T60512/2004	96.6099	-
Aangewys 81 IS	AOPL	27	T60512/2004	96.6095	-
Aangewys 81 IS	AOPL	28	T60512/2004	96.6098	-
Aangewys 81 IS	AOPL	Ptn[1] of RE/34	T60512/2004	70.3224	-
Aangewys 81 IS	Eskom Holdings Ltd	Ptn of 35	T74722/1996	0.053	Previously mined – no impact
Aangewys 81 IS	AJ van der Merwe	21	T134963/2003	129.213	Mining servitude in place
Rietfontein 101 IS	CJ Greyling	Ptn of 4	T5311/2003	155.3763	Negotiations with owner completed *(pers. Comm., Harding, C., 2020)*
Rietfontein 101 IS	CJ Greyling	Ptn of 5	T83331/2004	192.3601	
Rietfontein 100 IS	CJ Greyling	Ptn of 12	T5311/2003	19.0498	
Vlaklaagte 83 IS	Eskom	Ptn of RE/1	T35659/1977	24.9607	Negotiations to follow shortly
Onverwacht 70IS	Eskom Holdings Ltd	Ptn of 21	T34862/1977	25.0438	
Onverwacht 70IS	Eskom	Ptn of RE/1	T44908/1976	80.5219	
Onverwacht 70IS	Eskom	3	T35659/1977	46.4668	
Rietfontein 101 IS	AOPL	Ptn of RE/	T5508/2003	153.0383	-
Rietfontein 101 IS	AOPL	Ptn of 1	T5508/2003	65.0774	-
Rietfontein 101 IS	AOPL	2	T5508/2003	18.5154	-
Brakfontein 117 IS	AOPL	Ptn of RE	T10801/2011	56.1104	-
Witbank 80 IS	PHS van der Merwe	Ptn of RE/1	T9790/2013	14.8649	Mining servitude in place
Witbank 80 IS	HJ Pieterse Vlakfontein Tweehonderd (Pty) Ltd	Ptn of 23	T21782/1999	209.9706	
Alexander 102 IS	HJ Pieterse Kaalplaats Driehonderd cc	Ptn of 5	T14414/2018	103.8918	
Boschmanskraal 11 IS	Nievan Trust	Ptn of 4	T16944/2018	36.6232	

Note:
1. Ptn = Portion

Lease Agreements

Several lease agreements have been entered into by Isibonelo. The lease agreement with Grainfields Commodities (Pty) Ltd (Witbank Property and Estates, 2018), over the farm Brakfontein 117 IS6 and Portion 1 of the farm Rietfontein 101 IS expired on 31 August 2020 and is in the process of being renewed. The lease agreement with Cornelius Johannes Greyling (Witbank Property and Estates, 2017), over Portion 22 of the farm Aangewys 81 IS, which expired on 28 February 2019, is in the process of being renewed. The lease agreement with Grain Management (a division of Afgri) over Portion 6 of the farm Brakfontein 117 IS RE has been renewed until 31 January 2021.

3.3.3. Sufficiency of Rights

[12.9(e)] [12.10(h)(iv)] [SR1.1(ii)]

SRK has had sight of copies of the Isibonelo Mining Right documents and has used the co-ordinate information therein to construct Figure 3-1. The Isibonelo Mining Right, along with the two successful Section 102 applications to include the Zimele and Block F Triangle areas, incorporates the full area planned for mining.

The surface rights are mainly owned by the Company (AOPL and AAIC). However, some of the surface rights are owned by other entities. Constraints to the existing mine plan are the Zimele surface area owned by Eskom Holding SOC Ltd (**Eskom**). Negotiations with Eskom will be engaged to finalise permissions from Eskom to mine the affected areas. Negotiations with CJ Greyling for ground in the vicinity of the North Pit have recently been concluded (pers. Comm. Harding, C., 2020).

The Environmental Permits (EMPrs and WULs) appear to adequately cover the mining area.

3.4. Legal Aspects and Permitting

3.4.1. Environmental Authorisations and Licences

[SR1.5(ii) (v), SR5.5(i)(ii) (iii)] [ESG4.3]

Mining Rights

Isibonelo Colliery Mining Rights cover an area of approximately 2 053.3675 ha with current operations covering 140 ha that will extend to approximately 840 ha of disturbed mining areas at closure.

The reader is referred to Section 3.2 for detailed discussion on the Mining Rights.

Water Use Licences

According to the Internal Water Use Licence Audit (dated 7 May 2020) the Colliery has one Water Use Licence known as the Consolidated Water Use Authorisation for Anglo Operations (Pty) Ltd: Isibonelo Colliery and Block Zimele (Z) dated 11 November 2019 (Licence nr: 06/B11D/FBCGIJ/9121). It is SRK's understanding that this licence includes and supersedes all activities previously licenced under the following water use related licences previously issued to Isibonelo Colliery:

- Amendment of Controlled Release Licence: Licence in terms of Section 158 (2) of the NWA for Isibonelo Colliery – Licence Number 2484884 approved on 7 August 2013 from the DHSWS (licence has expired and is therefore no longer relevant);
- Controlled Release Licence: WUL in terms of Chapter 4 of the NWA for Isibonelo Colliery– Licence Number 2484884 approved on 01 April 2011 from the DWS (licence has expired and is therefore no longer relevant);
- Phase 3 Channel WUL: Licensing in terms of Chapter 4 of the NWA – Licence Number 04/B11D/CI/2227 approved on 3/10/2013 by the DHSWS; and
- WUL for Isibonelo Colliery-Zimele Block (Block Z) approved on 8 November 2017 (Reference Number: 27/2/2/A931/1/4 and Licence Number 03/A31J/ABCFGIJ/2869).

The Colliery also has an exemption granted in terms of Section 21(4) of the Water Act No 54 of 1956 (now repealed) with Reference Number 2064B in respect of the sewage treatment plant on 29 March 2000 ("STP Exemption").

Mine Waste Disposal

The mine generates domestic waste, scrap waste, waste tyres and hazardous waste which are all managed in line with Isibonelo Colliery's Waste Management Procedure (AATC002391, Rev10) to ensure that the different categories of waste are disposed of in a manner that is in accordance with the legislative requirements. According to the discussions held with the Environmental Coordinator, the mine is registered as a waste producer; however, it does not have a waste management licence in terms of the National Environmental Management: Waste Act (Act No. 59 of 2008). All general waste generated on site is transported and disposed of at the Secunda landfill site. All hazardous waste is removed by a contractor and is disposed of at the Holfontein landfill site.

3.4.2. Environmental and Social Approvals

[SR1.2(ii), SR1.5(ii)(iv)(v), SR7.1] [ESG4.3]

Environmental Management Programme

According to the Environmental Audit Report compiled by Shangoni Management Services (Pty) Ltd (Shangoni Management Services (Pty) Ltd, November 2019) the following environmental approvals are applicable to Isibonelo Colliery:

- **The original EMPr was approved on 17 April 2003.** An amendment was submitted to the then Department of Minerals and Energy (**DME**) (now the DMRE) on 26 October 2004 and approved in January 2008;
- A consolidated EMPr process was initiated in 2012 and approved by the then DMR in February 2013 (Reference no.: MP 30/5/1/2/3/2/1 (130) EM**. An amendment to this consolidated EMPr is, at the time of writing this report, being carried out by Shangoni Management Services (Pty) Ltd to address several unlicensed activities and activities which are no longer applicable to the current mining operations. This EIA/EMPr amendment has not been approved as it is still in process;**
- Environmental Management Programme for the proposed bulk fuel storage expansion project, dated April 2013 and approved September 2015 (Reference Number: MP 30/5/1/2/3/2/1 (130) EM);
- EIA Report/Environmental Management Programme for the proposed Block Z Project at Isibonelo Colliery, dated March 2015 and approved September 2018 (Reference Number: MP 30/5/1/2/3/2/1 (130) EM);
- EIA Report/Environmental Management Programme for the proposed Block Z Project at Isibonelo Colliery, dated March 2015 and approved by the DMRE in September 2015 (Reference no.: MP 30/5/1/2/3/2/1 (130) EM);
- Bulk fuel storage exemption, approved August 2004 (Reference no.: 17.2.4 EV 37);
- Bulk fuel storage expansion environmental authorisation, approved July 2012 (Reference no.: 17/2/3N-184); and
- Block Z environmental authorisation, approved September 2015 (Reference no.: 17/2/3N-362).

SRK has only received and reviewed the authorisations which are not in bold text in the list above. SRK has not had sight of the environmental approvals in bold text in the list above, of which one is still in progress.)

Social and Labour Plan

An SLP was prepared as part of the Mining Right Application (**MRA**) in terms of the requirements of the MPRDA. Isibonelo has developed a SLP for the 2015 to 2019 period, which was approved by the then DMR on 13 August 2018. The 2020 – 2024 SLP was submitted to the DMRE on 30 September 2020.

In terms of Section 28(2) of the MPRDA, "the holder of a Mining Right or mining permit, or the manager of any processing plant operating separately from a mine, must submit to the Director-General— (c) an annual report detailing the extent of the holder's compliance with the provisions of Section 2(d) and (f), the charter contemplated in Section 100 and the SLP". A SLP Annual Report was submitted to the then DMR in 2016, 2017 and 2018. The 2019 Close Out Report has not yet been submitted to the DMRE. A SLP Implementation Plan (AAC, 2020c) for the Lebohang Sewer project, which initially formed part of the 2015 to 2019 SLP, was submitted to the DMRE on 30 September 2020.

According to Isibonelo SLP (AAC, 2020b), the site has a training centre that is ISO 9001: 2008 certified and has training provider status from the Mining Qualifications Authority (**MQA**). It submits an annual Workplace Skills Plan and an annual Training Report in accordance with the Sector Education and Training Authority's requirements. Both documents were approved for 2019. Isibonelo pays levies and claim grants in line with the provisions of the MQA (levy number L740755147). Isibonelo complies and will continue to comply with the requirements of the Skills Development Act.

The Isibonelo SLP (AAC, 2020b) reports that the site has two skills development facilitators who are responsible for co-ordinating the Workplace Skills Plan and the Annual Training Report. The National Union of Mineworkers (**NUM**) is consulted on the information that is in the Workplace Skills plan and Annual Training Report (AAC, 2020b). Regular meetings are held with the NUM, with minutes of meetings held in March and June 2019 being reviewed.

Table 3-5 provides a summary of all external and internal documents that guide the implementation of the Isibonelo SLP (AAC, 2019a).

Table 3-5: External and Internal Documents Relevant to the SLP

External	Internal
MPRDA and Regulations	Mine Workplace Skills Plan
DMR Guidelines for SLPs	Mine Employment Equity Plan
Broad-based Socio-Economic Empowerment Charter for the South African Mining Industry (i.e. Mining Charter)	Mine Recruitment Plan
Skills Development Act No 97 of 1998	Employment Equity Policy
Employment Equity Act No 55 of 1998	Human Resource Development Policy
Labour Relations Act of 1995	Retrenchment Policy
Basic Conditions of Employment Act of 1997	BEE Specification Policy
Broad-based Black Economic Empowerment Act No 53 of 2003	Preferential Procurement Principles Policy
Integrated Development Plan for Local Municipality	Learnership Procedure
Integrated Development Plan for District Municipality	Mentorship Procedure

Based on the information presented in the SLP Annual Report for 2018 (AAC, 2019v), Isibonelo supported four Local Economic Development (**LED**) projects to the value of ZAR25.39 million. The Mathematics and Science Learner Incubator Programme has a budget allocation of ZAR5.89 million. The project has been ongoing since 2015 with ZAR1.27 million being spent in 2017 and ZAR1.69 million being spent in 2018. According to the SLP Annual Report for 2017 (AAC, 2018d), the Mathematics and Science Learner Incubator Programme had an underspend of ZAR0.15 million in 2017, which was carried over to 2018. During 2018 (AAC, 2019v), an overspend of ZAR0.036 million on the programme was recorded for the 2018-2019 reporting period.

The Lebogang Sewer Network project initially had a total budget of ZAR5 million (AATC, 2015) but showed an underspend of ZAR1.7 million during the 2017 reporting year (AAC, 2018d). The project funds for the Bethal Dam- (ZAR3.5 million) and eMbalenhle Storm Water Channel (ZAR0.5 million) upgrade were re-directed towards the Lebogang Sewer Network in 2018, bringing the total budget to ZAR19.5 million. A total of ZAR5.66 million was spent on the Lebogang Sewer Network in 2018, with a remaining budget of ZAR13.84 million. According to the SLP Implementation Plan (AAC, 2020c), a total of ZAR11.83 million was spent during the 2018/2019 financial year. The Govan Mbeki Local Municipality requested an additional scope to cover the rising main, which forms part of the second phase of the project. Phase 2 is anticipated to be completed in last quarter of 2020 at a cost of ZAR7.5 million. The budget to complete the additional scope has been transferred from the previous SLP to the 2020 to 2024 SLP (AAC, 2020b).

In addition to the above LED projects, Isibonelo spent ZAR619 228 on its community scholarship scheme in 2018 and has committed a further ZAR600 000 for 2019. A variance of ZAR6 174 402 for the 2018-2019 reporting period has been deferred to the 2019-2020 budget (AAC, 2019v).

The SLP Annual Report for 2018 (AAC, 2019v) further indicates that during 2018 Isibonelo spent ZAR2 421 117 on skills development, ZAR334 288 on learnerships, ZAR2 381 192 on its internal training programme and ZAR2 006 537 on its external training programme.

The 2020 to 2024 SLP (AAC, 2020b) has allocated a substantial budget towards training and development for addressing the impacts of mine closure. This includes ZAR2 270 000 for human capital development, ZAR4 444 850 for Isibonelo's community scholarship scheme and ZAR14 696 953 for its maths and science incubator programme. A further ZAR4 million has been allocated to a solid waste management project which will entail the construction of a mini-transfer station at either Embalenhle or Kinross. Upon completion Isibonelo will enter into a Memorandum of Agreement with the Govan Mbeki Local Municipality to take over infrastructure maintenance responsibilities.

3.4.3. Legal Claims and Proceedings

[12.10(h)(iv)] [SR1.5(iv)] [SV1.2] [ESG4.3]

The Restitution of Land Rights Act, 1994 (Act No. 22 of 1994) provides for individuals or communities with claims to land ownership rights to apply for the restitution of, or compensation for, those rights. The process of redress is limited to the period after 19 June 1913 and the cut-off date for lodging such claims is 31 December 2018. This was addressed by the Draft Restitution of Land Rights Amendment Bill, published in Government Gazette No. 36477 of 23 May 2013 with the aim of amending the cut-off date for lodging such claims and regulating the administrative functions under the Land Rights Act. Submissions from the mining industry in this regard were made to the Minerals Council of South Africa, who submitted comments on the draft bill to the National Economic Development and Labour Council, who is addressing these and other comments with Government in a specially constituted task team.

The Company has signed a Memorandum of Understanding (MOU) with the Department of Land Affairs and Rural Development, (now called the Department of Agriculture, Land Reform and Rural Development) agreeing that all the Company's land claims, no matter to which property they apply, will be addressed in a separate forum and the claims on the properties will be researched and validated by an independent specialist.

In summary, the land claims on Isibonelo fall into two groups:

- Those that have been resolved/are on land no longer owned by the Company:
    - One land claim was registered by Rose Masilela on behalf of Mthimunye on several portions of the farm Aangewys 81 IS in October 2016, but has since been dismissed (AAC, 2020);
    - Two land claims on the farm Overwatch 70 IS, however, this land was disposed of by the Company (AAC, 2020); and
- Unresolved claims:
    - One land claim by SS Mtshweni on Portions 1 and 3 on the farm Vlaklaagte 83 JS (Table 3-6) that has not yet been resolved and may affect the Company's surface rights on the remainder portion of Portions 1 and 3 (AAC, 2020). Although the Company attends the Joint Land Claims Working Committee meetings, no reference was made to this claim during the latest meeting on 25 September 2019 (AAC, 2019t); and
    - One land claim on the remainder of Portion 1 of the farm Rietfontein 101 IS (Table 3-6); this claim still needs to be confirmed by the Restitution Management Support Office.

According to the Company (AAC, 2003 and AAC, 2004), a process was undertaken to relocate households and graves at Isibonelo during 2004. Forty households were identified for relocation and an extensive consultation process (including in-depth individual household surveys, sustainability assessments to determine residents' economic and social profiles, as well as their relocation preferences) were undertaken. Forty-two households were relocated, the majority of which were moved to the nearby village of Tubelihle (AAC, 2004). The relocation of 156 graves on the affected land commenced in November 2003 after the South African Heritage Resources Agency and the Provincial Department of Health had approved the application. Isibonelo has fenced off and secured all know graves on the site and is providing guided access to the graves when requested.

According to the AASW audit (AAC, 2019u), concurrent rehabilitation activities are taking place with the intention of leasing rehabilitated land to local communities for grazing (planned within the next twelve months).

Table 3-6: Registered Land Claims over Isibonelo Colliery

Number	Farm and Portion	Claimant	Status
4	Vlaklaagte 83 JS Rem Ptns 1 & 3	SS Mtshweni	In progress
5	Rietfontein101 IS R/E Ptn 1	Not indicated	In progress

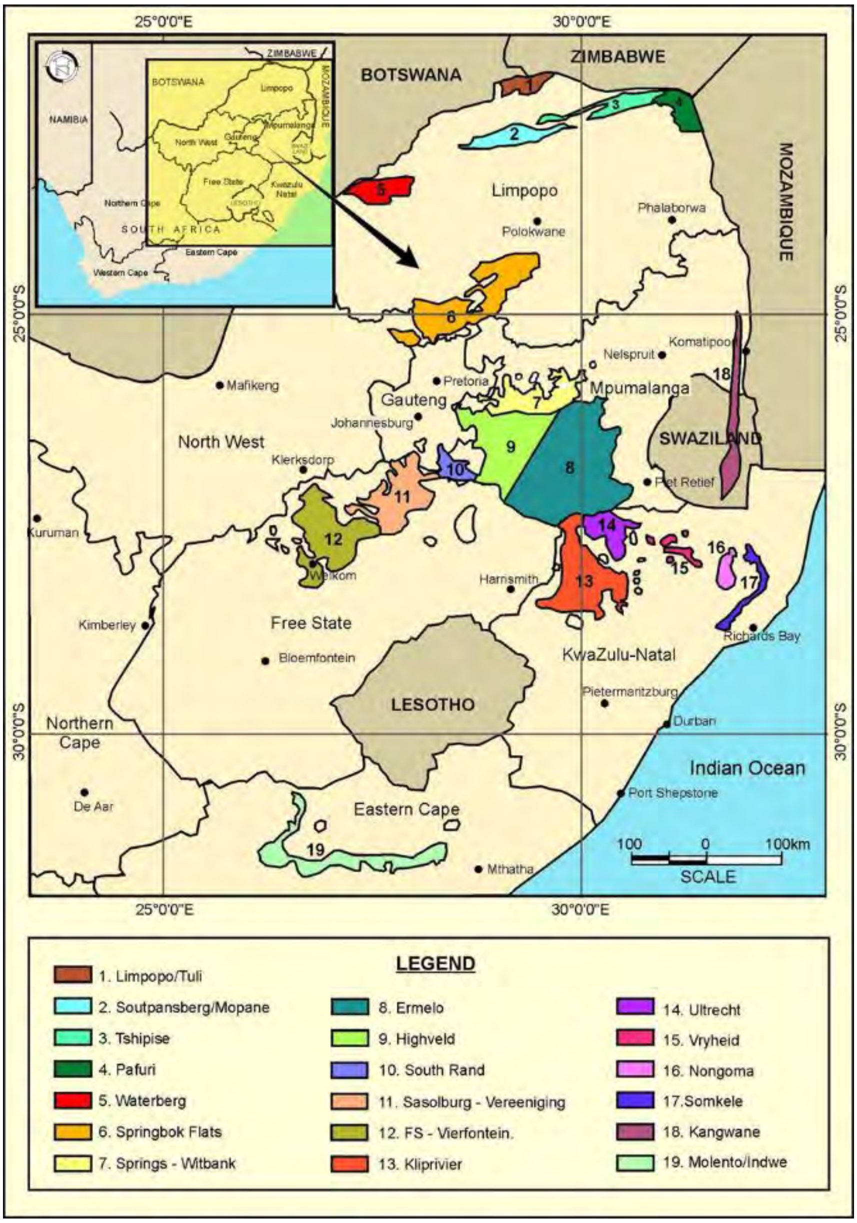
4. Geological Setting, Deposit and Mineralisation

[12.10(h)(v)] [SR2.1, SR3.1(vii)] [SV1.7]

4.1. Regional Geology

[SR2.1(i)]

Coal is found in South Africa in 19 coalfields, located mainly in KwaZulu-Natal, Mpumalanga, Limpopo, and the Free State, with lesser amounts in Gauteng, the North West Province and the Eastern Cape (Figure 4-1). All the coal deposits are found in the Karoo Supergroup, the majority in the Vryheid Formation of the Ecca Group, consisting predominantly of sedimentary rocks. Isibonelo Colliery is located near the northern extent of the Highveld Coalfield, within the Mpumalanga Province of South Africa.



srk consulting	**ISIBONELO COLLIERY CPR** Location and Distribution of Coalfields in South Africa	Project No. 566627

Figure 4-1: Location and Distribution of Coalfields in South Africa

The Highveld Coalfield extends from Nigel in the west to Davel in the east, and approximately 90 km in a north-south direction, covering some 700 000 ha. The area is underlain by sedimentary rocks of the Karoo Supergroup, deposited 248 – 290 Ma during the Permian Period (Hancox & Götz, 2014). The thickness of the Karoo Supergroup varies from thin in the north, to over 300 m in the vicinity of Standerton, with the variation in thickness primarily due to the uneven nature of the pre-Karoo topography. This uneven pre-Karoo topography is also responsible for the controlling the presence and thickness of the Dwyka Group sequence.

The Karoo Supergroup comprises, from oldest to youngest, the Dwyka, Ecca, Beaufort, Stormberg and Drakensberg Groups, with the coal seams hosted within the Vryheid Formation of the Middle Ecca Group (270 Ma), as illustrated in Figure 4-2.

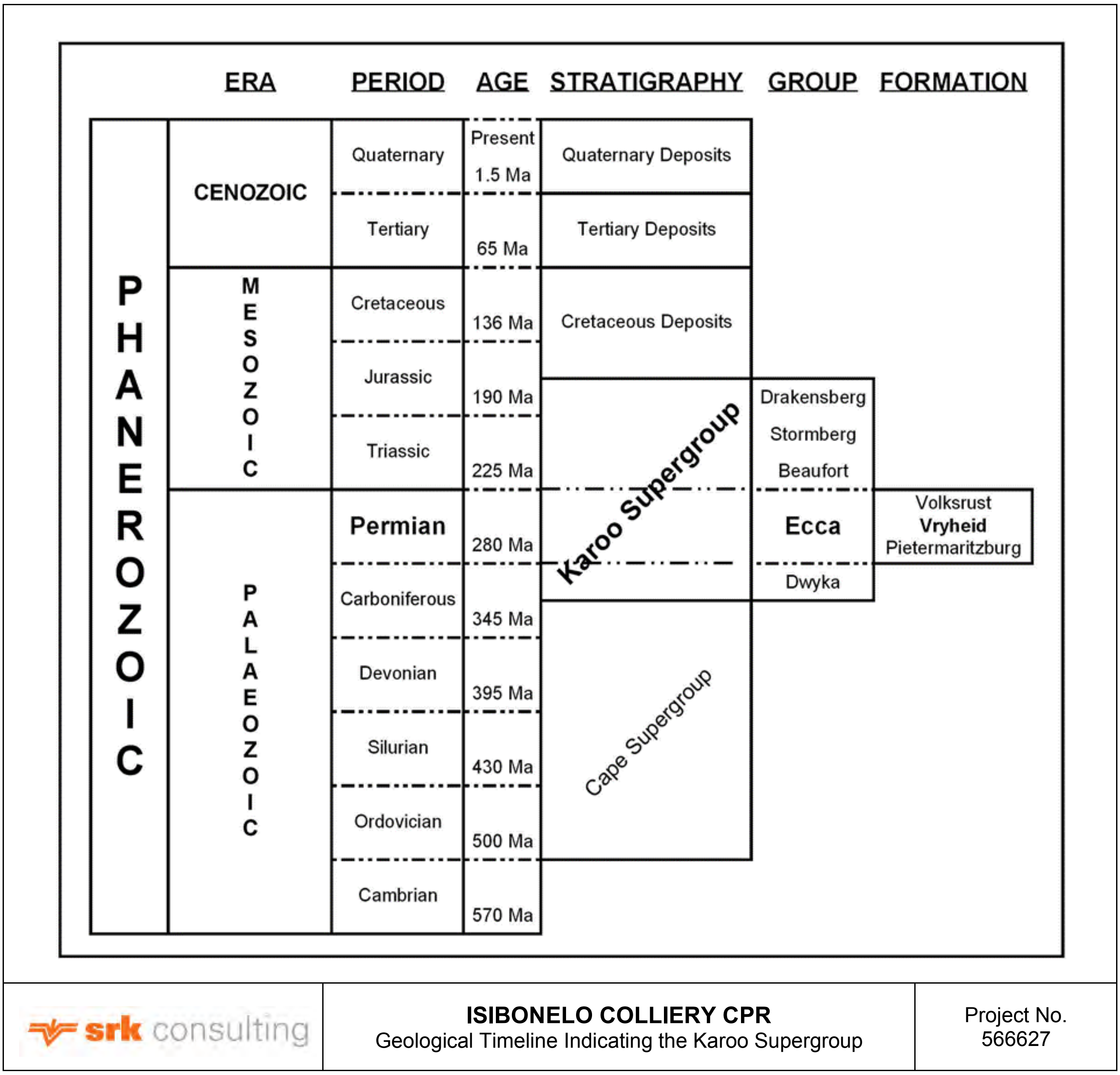


Figure 4-2: Geological Timeline Indicating the Karoo Supergroup

4.2. Stratigraphy

The basal Dwyka Group sequence comprises massive diamictites with lesser matrix-supported conglomerates and coarse-grained sandstones. Occasional siltstone interbedded with sandstone, pebbly mudstones and varved siltstones are also present. The diamictites are composed of sub-angular to sub-rounded clasts primarily comprising granites, quartzites, mudstones and calcareous sandstones.

The Vryheid Formation overlies the diamictites and other glacially derived sediments of the Dwyka Group. The Vryheid Formation sediments represent coal-capped upward fining cycles of clastic sediments, deposited in a fluviodeltaic/shallow marine environment. The formation is characterised by a variety of sandstones, mudstones and siltstones, with lesser amounts of coal and occasional gritstones. Five coal seams are present within the Vryheid Formation, the No 1, 2, 3, 4 and 5 Seams, named from the base up (Figure 4-4). The No 1 and 3 Seams are thin and discontinuous throughout the coalfield. The No 2 Seam ranges between 1.5 and 4.0 m where it is laterally continuous, comprising mainly dull coal. The No 4 Seam averages 4.0 m and is economically the most important seam (Jeffrey, 2005). It ranges from 1 – 12 m across the coalfield, and shale intercalations are common in the upper part of the seam. The No 5 Seam is present over most of the coalfield, attaining mineable thicknesses in the northern and western portions of the field only. The No 5 Seam comprises bright to dull coal, with the presence of shale intercalations.

The coal seams in the Highveld Coalfield are generally described as flat lying to gently undulating, with a regional dip to the south. The depth of the coal seams increases in a southerly direction; the coal at Kriel and Isibonelo are mined via opencast methods, whereas Sasol’s mines to the south employ underground methods to extract the coal.

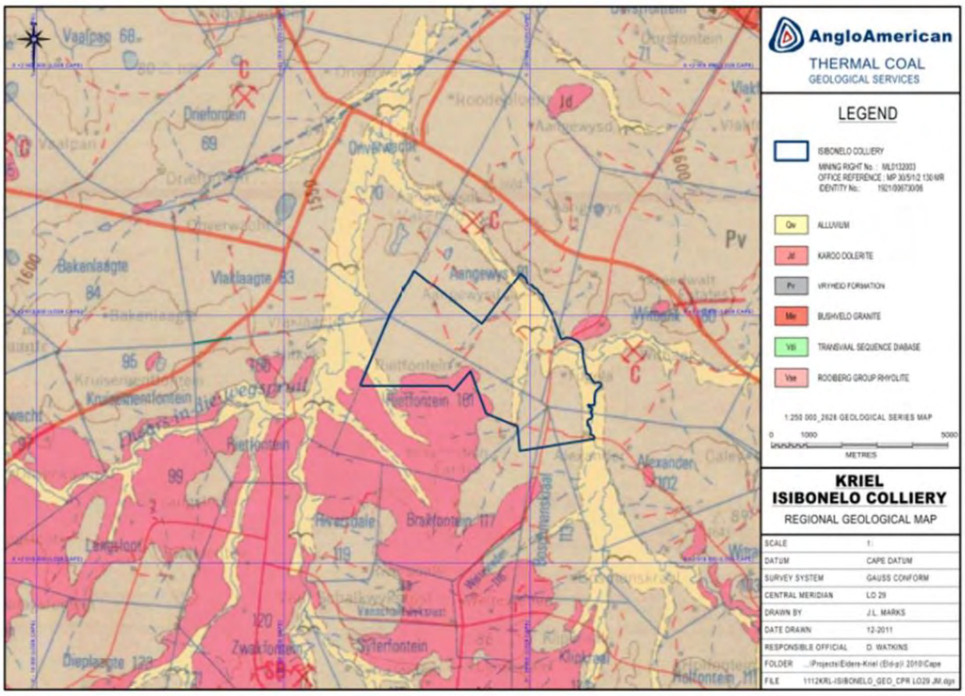
The Highveld Coalfield has been affected by numerous dolerite dykes and sills related to the Drakensberg Formation flood basalts. Within the vicinity of the dolerite, the usual structural complications and devolatilization of the coal occurs.

The Coal Resources within the Highveld Coalfield are economically important to the long-term life of SSF and the Sasol Chemical Industries (**SCI**), which require some 50 Mt of coal per annum.

4.3. Local Geology

[SR2.1(ii) (iii) (iv)]

The Isibonelo local geology map is shown in Figure 4-3.



srk consulting	**ISIBONELO COLLIERY CPR** Isibonelo Local Geology (*Source: Isibonelo CPR, 2017 – AAC,2017h*)	Project No. 566627

Figure 4-3: Isibonelo Local Geology

4.3.1. Surface Geology

At surface, the soils are described as sandy loams to sandy clay loams. Towards the south, the soil type becomes a dark grey sandy clay, due to the weathering of the underlying dolerite sill. Any outcrops or sub-crops are dominated by sedimentary rocks of the Ecca Group (Vryheid Formation), as illustrated in Figure 4-5.

4.3.2. Weathering

The depth of weathering ranges from less than 1.0 m to almost 30 m in a few isolated holes located within the low-lying areas. The weathered zone predominantly comprises a grey-brown sandstone, with minor clay rich intercalations. The impact that the deeply weathered areas may have on the stability of the highwall within the current opencast areas has been reviewed. The resistivity data derived from the Dighem survey was compared to the point data from the drill holes in order to produce a continuous, calibrated surface representing the interface of soft and hard interburden. This surface was included in the geological model to allow a more precise estimation of volumes of the various materials.

In order to model the weathering surfaces more accurately, Isibonelo has created a short-term geological model which is updated at site on a regular basis. The model is updated with information obtained from face mapping, geophysical logs, and drill holes.

4.3.3. Sub-surface Geology

A generalised stratigraphic column for Isibonelo is shown in Figure 4-4. The units are described from the base upwards in the following paragraphs.

Pre-Karoo Basement

The glacially sculpted pre-Karoo basement comprises metasedimentary and metavolcanic rocks of the Paleoproterozoic Waterberg Group and post-Waterberg intrusives (felsites and granites). Due to the majority of the drill holes being drilled to just below the No 2 Seam, very few holes (2.5%) intersected basement at Isibonelo. Where the basement was intersected, it has been described as a light red, fine-grained granite.

Dwyka Group

The pre-Karoo basement is unconformably overlain by diamictites and associated glaciogenic sediments of the Dwyka Group, deposited during the Late Carboniferous to the Early Permian. These sediments are only developed in pre-Karoo lows, where they can be as thick as 33 m. At Isibonelo, the Dwyka Group is represented by tillites, dark grey varved shales and siltstones.

Ecca Group

Within the Ecca Group, the Vryheid formation comprises zones of alternating conglomerates, sandstone and mudstones within which the coal seams are located. The stratigraphy of the Vryheid Formation may be divided into three main sequences at Isibonelo; a basal No 2 Seam Sequence, overlain by the No 4 Seam Sequence, which in turn is overlain by the No 5 Seam Sequence.

No 1 Seam Sequence

The Number 1 Seam (**No 1 Seam**) is only sporadically developed at Isibonelo. It has not been included in the geological model and does not form part of the resource base.

No 2 Seam Sequence

The No 2 Seam sequence includes the succession from the top of basement to the top of the No 2 Seam and incorporates the rocks of the Dwyka Group, as well as the overlying No 1 and No 2 coal seams.

At Isibonelo, the rocks of the Vryheid formation lie directly on top of the Dwyka Group, comprising both diamictites and varved shales. The clastic interval below the No 2 Seam comprises a fine to course-grained sandstone, with the occasional granulestone/gritstone at the base of the succession. This upward fining sequence from the top of the Dwyka to the base of the No 2 Seam, where intersected, is in the region of 25 m thick, increasing to over 40 m towards the east (South Pit).

The No 2 Seam, where developed, is on average 1.25 m thick, and comprises a coal and carbonaceous mudstone rich interval. As such the No 2 Seam is not considered economic and does not form part of the resource base.

The succession between the No 2 Seam roof and the No 4 Seam floor is generally 20 – 25 m thick, and comprises a basal siltstone (often carbonaceous), followed by sequences of sandstones and siltstones (generally an upward coarsening sequence). Where developed, the No 3 Seam (0.2 m thick) is located within this succession.

The No 2 Seam is sporadically developed in the area and there is no intention to mine it. The coal stratigraphic column is shown in Figure 4-5.

No 4 Seam Sequence – Target Seam

The No 4 Seam Sequence comprises the succession from the immediate roof of the No 2 Seam to the top of the No 4 Seam.

The immediate floor of the No 4 Seam predominantly comprises a fine to medium-grained sandstone that is sometimes bioturbated and often contains siltstone laminations.

The No 4 Seam is well developed across the entire Isibonelo licence area and is the sole economic target. The seam is on average 5.6 m thick, ranging from 4.2 m to almost 7 m in places. The seam is divided into three zones, based on the lithological variation of the seam. The zones are named from the base up as the Number 4 Seam Lower Zone (**S4Z1**), Number 4 Seam the Middle Zone (**S4Z2**) and the Number 4 Seam Upper Zone (**S4Z3**). The Lower Zone is the thickest and best quality of the three zones (21.7% average ash content); the Middle Zone is generally a poor quality coaly shale with multiple mudstone partings (45% average ash content), and the Upper Zone is a dull-lustrous coal with shaley lenses and occasional bright bands (31% average ash content). Currently the full No 4 Seam (S4Z1+S4Z2+S4Z3) is mined (Figure 4-5).

The immediate roof of the No 4 Seam is a thin (up to 30 cm thick), poorly sorted, coarse- to fine-grained, highly glauconitic and commonly pyritic sandstone, which is overlain by an up to one metre thick siltstone/shale unit with minor glauconitic sandstone lenses.

The sequence separating the roof of the No 4 Seam to the floor of the No 5 Seam is an approximately 30 m thick succession of interbedded sandstones and siltstones.

No 5 Seam Sequence

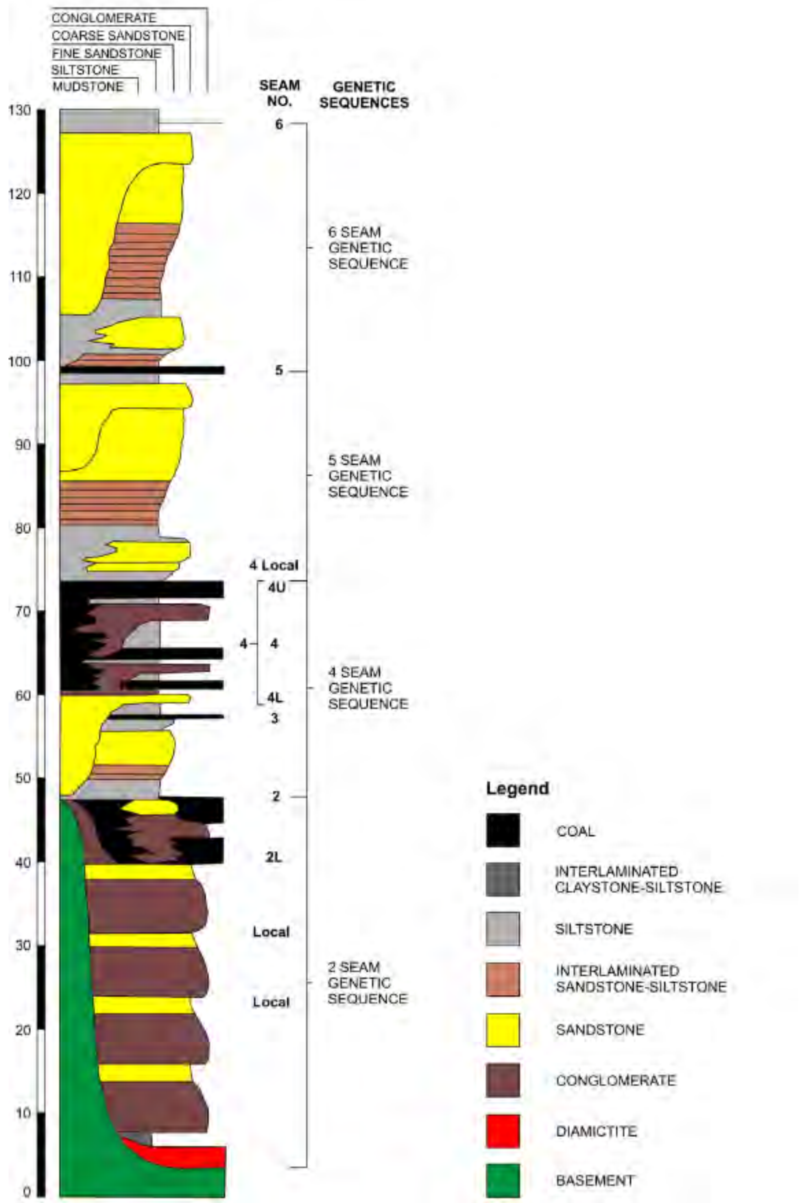
The No 5 Seam Sequence comprises the succession from the immediate roof of the No 4 Seam to the top of the No 5 Seam.

The No 5 Seam's extent is limited by the depth of weathering, as the seam ranges from 15 to 23 m below surface. The seam is on average 1.8 m thick, and as per the No 4 Seam, is divided into three distinct lithological zones, namely the Number 5 Seam Base (**S5B**), Number 5 Seam Parting (**S5P**) and Number 5 Seam Top (**S5T**) from the base up.

The S5B is the lower most zone; it averages 0.78 m in thickness and comprises a dull-lustrous coal, with bright bands, and an occasional in-seam carbonaceous shale parting. The S5P is a finely laminated carbonaceous shale, and has an average thickness of 0.64 m. The S5T is on average 0.36 m thick and comprises a relatively bright coal with an abundance of calcite on the cleats of the coal.

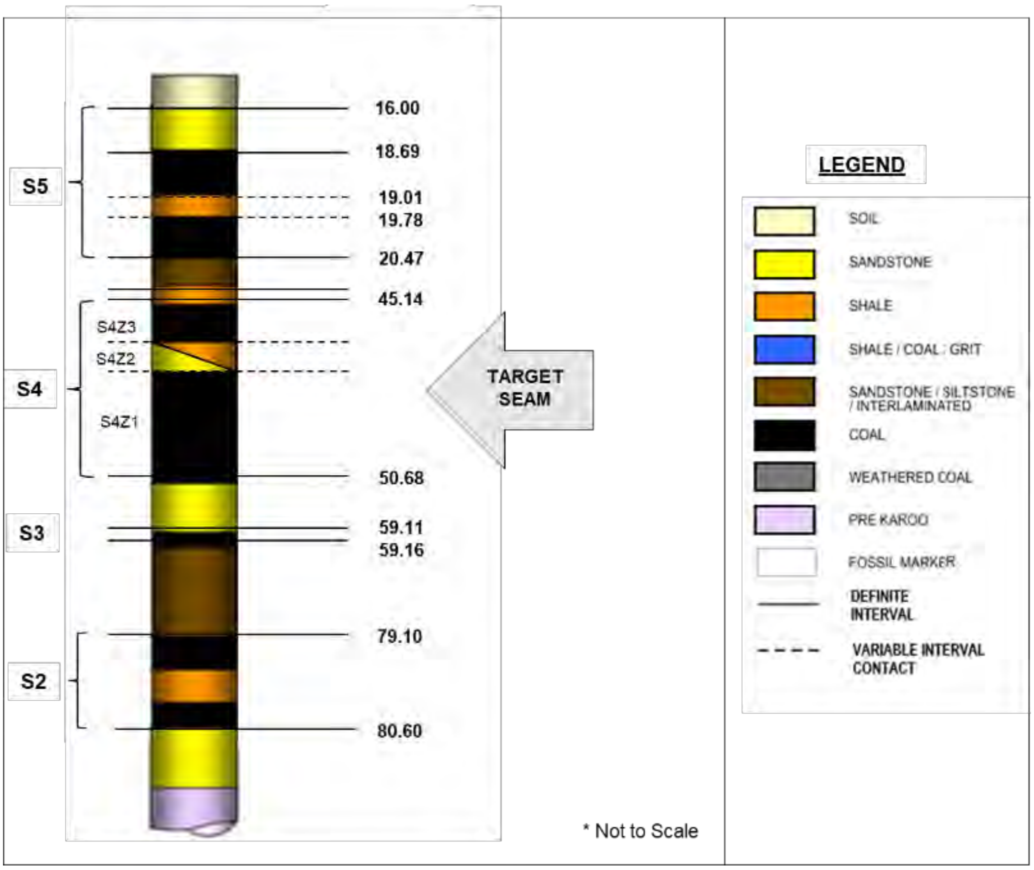
The full No 5 Seam has an average ash content of 42%.

The coal seams within Isibonelo Colliery are contained within a multiple seam deposit. In terms of the SANS 10320:2020 definition, the coal deposit at Isibonelo contains a discrete number of coal seams, typically between 0.5 m and 7.0 m in thickness, separated by inter-burden, the thicknesses of which usually significantly exceed the thickness of the individual coal seams.



srk consulting	**ISIBONELO COLLIERY CPR** General Stratigraphy of the Vryheid Formation in the Highveld Coalfield *(Hancox and Götz, 2014)*	Project No. 566627

Figure 4-4: Generalised Stratigraphy of the Vryheid Formation



srk consulting	**ISIBONELO COLLIERY CPR** Generalised Stratigraphic Column (*Source: Isibonelo CPR, 2017 – AAC,2017h*)	Project No. 566627

Figure 4-5: Isibonelo Generalised Stratigraphic Column

4.3.4. Pre-Karoo Topography

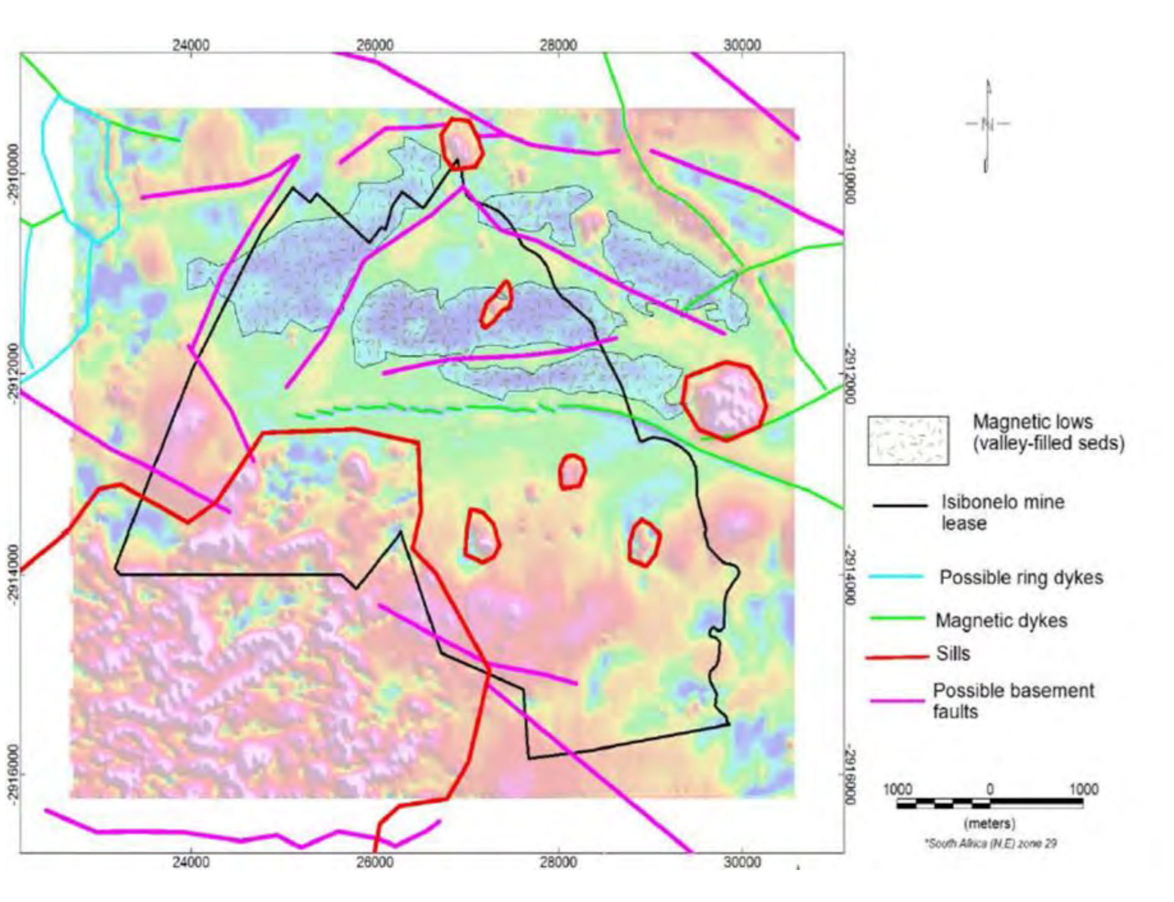
An airborne magnetic vertical gradiometer survey was conducted with a 100 m line spacing over an area between the towns of Kriel and Bethal. The survey was conducted in July 1992 by GEODASS, now CGG. In 2014, the dataset obtained in 1992 was reprocessed and reinterpreted using current technology and techniques. A report compiled by Khoza (2014) details the basement interpretation based on the data obtained during the aeromagnetic mapping exercise. From the study, it was concluded that the deepest basement is predominantly on the northern and eastern sides of the Isibonelo area, with depth ranges from 15 – 200 m. Towards the southwest of the area, the interpreted basement response may be attributed to the overlying sill, and therefore may not be as shallow as depicted.

Only 58 of the 2 325 drill holes drilled over the greater Isibonelo resource area, were drilled to basement, and therefore there is very little data to corroborate the results of the aeromagnetic study.

4.3.5. Faults

No evidence of faulting has been detected during any of the drilling or during mining activities. The aeromagnetic study conducted in 2014 indicated the presence of reactivated basement faults (Figure 4-6), however, there was no evidence to suggest that these faults have affected the coal formations (Khoza, 2014).

There are known sills in the area, and some small-scale faulting may occur in the local vicinity (particularly along the southwestern boundary in the vicinity of the sill) but are not expected to have a major impact on the remaining pit areas.



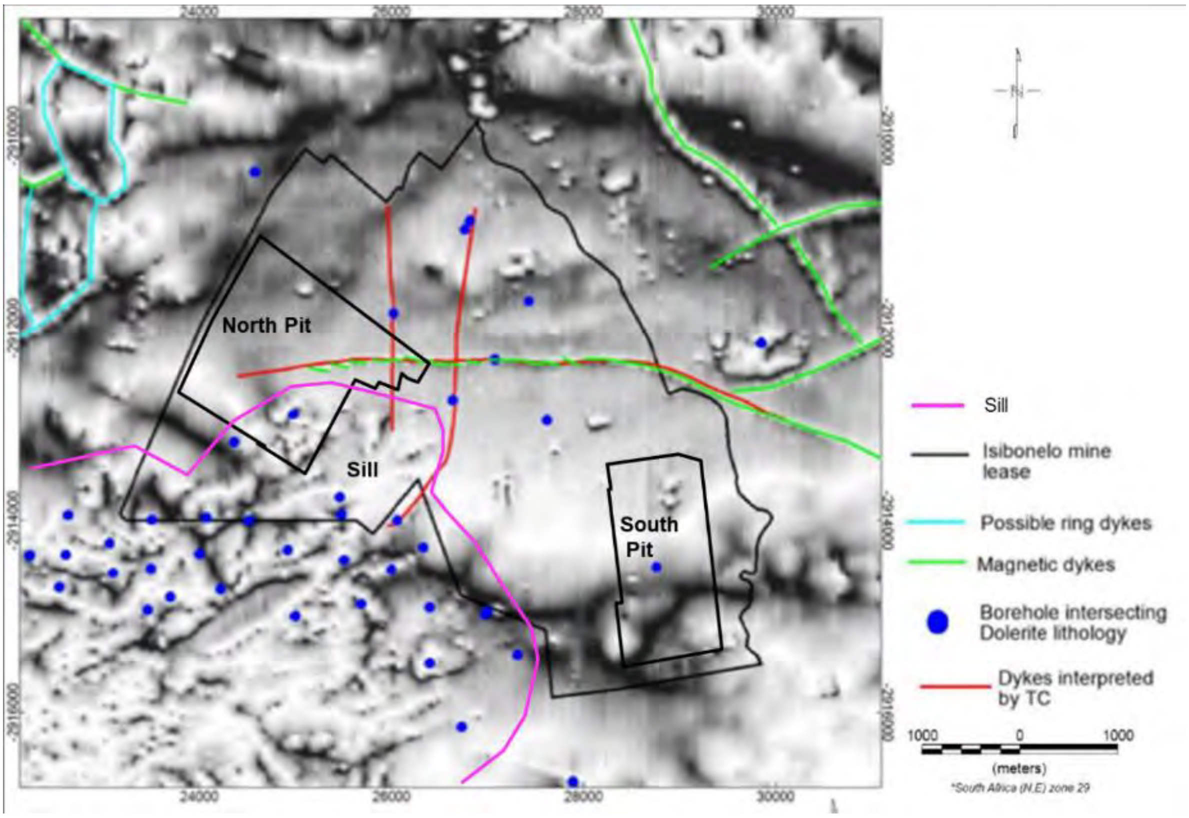
srk consulting	**ISIBONELO COLLIERY CPR** Structural Interpretation from Aeromagnetic Study *(Source: Khoza, 2014)*	Project No. 566627

Figure 4-6: Structural Interpretation from the Aeromagnetic Study

4.3.6. Igneous Intrusions

Dolerite sills are known to occur in the area, however there is no evidence of the sills transgressing the coal seams in the current mine layouts. Detailed studies have shown that a dolerite sill rises from below the No 2 Seam into the No 4 Seam elevation in the northern portion of the farm Riversdale 119 IS, where it either has replaced or burnt the No 4 Seam, and between the farms Rietfontein 101 IS and Brakfontein 117 IS in the east (Figure 2-2), the sill rises further in several steps through the No 5 Seam up to the surface. Within the mining area, the dolerite sill is located to the south of the North Pit, identified during the aeromagnetic study has also been intersected by numerous drill holes (Figure 4-7). The sill is positioned above the No 4 Seam and has had no deleterious effect on the coal qualities thus far. Towards the north and the east of the licence area, the sill has been eroded in the lower elevated regions. During the January 2000 drilling programme in the proposed opencast area, the first twenty drill holes, evenly spaced over the area, were drilled into the pre-Karoo succession to determine whether dolerite sills occurred below the No 4 Seam. None of these holes intersected dolerite below the seam.

Three thin dolerite dykes (Figure 4-7) have been intersected during mining activities but have had little effect on the coal seam. As the dykes are thin (approximately 0.7 m wide), they cannot be effectively side-cast during coaling operations, and therefore add a small amount of contamination to the RoM coal. The two north-south striking dykes mapped by the Company’s geologists were not identified during the aeromagnetic study. Possible reasons for this are that they are not magnetic, or they may not have been identified as the data were only collected in a north-south direction, which could render the dykes indistinguishable from the surrounding strata. The possibility of additional, unidentified dykes occurring in the area must therefore not be discounted.



srk consulting	**ISIBONELO COLLIERY CPR** Dolerite Intersected during Mining and Exploration Activities (*Source: Khoza, 2014*)	Project No. 566627

Figure 4-7: Dolerite Intersected during Mining and Exploration Activities

5. Exploration and Drilling, Sampling Techniques and Data

[12.10(e)(iii), 12.10(h)(vi)] [SR2.1(iii), SR3.1, SR3.2] [SV1.8]

5.1. Exploration

[SR2.1(iii), SR3.1] [SV1.8]

5.1.1. Historical Exploration

The Isibonelo model contains 2 325 fully cored drill holes, of which 43 were drilled prior to 1980. Table 5-1 summarises the number of drill holes drilled per decade from the 1950s, and annually from 2001. A total of 2 336 holes were drilled between 1950 and 2016. According to the Company, an additional 106 drill holes have not been used in the model, either due to collar co-ordinate discrepancies or due to dolerite. It is not known when these holes were drilled (they are excluded from the total of 2 336).

Table 5-1: Isibonelo Exploration Activities Summary

Year	Number of Holes Drilled	Year	Number of Holes Drilled
1950 - 1969	33	2008	127
1970 - 1979	10	2009	180
1980 - 1989	11	2010	120
1990 - 2000	224	2011	154
2001	3	2012	115
2003	20	2013	119
2004	495	2014	128
2005	133	2015	127
2006	106	2016	73
2007	158	Not used	102

5.1.2. Current Exploration

Isibonelo Colliery is an operating mine, with only five to six years of production left. The resource has been well drilled (2 325 drill holes), and there is confidence that the geological model accurately reflects the tonnage and quality of the coal in the ground. The drill holes planned and drilled on an annual basis are for grade control purposes and to confirm the No 4 Seam qualities destined for Sasol. The aim at Isibonelo is to compete the drilling three to four years before the end of the LoM. On average, 120 fully cored drill holes are drilled per year within the mining footprint. The drill holes are planned within the mine layouts, resulting in a grid spacing of approximately 100 m x 50 m.

All geological exploration, both planning and execution is carried out by the Company's geologists. The original hard copies of the logs are stored at the Anglo American Geological Services (**ACGS**) in eMalahleni.

At the time of this report, the geological model made available for review was created in February 2017, and therefore the cut-off date for the data used in the model, and in this report is 30 January 2017. Table 5-2 includes the details pertaining to the drilling campaigns conducted between 2014 to 2017 while Figure 5-1 shows both the historic (pre-2017) and the recent drilling.

Table 5-2: Drilling Campaign Summary

Company	Year	Comments
Zaaiman Exploration	2017	Completed 117 cored drill hole
Zaaiman Exploration	2016	Completed only 73 drill holes due to late start and wet conditions
Zaaiman Exploration	2015	Completed 127 drill holes
Zaaiman Exploration	2014	Completed 128 drill holes

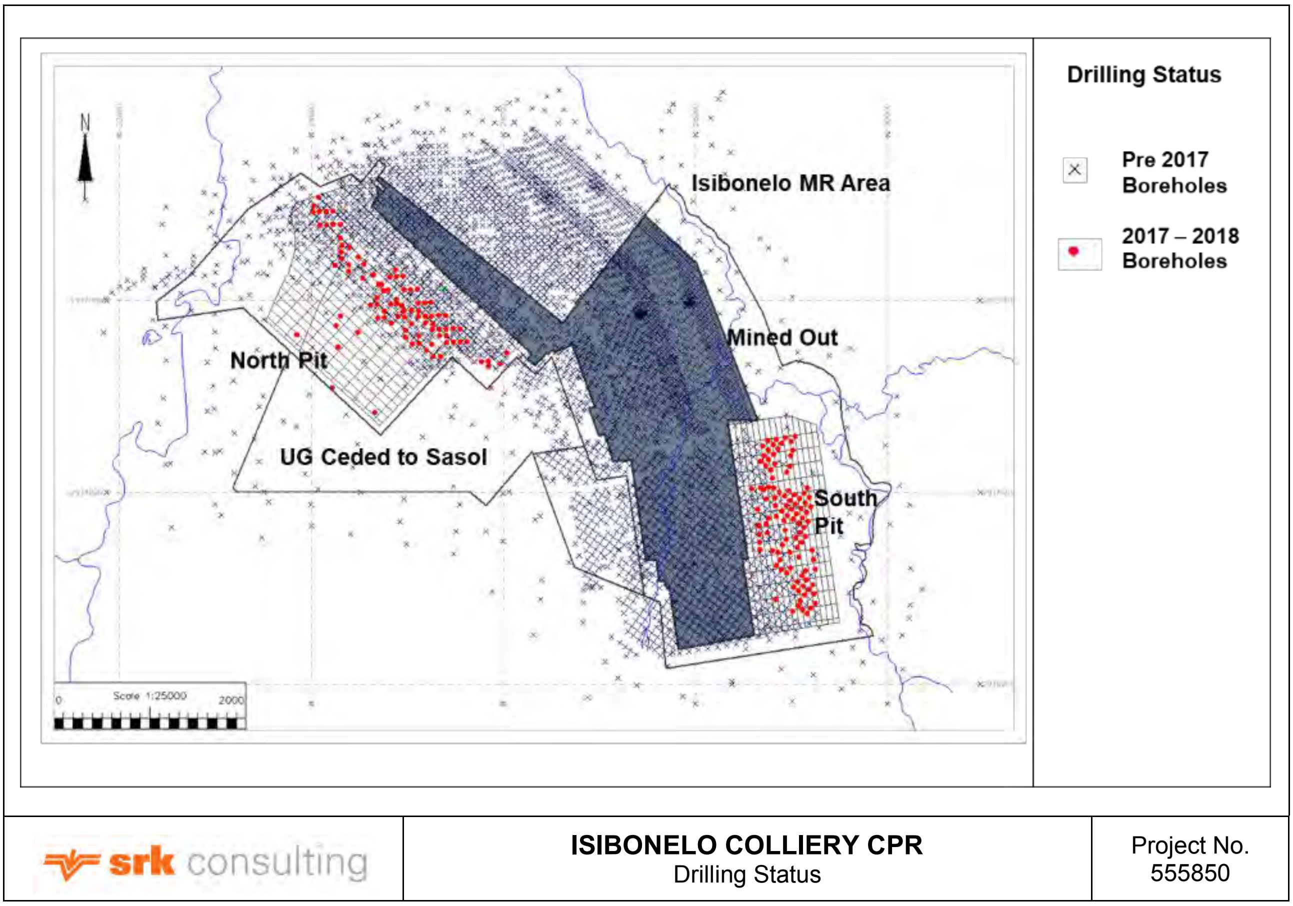


Figure 5-1: Isibonelo Drilling Status

5.1.3. Future Planned Exploration

[12.10(e)(iii)]

The planned exploration at Isibonelo, includes the drilling of 120 fully cored drill holes on an annual basis in order to confirm the quality of the No 4 Seam destined for SSF. The drill holes will be geophysically logged, and the No 4 Seam sampled and analysed, as per the sample protocol detailed in Section 5.3. A decision was also made to triple tube the softs material in order to model the weathered horizon more accurately at the top of the hole. The Isibonelo drilling budget is detailed in Table 5-3.

Table 5-3: Isibonelo Exploration Drilling Budget

Period	Budget (ZARm)	
	2021	2022
Drilling	7.2	7.2
Sample Analysis	0.1	0.1
Survey	0	0
Downhole Geophysics	0.4	0.4
Farmer Compensation	0.3	0.3
Geotechnical Investigation	0	0
Total	**8.0**	**8.1**

5.2. Surface Drilling Techniques

[SR3.2(i), SR5.3(i)]

5.2.1. Cored Drill Holes

A truck-mounted drill machine is used to diamond core the drill holes. The drill produces core with a diameter of 60.5 mm. The overall core recovery should be at least 95% in both the coal and non-coal material, or a re-drill is contractually required. One of the current emphases of the drilling program is to use triple tube core barrels in the soft overburden material in order to provide accurate data pertaining to the weathered horizons.

Due to the shallow nature of the drilling, all drill holes drilled are considered vertical, with no deviation. The intersected seam thicknesses are therefore considered an accurate representation of the true thickness.

All drill holes are planned to be drilled to just below the targeted No 4 Seam, as the No 2 Seam below has been proven not to have any economic potential.

5.2.2. Drill Hole Survey

[SR3.1(v)]

The drill hole collar coordinates are surveyed by the mine surveyors using a differential Leica GPS. The surveyed drill hole positions are checked against the planned hole positions and the elevations are checked against the topographic surface.

5.2.3. Geological Logging Procedure

[SR3.2(iii)(iv)]

The Company's standard for the logging of drill holes is entitled "Head Office Perform Core Logging Procedure", and was written by A. Opperman, 2015, a Geology Superintendent at the time.

All the geological logging at Isibonelo is conducted in line with the guidelines contained within this document, as summarised below.

All relevant information is recorded on the Geological Coding Sheet (i.e. the log sheet) using standardised codes as defined by the Data Dictionary Codes. Where applicable, the responsible geologist notes the following information per lithological unit:

- Depth to top contact;
- Depth to bottom contact;
- Width (thickness) of interval;
- Main lithotype;
- Seam name and sample number;

- Degree of weathering;
- Colour (shade, hue and colour);
- Lithological qualifiers (see Dictionary of Codes);
- Contact relationships;
- Grain size;
- Degree of sorting;
- Bedding features (spacing and dip);
- Sedimentary structures (type and dip);
- Tectonic structures (type, spacing, description and dip);
- Mechanical state; and
- Fossils or minerals (abundance, type, and association).

Geological logs and sample results are checked by the responsible geologist and validated by the modeller before being uploaded into the geological model.

5.2.4. Core Recovery

[SR3.2(i)(v)]

The core recovery at Isibonelo is governed by the Anglo American Coal Standard(s) and Requirements Document (**AAC SRD**) entitled "Anglo American Coal OMS Operations Geology Standard AAC SD 23-25-107: Exploration Monitor Core Recovery for Surface Vertical Drilling" (AAC, 2019j).

The responsible geologist estimates the core recovery for all cored drill holes. After each drill run, the driller calculates the depth of the hole by adding together the lengths of each component of the drill string, from the base of the drilling bit to the top of the quill rod and then subtracting the portion of the drill string protruding above surface. The measurement from ground level to the top of the quill rod is known as the "stick-up". The driller records the calculated depths onto wooden or plastic blocks and places it at the base of the last piece of core extracted from the core barrel. As well as recording the depths on blocks within the sequence of core, the driller also captures the depth calculations on the drillers daily report sheet.

The responsible geologist performs depth checks on each hole as well as performing random depth checks on the drill holes in progress.

The core recovery within the coal seams should be greater than 95% or a re-drill is requested. Drill holes that are weathered or burnt are exempt from this stipulation.

5.3. Coal Sampling and Analysis

Coal sampling and analysis is done to identify quality variations within the seams and to identify mining horizons. The Company has prescribed methods to sample and analyse the coal and to verify and store the results.

5.3.1. Sampling Governance

[SR3.5]

The AAC SD 23-25-107: Exploration sections listed below determine the coal sampling procedures followed:

- Manage Borehole Drill Data;
- Exploration Technical Pack; and
- Monitor Methane During Surface Drilling.

SRK has reviewed the AAC SRDs for sampling and analysis and is satisfied that they represent good practice.

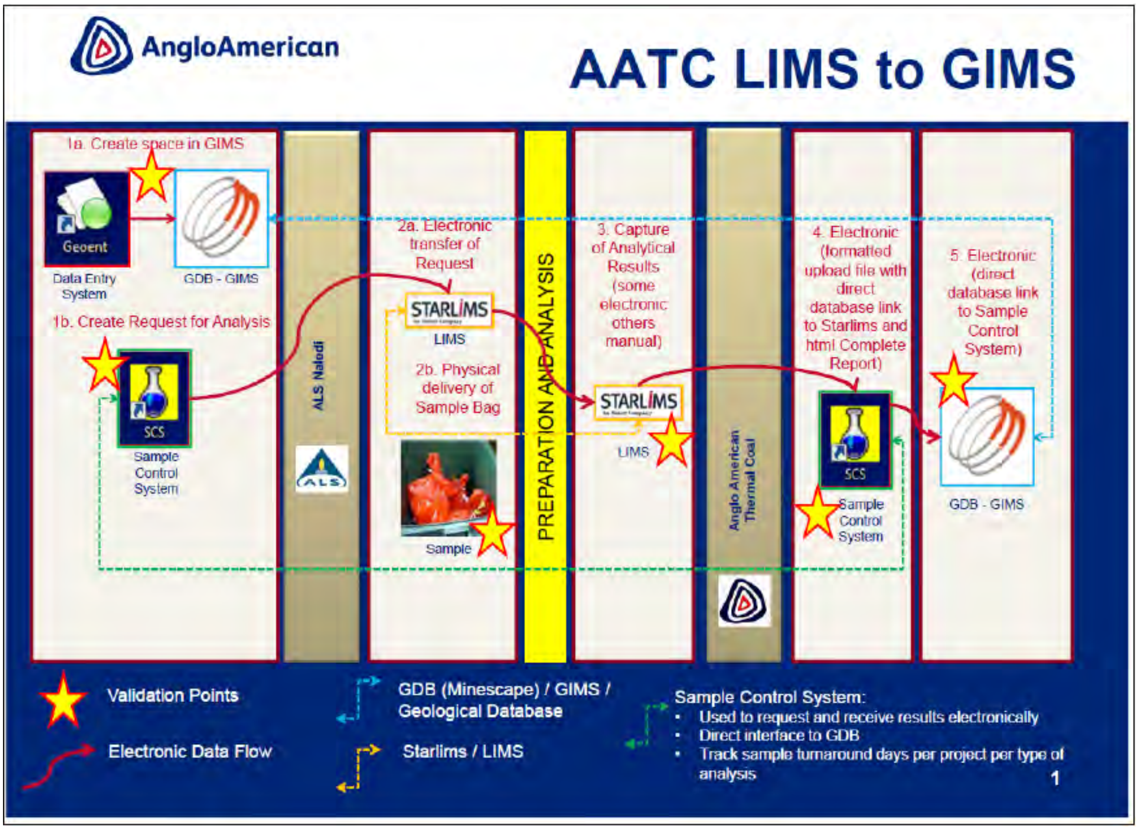
5.3.2. Sampling Method and Data Collection, Capture and Storage

[SR3.3]

The full core is used to ensure samples are representative. Contamination and coal losses are prevented by laying the core on plastic sheeting immediately after recovery from the hole. Sample intervals are selected, where possible, to match the seams in the geological model.

All samples are sealed in plastic bags and identified by the sample number, a unique alpha-numeric sequence written on manila tags placed inside and attached to the outside of the sample bag. Samples are labelled alphabetically from the base up. The sample number is recorded on the Log Sheet. The samples are sealed after bagging and delivered to the laboratory as soon as practically possible. The Company's sampling governance and chain of custody requires that each sample to be submitted to the laboratories is accompanied by a sample submission list that also serves as a sample advice sheet with instructions for analysis. The laboratory is notified of samples that are ready for delivery. Upon receipt of the samples, the laboratory representative cross-checks all samples against the submission list to confirm the names and number of samples they are receiving. All submission lists are managed in duplicates with signed copies scanned and saved electronically.

The laboratory uses an electronic Laboratory Information Management System (**LIMS**) to keep track of samples and analytical results. The analytical results are received electronically by the Company and uploaded into Geological Information Management System (**GIMS**) after verification routines have been applied to ensure the correctness of the results (Figure 5-2).



srk consulting	ISIBONELO COLLIERY CPR Information Flow for Sampling and Analytical Data (*Source: Isibonelo CPR, 2017 – AAC,2017h*)	Project No. 555850

Figure 5-2: Information Flow for Sampling and Analytical Data

Once logging has been completed and the core photographed, the drill holes are sampled as per the methodology described above. For each sample, the unique sample identification, sample thickness and sample mass are recorded on the drill hole log sheet. In addition, the client name, project identification, as well as date is added to the sample ticket. Each sample mass is recorded using an electronic scale before being submitted to the coal laboratory. The sample mass is not included on the sample ticket to the laboratory, as the laboratory is required to weigh and report each sample mass before analysis as a sample control measure. The samples were submitted to the ALS Naledi laboratory with the sample request sheet electronically lodged via the Sample Control System, using Mask Codes detailing the relevant analysis for execution. Note that since the closure of ALS Naledi, samples are now submitted to Bureau Veritas' Middelburg laboratory.

Currently, both the No 5 and No 4 Seams are sampled at Isibonelo, although the No 4 Seam is the only economic seam.

5.3.3. Coal Sampling Preparation and Analysis

[SR3.4, SR5.3(i)]

Samples are weighed, air-dried (under controlled, prescribed atmospheric conditions) and conditioned before being crushed and screened to produce a -25 mm +0.5 mm sample fraction for analysis. For those samples requiring raw density analysis, the -0.5 mm fraction is screened out before analysis (this is to ensure that the historical and current data are reported on the same basis). The mass percentages of the two size fractions are determined and reported. The samples are then analysed.

Sample analysis protocols, modified by site specific analytical procedure(s), are determined by AAC SD 23-25-107: Exploration sections:

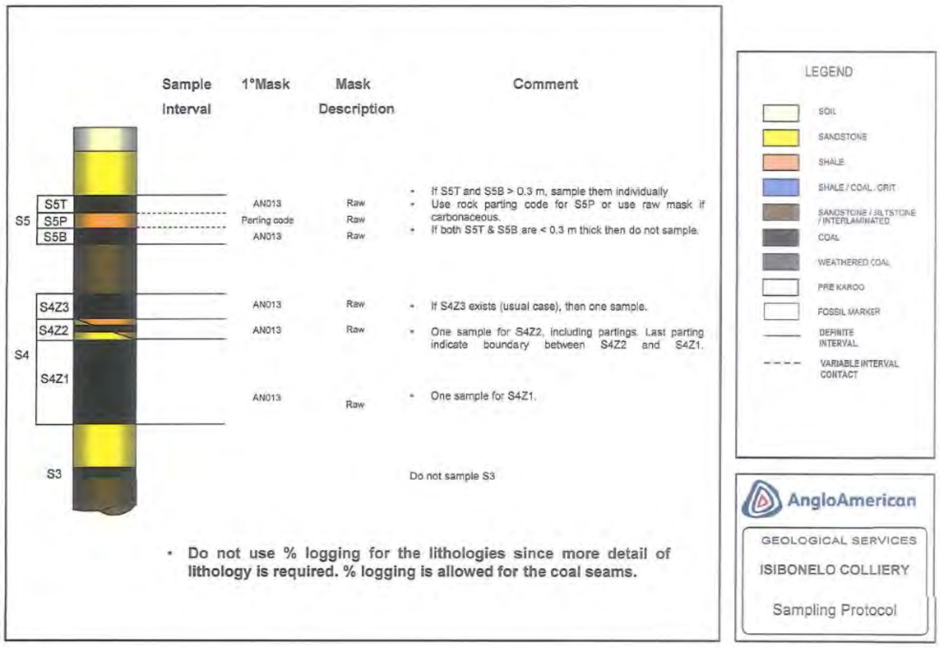
- Manage Borehole Drill Data; and
- Exploration Technical Pack.

Analysis of Isibonelo's coal samples has historically taken place at ALS Naledi (or its predecessor ACCL), located in eMalahleni, Mpumalanga.

The Isibonelo-specific analytical regime applied to each sample is determined by the applicable "Mask Code/s", developed in conjunction with the laboratory (Figure 5-3) and based on the seam and coal type/parting material.

The No 4 Seam comprises three zones (S4Z1, S4Z2 and S4Z3 from the base up); however, due to the coal variability within S4Z1, it is sampled as two plies. The S4Z2 sample comprises the sandstone and shale parting material, and the S4Z3 sample comprises the upper coal zone. As the mine produces a raw No 4 Seam product for Sasol, all three plies are submitted for analysis according to Mask Code AN013. The decision to sample the No 4 Seam in multiple plies is to ensure there is sufficient detail to allow for effective grade control of the final product. The No 4 Seam samples are analysed for raw qualities only; i.e. proximate analysis (inherent moisture (**IM**) content, ash content (**ash)**, volatile matter (**VM**) content – expressed as percentages), calorific value (**CV**[1]) expressed in megajoules per kilogram (**MJ/kg**) and total sulphur (**TS**) content (also expressed as a percentage); fixed carbon (**FC**) content (as a percentage) is determined by difference. Ash, IM, VM and FC sum to 100%.

Historically, the No 5 Seam was either analysed for raw proximate qualities only, or where plies were greater than 0.3 m thick, for washed proximate qualities on three float and one sink fraction (Mask Code SC801). However, as the seam is no longer mined, it is only analysed for raw qualities. Figure 5-3 also illustrates the sampling protocol currently in place at Isibonelo.



srk consulting	**ISIBONELO COLLIERY CPR** Mask Codes and Sampling Protocol (*Source: Isibonelo CPR, 2017 – AAC,2017h*)	Project No. 566627

Figure 5-3: Mask Codes and Sampling Protocol

5.4. Quality Control/Quality Assurance

[SR3.5(i) (iii), SR3.6(i)]

5.4.1. Data Acquisition/Validation and Storage

Drill hole and analytical data is acquired, stored and validated according to AAC SD 23-25-107: Exploration sections:

- Manage Borehole Drill Data;
- Manage Exploration Reporting;
- Manage Geological Domain;
- Geological Photography Standard; and
- Exploration Benchmarks - Mandatory Minimum Resource Knowledge Requirements.

All data are initially logged manually onto paper capture sheets. These sheets are then scanned to provide documentary evidence of the original logging. Copies of these scanned documents have been kept since 2009 and are stored at the Company's Exploration Department.

Drill hole collar survey data, core recovery information, geological logging and sampling data (including the type of analysis required and the analytical results) are then captured into an electronic database - GDB. GDB is a commercial geological database package, originally developed specifically for coal data and now supplied by Datamine®. Data entry is via the GEOENT data entry system, an inhouse-developed software package. GEOENT has automated checks to confirm correct seam intervals; however, the majority of data validation takes place within GDB.

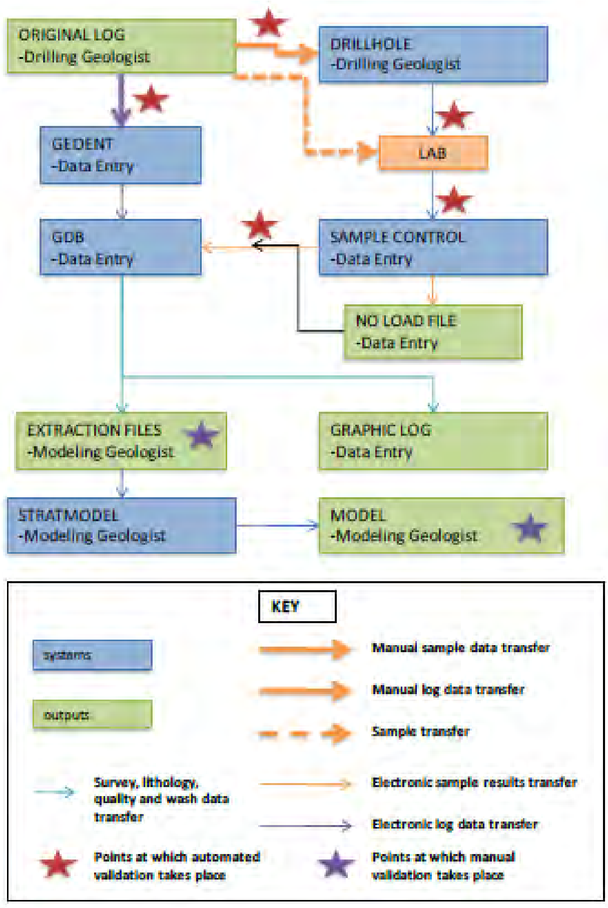
During the early stages of data validation, automated checks are done by the software packages, while later data validation is done manually during geological modelling (Figure 5-4). If errors are identified during the automated validation, data entry/validation halts until the error is manually rectified. Standardised attribute ranges are pre-loaded into GDB; values outside this range generate an "out of range" warning and the values are excluded until such time as they are manually corrected, and the data reloaded. GDB also ensures that all quality data is related to a unique sample number and that this sample number is associated with a coordinated drill hole that contains coal seam information, If no such drill hole is found, the quality data is reported to the "no load" file and manual verification is required.

Figure 5-4 illustrates the data validation procedure, including points at which automated and manual data validation occurs.

5.4.2. Specific Data Validation for Coal Analyses

ALS Naledi received SANAS accreditation (ISO/IEC 17025:2005 accreditation) in June 2014 for the analytical determination of ash, calorific value and volatile matter, as well as the determination of fixed carbon by difference (Figure 5-5). Further ALS Naledi quality assurance procedures can be subdivided into three categories:

- Internal Quality Control– where certified reference materials (CRMs) and control samples are analysed daily, as an important control in determining the performance of the analysts, as well as the specific instrumentation used for the test procedure. The results are evaluated, and a Z-score is calculated for each result. Repeatability and reproducibility limits are listed according to the specified limits in the ISO/ASTM/SABS methods. The repeatability limits are used as the target standard deviation value in the Z-score calculation;



srk consulting	**ISIBONELO COLLIERY CPR** Data Validation Flow Diagram (*Source: Isibonelo CPR, 2017 – AAC,2017h*)	Project No. 555850

Figure 5-4: Data Validation Flow Diagram

- External Quality Control – which involves participation in proficiency testing schemes. ALS Naledi participated in the quarterly COALSPEC proficiency testing, also known as round-robin tests, with 53 other national and international laboratories. The aim of the round-robin testing is to independently assess the ability of ALS Naledi to competently perform the tests examined as part of the testing scheme. ALS Naledi constantly achieved a Z-score of between one and two, with generally accepted Z-scores having a standard deviation of ±3. ALS Naledi consistently performed within the accepted range. ALS Coal also runs an international coal proficiency testing scheme on a monthly basis. Both ALS Naledi as well as ALS Witlab, together with four other ALS laboratories in Australia, Canada and Mongolia, participated in these monthly testing schemes. Additionally, ALS Naledi participated in an independent proficiency testing scheme called Coal Concepts, which is run internationally with 63 coal laboratories participating; and
- Quality Control of outsourced samples – ALS Naledi occasionally sub-contracted some analyses to ISO accredited/certified laboratories.

The adherence to all these practices is necessary to meet the requirements of the analytical standards with regard to accuracy, repeatability, precision and reproducibility.

5.5. Relative Density

[SR3.1(i), SR3.3(iii), SR3.5(iii), SR3.7(i)(iv)]

The raw relative density is not determined by the laboratory but calculated using a standardised formula based on the air dried ash value. The formula was derived from regression analysis conducted in the 1980s (Gray, 1983) on the proximate and apparent relative density analysis of multiple deposits and seams within the Witbank Coalfield. In 2018, MinRes, a department of Anglo American plc, reviewed analysed data from 174 bulk core samples as well as data from seven other coal companies; data from five sub-basins of the Witbank Coalfield were included in the review. The conclusions are:

- There is sufficient evidence to support the use of the generic regression formula for relative density from ash in both fresh and devolatilised samples; and
- The relationship describes an Apparent Relative Density that is expected to approximate the in-situ density, on an air-dried basis.

The formula used is:

$$\text{Relative Density}_{adb} = 0.0126 \text{ x Raw Ash\%}_{adb} + 1.26$$

Where:
adb = air-dried basis

5.6. Drill Hole Data and Geological Model Validation

[SR2.1(iv)] [SR3.2(ii)] [SR3.3]

The validation is undertaken to ensure that data are correctly transferred from the original logs to GDB, the electronic geological database, and then into the modelling software database. The final step is to check the model values against those in the model database, ensuring integrity between all steps of the data collection and modelling process. This is to enhance the reliability of the geological interpretation and the resource estimation process, by ensuring the validity of the data.

5.6.1. Drill Hole Data Validation

SRK has reviewed a random selection of 112 original drill hole logs, sampling records and analytical results and compared them with the corresponding data contained in GDB as well as the resultant values in the geological model database. The drill holes were selected from areas close to the mining faces and/or in areas of complex geology or mining. It should be noted that the geological model supplied to SRK was dated 2017; it is possible that the discrepancies identified below have already been addressed in later versions of the model. The results of this comparison exercise are shown in the tables in Appendix 1 and are described below.

- **Drill Hole Collar Co-ordinate and Elevation Validation:** The drill holes where a difference of more than one metre was found between the original log, GDB and the model database are shown in Table 5-4; these drill holes should be reviewed.

Table 5-4: Drill Hole Collar Discrepancies

Drill Hole	Easting	Northing	Collar Elevation		Comment
	OL – GDB	OL – GDB	OL – GDB	GDB – model	
KRL0327	N/a	N/a	2.07		Cannot explain differences
KRL1415	-22.00	15.00	9.50	-1.56	Position scaled off plan, not surveyed
KRL5055	N/a	N/a	N/a	-1.29	Cannot explain differences
KRL5067	N/a	N/a	N/a	1.27	Cannot explain differences
KRL7020	-85.48	-13.40	3.20	N/a	Surveyed; cannot explain differences
KRL7284	-89.82	N/a	N/a	N/a	Surveyed; cannot explain differences
KRL8255	2.00			-559.66	Handheld GPS co-ordinates; elevation value 999 on log sheet

- **Seam Validation:** One discrepancy with the roof and floor depths was identified: the floor depth in drill hole KRL8563 differs from that in the original log and GDB by 1.19 m, although the bottom depth of the lowermost sample in the model correctly reflects the bottom depth of the seam as contained in the original log and GDB. The model appears to be incorrect and should be reviewed in this area.
- **Sample Validation:** Two checks were made on these data:
    - The From and To depths of the seam were compared with the From and To depths of the samples; and
    - The From and To depths of the samples were compared between the different data sets.

  No discrepancies were identified for either check, except for drill hole KRL1415 where the seam was originally sampled in two portions and the sandstone partings were omitted from the sampling. Subsequently, the seam has been “resampled” in GDB in six increments, in order to account for the partings. The new “sample’” for the top part of the seam is missing from GDB (although the analytical values can easily be deduced from the original log, following the same methodology applied when “resampling” the seam). As this “sample” is missing from GDB and has therefore not been transferred to the model database, the samples could not be composited to a single set of quality values for the entire seam. The impact is that this drill hole is not included in the database and does not then qualify as a Valid Point of Observation. Fortunately, the drill hole is located in the barrier pillar between the South Pit and the river, so there is no major impact on the model.

- Sample Coal Recovery: The sample recovery should be greater than 95% to ensure the analytical results are representative. In addition, it is generally a requirement of the drilling contract that recovery in the coal seams is greater than 95%; if not, a re-drill is required unless there are extenuating circumstances such as highly fractured core due to faulting, etc. that will prevent good core recovery. According to the original log for drill hole KRL7.20, sample 7020C only attained a recovery of 91%, yet the GDB log states the recovery to be 100%. A similar situation is found with sample C029C of drill hole KRLC029, where only 89% of the coal was recovered; again, GDB simply states 100% recovery. For this particular drill hole, the geophysical log thicknesses do not correspond to those in the geological log. Particular care should be taken when capturing the percentage recovery in GDB, as there is some suggestion (across all the Company’s coal assets) that little attention is paid to this parameter and the 100% value is simply a “default” value.
- Raw Quality Data Validation: The IM and CV[1] were checked for each sample. Differences between the

datasets in excess of ±0.2% were highlighted (0.2% was chosen as this is traditionally the accepted variation in proximate analysis values). Only one difference outside this limit was identified: the IM in sample KRL0327A is 0.8% greater in the model database than in GDB. The model value should be checked.

SRK is satisfied that, barring a few exceptions, the original data have been adequately transferred to GDB and the model database and that the processes and techniques used to validate the geological data prior to constructing the geological model are appropriate and have been correctly applied.

sanas
South African National Accreditation System

CERTIFICATE OF ACCREDITATION

In terms of section 22(2) (b) of the Accreditation for Conformity Assessment, Calibration and Good Laboratory Practice Act, 2006 (Act 19 of 2006), read with sections 23(1), (2) and (3) of the said Act, I hereby certify that -

ALS NALEDI (PTY) LTD
Co. Reg. No.: 2010/018634/07

Facility Accreditation Number: **T0611**

is a South African National Accreditation System accredited Testing laboratory provided that all SANAS conditions and requirements are complied with

This certificate is valid as per the scope as stated in the accompanying schedule of accreditation Annexure "A", bearing the above accreditation number for

CHEMICAL AND MICROBIOLOGICAL ANALYSIS

The facility is accredited in accordance with the recognised International Standard

ISO/IEC 17025:2005

The accreditation demonstrates technical competency for a defined scope and the operation of a laboratory quality management system

While this certificate remains valid, the Accredited Facility named above is authorised to use the relevant SANAS accreditation symbol to issue facility reports and/or certificates

Mrs C Leballo
Acting Chief Executive Officer

Effective Date: 11 JUNE 2014
Certificate Expires: 10 JUNE 2019

ANNEXURE A

SCHEDULE OF ACCREDITATION

Facility Number: T0611

Permanent Address of Laboratory: ALS Naledi (Pty) Ltd 75 Stevenson Street Extension 8 Witbank 1035	**Technical Signatories:**	Mr S Bodiba (Chemistry) Ms P Skosana (Microbiology) Ms A Molanaga (Coal) Ms D Shilubane (Coal) Mr M van Dyk (Coal)
Postal Address: P O Box 1569 Witbank 1035	**Nominated Representative:**	Mr M Naude
Tel: (013) 692 5141 Fax: (013) 692 8202 E-mail: Malan.naude@alsglobal.com	Issue No.: Date of Issue: Expiry Date:	1 11 June 2014 10 June 2019

Materials / Products Tested	Type of Tests / Properties Measured, Range of Measurement	Standard Specifications, Equipment / Technique Used
CHEMICAL		
Drinking water, Waste water, Environmental water, rivers and dam water	Determination of Electrical Conductivity	ALS-NA-WL-WI-004 (ISO 7888-1985 (E))
	Determination of pH	ALS-NA-WL-WI-005 (ISO 10523)
	Determination of Fluoride	ALS-NA-WL-WI-007 (ISO 10359-1)
	Determination of Chloride	ALS-NA-WL-WI-008 (ISO 15923-1)
	Determination of Sulphate	ALS-NA-WL-WI-009 (ISO 15923-1)
	Determination of Alkalinity	ALS-NA-WL-WI-010 (ISO 9936)
	Determination of Ammonia	ALS-NA-WL-WI-011 (ISO 11732)

Original Date of Accreditation: 11 June 2014 Page 1 of 2

Field Manager

ANNEXURE A

Facility No.: T0611
Date of Issue: 11 June 2014
Expiry Date: 10 June 2019

Materials / Products Tested	Type of Tests / Properties Measured, Range of Measurement	Standard Specifications, Equipment / Technique Used
	Determination of Ortho Phosphate	ALS-NA-WL-WI-012 (ISO 15923-1)
	Determination of Nitrate	ALS-NA-WL-WI-013 (ISO 13395)
	Determination of Selected elements by ICP (Al, Ca, Mg, Na, K, Fe, Mn, B)	ALS-NA-WL-WI-026 (ISO 11885)
MICROBIOLOGY		
Drinking water, Waste water, Environmental water, rivers and dam water	Determination of total Coliforms in water	ALS-NA-WL-WI-014 (ISO 9308-1)
	Detection of Heterotrophic Plate Count in water	ALS-NA-WL-WI-015 (ISO 6222)
	Confirmation of *Escherichia coli* in water	ALS-NA-WL-WI-016 (ISO 9308-1)
COAL		
Gravimetric	Conditioning of Samples	ALS-NA-CL-WI-019
	Determination of Volatile Matter Content	ALS-NA-CL-WI-021 (ISO 562: 2010)
	Determination of Ash Content	ALS-NA-CL-WI-021 (ISO 1171: 2010)
Bomb Calorimeter	Determination of Gross Calorific Value	ALS-NA-CL-WI-023 ALS-NA-CL-WI-038 (ISO 1928: 2009)
Infra Red Spectrometry	Determination of Sulphur	ALS-NA-CL-WI-032 ALS-NA-CL-WI-033 (ISO 1957: 2006)

Original Date of Accreditation: 11 June 2014 Page 2 of 2

ISSUED BY THE SOUTH AFRICAN NATIONAL ACCREDITATION SYSTEM

Field Manager

srk consulting

ISIBONELO COLLIERY CPR
ALS Naledi SANAS Accreditation Certificate

Project No.
555850

Figure 5-5: ALS Naledi SANAS Accreditation Certificate

5.6.2. Geological Model Validation

- **Drill Hole Collar Co-ordinate and Elevation Validation:** During modelling, the model database values are compared with the digital terrain model (**DTM**) and any discrepancies are investigated. If these discrepancies are not able to be resolved, the drill hole is omitted from the model database.
- **Seam Validation:** This check is used to verify for incorrectly ordered seam intervals, negative interval thicknesses, interval overlaps and any other seam inconsistencies. The No 4 Seam is currently logged and modelled as three plies; however, originally it was modelled as one seam. In order to model and understand the variation within the seam better, the historical drill holes were re-evaluated to identify the individual plies. Verification of the drill hole database has indicated that this process was carried out well, with no anomalies identified.
- **Raw Quality Data Validation:** The raw data quality data was verified by checking that the 'From' and 'To' depths of the individual sample plies corresponded to the composited sampled 'from' and 'to' depths. Where discrepancies were noted, they were small and would not have a material effect on the model. Nonetheless any discrepancies flagged should be investigated and corrected or removed, whichever is most suitable.

The proximates (Ash %, VM %, IM %, and FC %) were checked to ensure that they summed to 100% (99.8% – 100.02%) which they did.

The raw ARDs were recalculated using the equation 0.012 x ash + 1.26 in order to determine if there were any inconsistencies in the densities calculated by the Company (refer to Section 5.5). Regarding the coal samples, no anomalous densities were identified; however, regarding the standard parting code values with high ash contents (sandstone and mudstone), the densities varied slightly more when compared to the calculated values. The effect this would have on the overall composited sample qualities is negligible. It is understood that this method of determining the relative densities of the coal samples has been used on all of the Company's collieries for many years. It is, however, suggested that, on a per colliery basis, a portion of the samples are sent for density testing, the results of which can be used to confirm the formula used.

6. Coal Resources

[12.10(h)(ix)]

6.1. Target Seam

The No 4 Seam (total seam height) is considered the target seam at Isibonelo.

Although the No 5 Seam is present, mining this separately and blending it with the No 4 Seam did not previously prove viable (refer to Section 8.1). The No 5 Seam is thus excluded from the Coal Resource estimates.

6.2. Geological Modelling

[SR2.1(iii), SR4.1(i)(ii), SR4.2(iv), SR5.2(iii)]

The Isibonelo model under review was created by DJ Pretorius, a Resource Geologist Specialist with the Company, using Datamine's StratModel™ Software version 4.119 Patch 01 and reviewed by SRK using StratModel™ version 7. The model is dated February 2017, with a data cut-off date of 31 January 2017.

6.3. Geological Model Review

[SR2.1(vii), SR4.1(iii)(iv)(v), SR4.2(v), SR7.1]

The Isibonelo model was evaluated to assess:

- How the physical and quality drill hole data were loaded and evaluated;
- That the modelled data accurately reflected the original drill hole data;
- The interpolation parameters used to create the model;
- The interpretation of the data to ensure that the final structural model is a true reflection of the coal in the ground; and
- That the Coal Resource estimation methodologies were correct and appropriate. SRK has used selection expressions during the resource estimation to ensure that the cut-off parameters have been correctly applied and that the resource estimates are appropriate.

Model and data validations included the following:

- Topographic surface generation and evaluation – evaluating whether surveyed collar coordinates fall within one metre of the topographic surface and understanding any discrepancies;
- Evaluating any differences between the drill hole data and the model interpretation;
- Structural interpretation of dolerite intrusions, faulting, seam pinch out and subcrop, etc.;
- Quality checks and evaluation - checking that the data load tables contain no sampling gaps, that all standardised coal quality values for unsampled material have been included where necessary; the sample compositing rationale (the correct method is to only composite data for which there are no missing samples or depth overlaps) and examining quality plots for "bull's eyes" which require corroboration;
- The correct application of Coal Resource cut-off limits; for example, the volatile matter content limit, minimum seam thickness, subcrop lines and mined out areas; and
- The polygon classification was in accordance with the SANS10320:2020 guidelines.

The Isibonelo model is an established model which is well understood and managed. The supporting Company Standards and Procedure Documents ensure that there is a high level of confidence with regard to the geological modelling procedures. The model has undergone both internal and external audits, which add an additional level of confidence to the model.

A total of 2 325 drill holes are used in the Isibonelo model, which includes the No 5 Seam, No 4 Seam and No 2

Seam, although only the No 4 Seam is considered economic. The Isibonelo area has been intruded by three dolerite dykes, and a dolerite sill is located towards the south of the North Pit (no effect on the No 4 Seam). There is no evidence of faulting within the Isibonelo licence area.

The SRK interrogation of the Isibonelo model and the checks on the data have revealed no major noteworthy discrepancies.

The check on the drill hole collar elevations against the topographic surface revealed that 27 drill holes in North Pit varied by more or less than one metre (11%), while seven drill holes in South Pit displayed that same range of differences (3%). The most significant of these are two in South Pit (KRL7075 and KRL7101) and four in North Pit (KRL6919Z, KRL10010, KRL10014 and KRL5028); all these vary by more than three metres and all are in areas ahead of current mining. It should be noted that SRK was only provided with the 2017 geological model and these discrepancies may have been resolved in later versions of the model.

The modelling parameters and resultant geological and quality model are considered a true and accurate reflection of the Coal Resources at Isibonelo. SRK is therefore satisfied that the model is fit to use to estimate the Coal Resources for Isibonelo as at 31 December 2020.

6.3.1. Physical Results

[SR2.1(v)(vi), SR3.1(vii), SR4.1(i)]

The physical parameters of the seam floor elevation and the depth from surface of the seam floors and roofs as well as the limit of weathering were modelled. The seam thicknesses were also modelled, and these were used as the basis for the estimation of the Coal Resource volumes. Although all these parameters were modelled, only the floor elevation, depth from surface and the seam thickness results for the target seam (No 4 Seam) are presented (Figure 6-1 to Figure 6-3), along with a brief description of the results.

The No 4 Seam is the only seam mined at Isibonelo. The seam is present throughout the entire licence area averaging between 5 – 6 m in thickness (Figure 6-1). The Zimele Block in the west is on average 0.5 m thinner than the rest of the mining block, and the South Pit has an area where the thicknesses are between 6.0 – 6.5 m. The seam is on average 5.6 m thick.

The No 4 Seam is generally flat lying to gently undulating, with a gentle regional dip of less than one degree towards the south. Examination of the floor contour plots illustrated in Figure 6-2 below does not indicate any structural features having affected the seam.

The depth to the roof of the No 4 Seam, or the alternately described as the overburden thickness, is noted to be shallowest (<20 m) along the eastern and western extents of the licence area, due to its coincidence with the Steenkoolspruit and Dwars-In-Die-Wegspruit rivers respectively. The depth to seam roof is generally between 30 – 50 m, however this increases to greater than 90 m in the south-eastern corner of the North Pit.

A number of cross-sections were generated to test the geological model, four of which are included as Figure 6-4 and Figure 6-5 below.

The cross sections included in Figure 6-4 pertain to the North Pit. Section NE-SW is a dip section through the pit and indicates the seam elevation decreasing slightly towards to the south, whilst the surface elevation increases towards the south, thereby resulting in an increase in the overburden, and subsequently the strip ratio. The surface elevation is the lowest in the Zimele Block, as the licence approaches the river in the west. Section NW-SE is a strike section through the pit, and further indicates the seam dip towards the south. Evident in both sections is the presence of the No 5 Seam, which is not mined, the consistently thick nature of the No 4 Seam, as well as the gently undulatory nature of the seam. No structural irregularities are indicated in either section.

Figure 6-5 contains both a west-east and a north-south cross section through the South Pit. The west-east cross section indicates the surface slope towards the river in the east, as well as the consistent thickness of the seam throughout the pit. The north-south strike cross section through the pit indicates the seam gently dipping towards the south, as well as an increase in the surface elevation towards the south. As per the North Pit cross sections, no structural irregularities are indicated in either of the South Pit cross sections.

The cross sections illustrate that the coal seams are representative of a multiple seam deposit type, as they are discrete coal seams separated by inter-burdens of varying thicknesses.

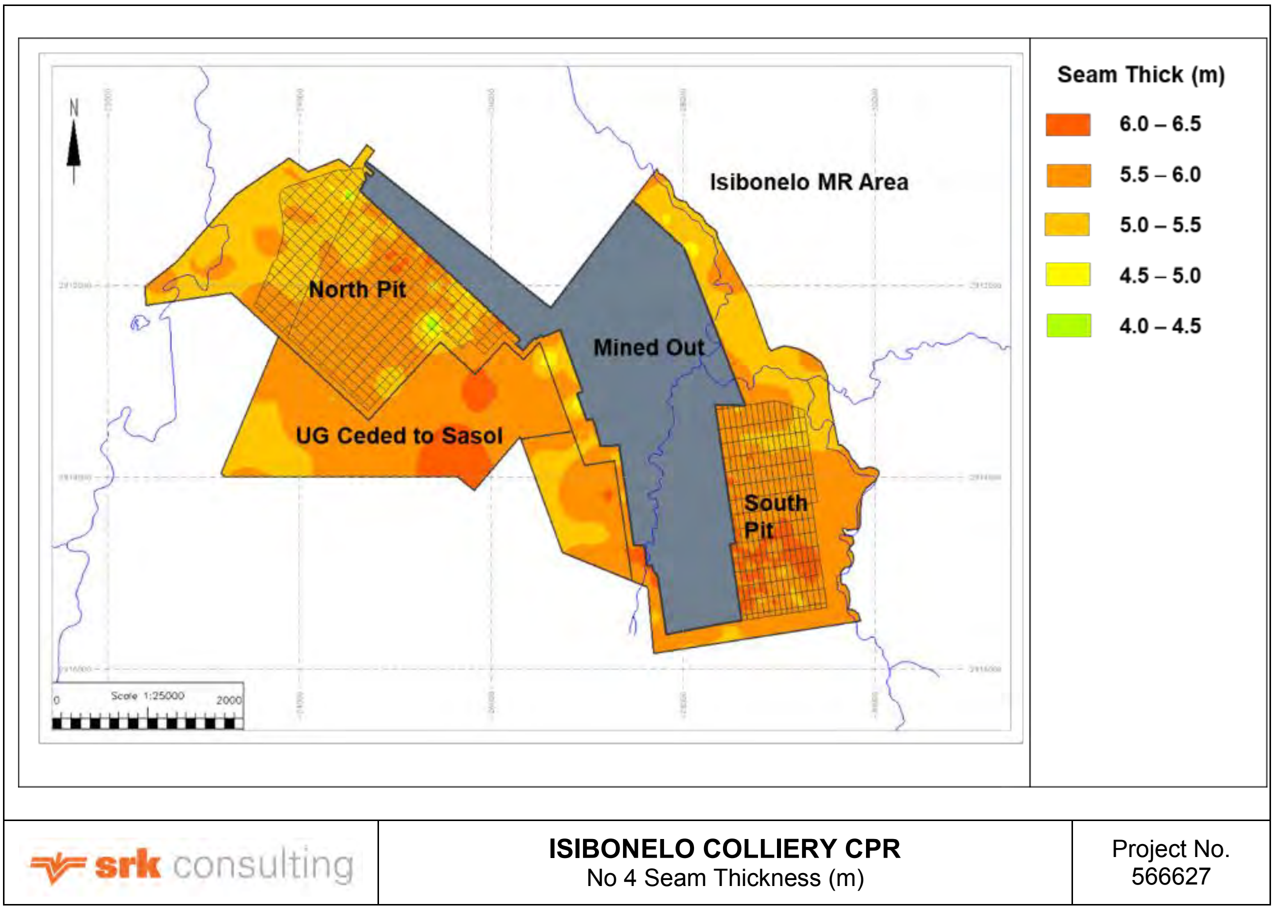


Figure 6-1: No 4 Seam Thickness (m)

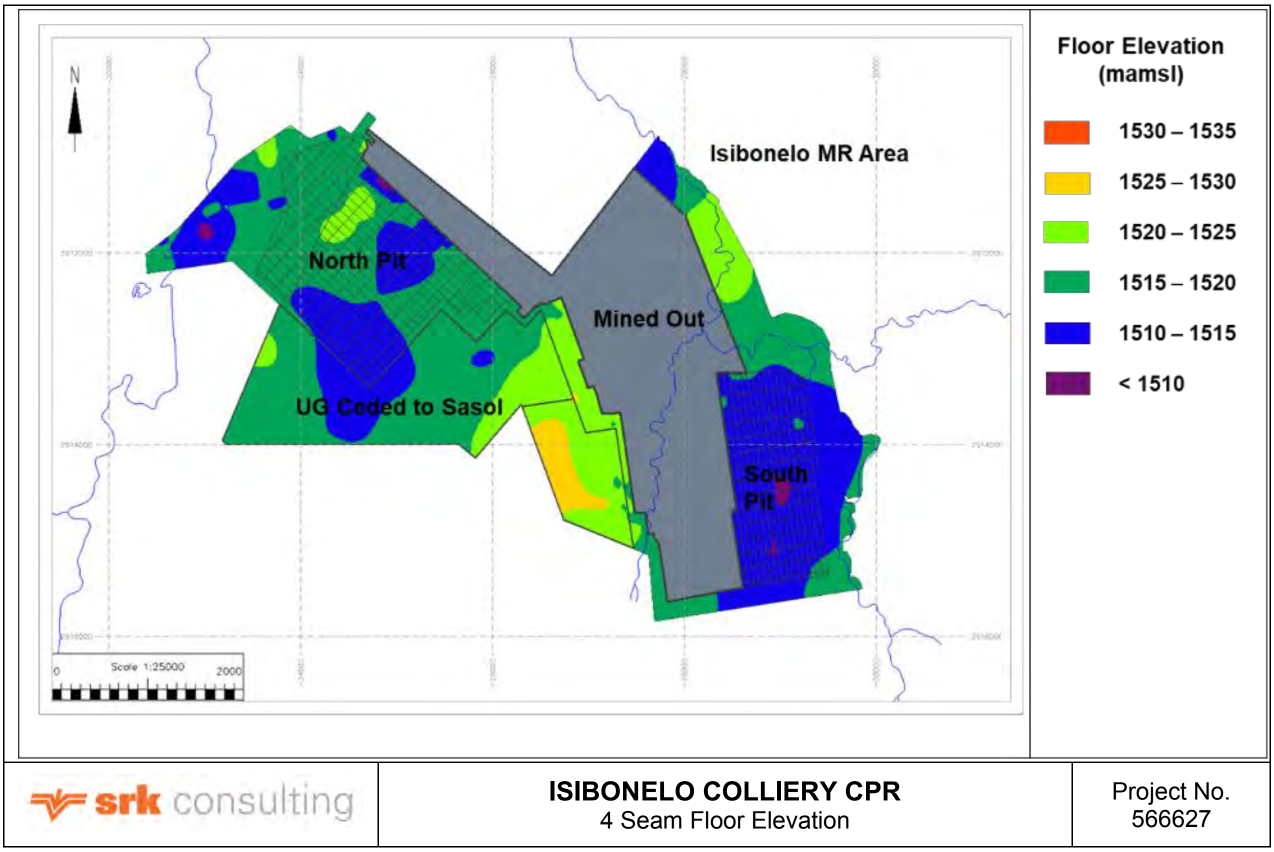


Figure 6-2: No 4 Seam Floor Elevation (mamsl)

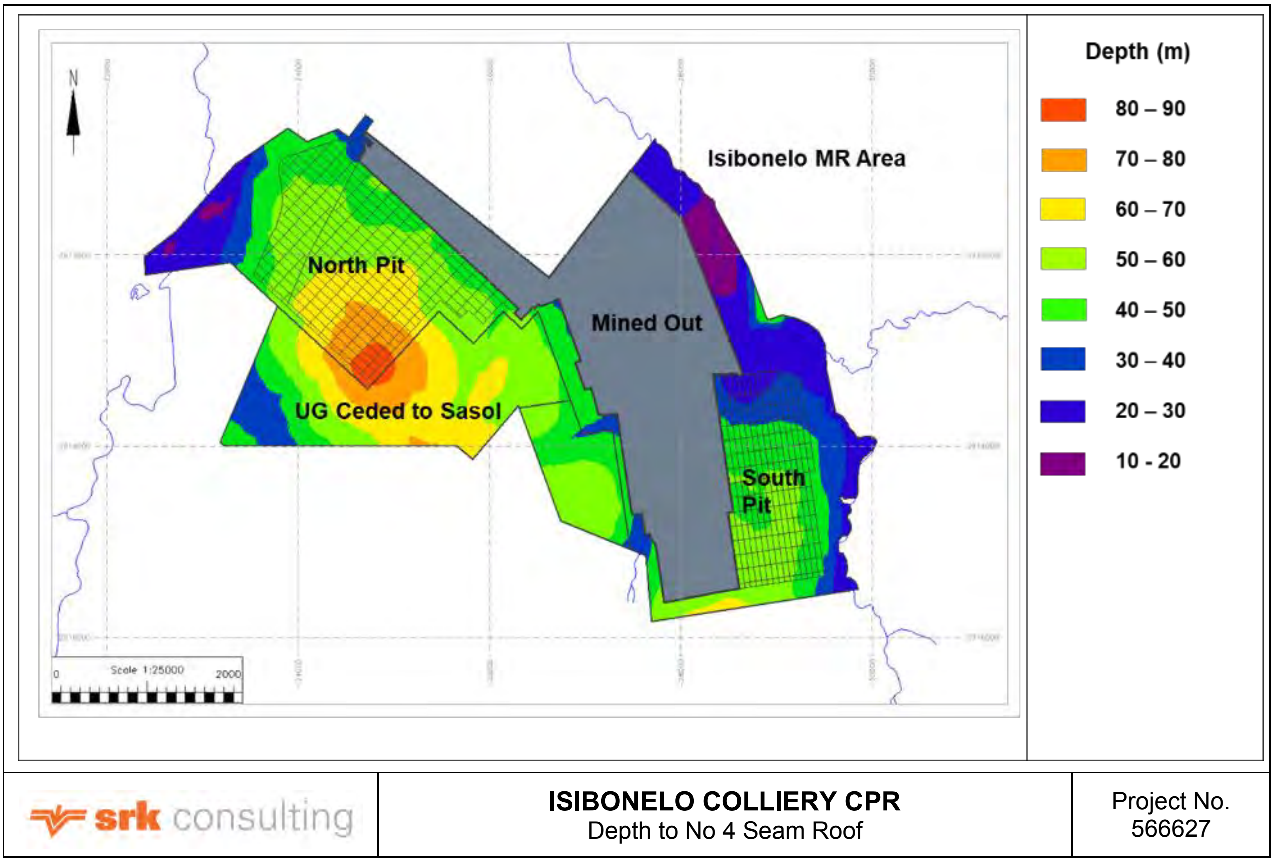


Figure 6-3: No 4 Seam Depth to Roof (m)

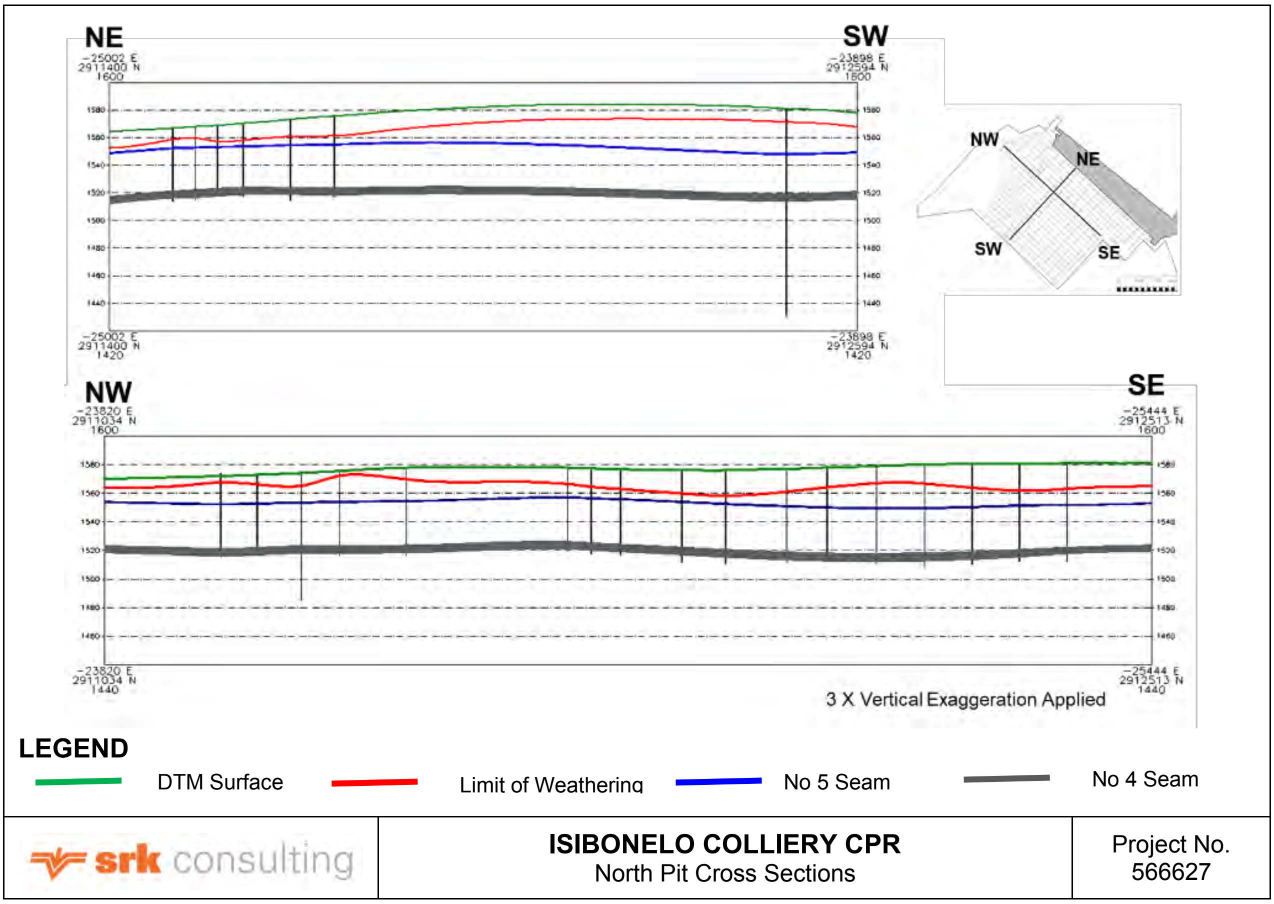


Figure 6-4: North Pit Cross Sections

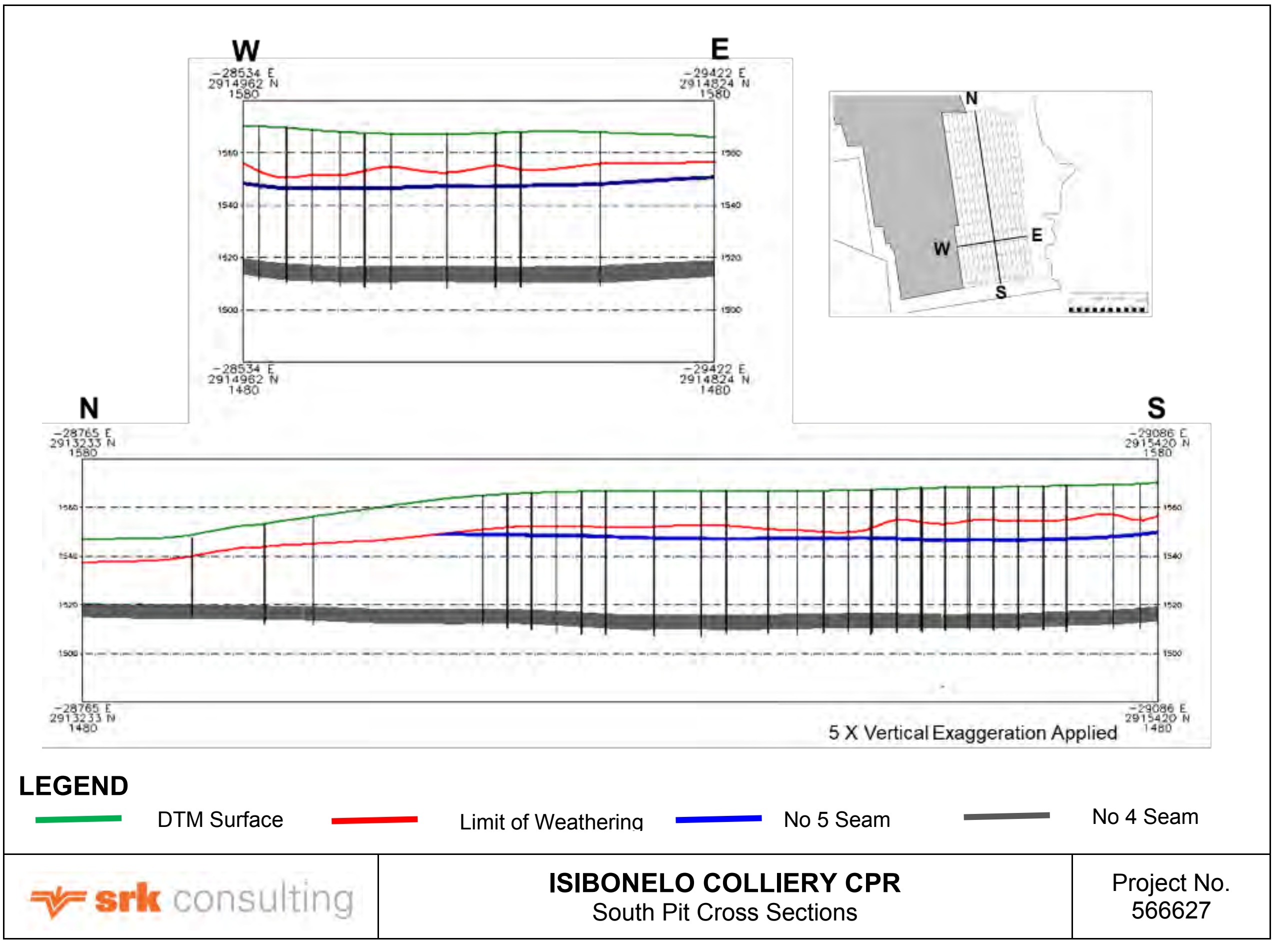


Figure 6-5: South Pit Cross Sections

6.3.2. Raw Coal Quality

[SR4.1(iv), SR4.6(i)]

The raw quality parameters Ash, CV[1], IM, FC, VM and TS were modelled, on an air-dry basis (**adb**) for each seam. The average qualities were estimated by weight averaging the individual ply qualities on both thickness and density. The DAFV content was calculated and modelled as well, as this is an important parameter in identifying areas of devolatilised coal. Plans detailing the modelled raw qualities together with the associated frequency distributions are included in Figure 6-6 below.

As the No 4 Seam is supplied raw to Sasol, only raw coal qualities are analysed and modelled.

Raw Ash

Examination of the raw ash contour plot contained in Figure 6-6 illustrates that the ash content varies between 24 and 28% across the majority of the Isibonelo licence area, with an average ash content of 27%. Examination of the ash frequency distribution indicates that 98% of the coal has an ash content less than 32%. There are a few isolated patches where the ash content is greater than 32%. In these areas, the top of the No 4 Seam has a higher percentage of clastic parting that usual. Efficient blending will ensure that the ash content remains below the contractual maximum of 33%.

Raw Calorific Value

On average, the raw CV[1] ranges between 20 – 21 MJ/kg, averaging 20.5 MJ/kg (Figure 6-6). The CV[1] frequency distribution indicates that 94% of the coal has a CV[1] content between 20 – 23 MJ/kg. The CV[1] drops to below 18 MJ/kg in line with the areas displaying high ash values. Again, the lower CV[1] values are often attributed to the inclusion of a higher percentage of clastic parting than usual.

Raw Inherent Moisture

The Inherent Moisture (IM) content averages 5.8% across the Isibonelo area, ranging from less than 4% to over 7% in a few anomalous holes. The IM frequency distribution indicated that 39% of the coal has an IM content less than 5%, and 99% of the coal has an IM content less than 7%. The IM content is an important quality parameter due to the contractual ranges stipulated in the supply agreement with Sasol. The Total Moisture content (as received) should not exceed 11%; to achieve this, the Company requires the maximum IM of Isibonelo Coal Reserve to be 8%. As the IM is relatively high, managing the TM of the product coal could become difficult, particularly in the wet season.

Raw Total Sulphur

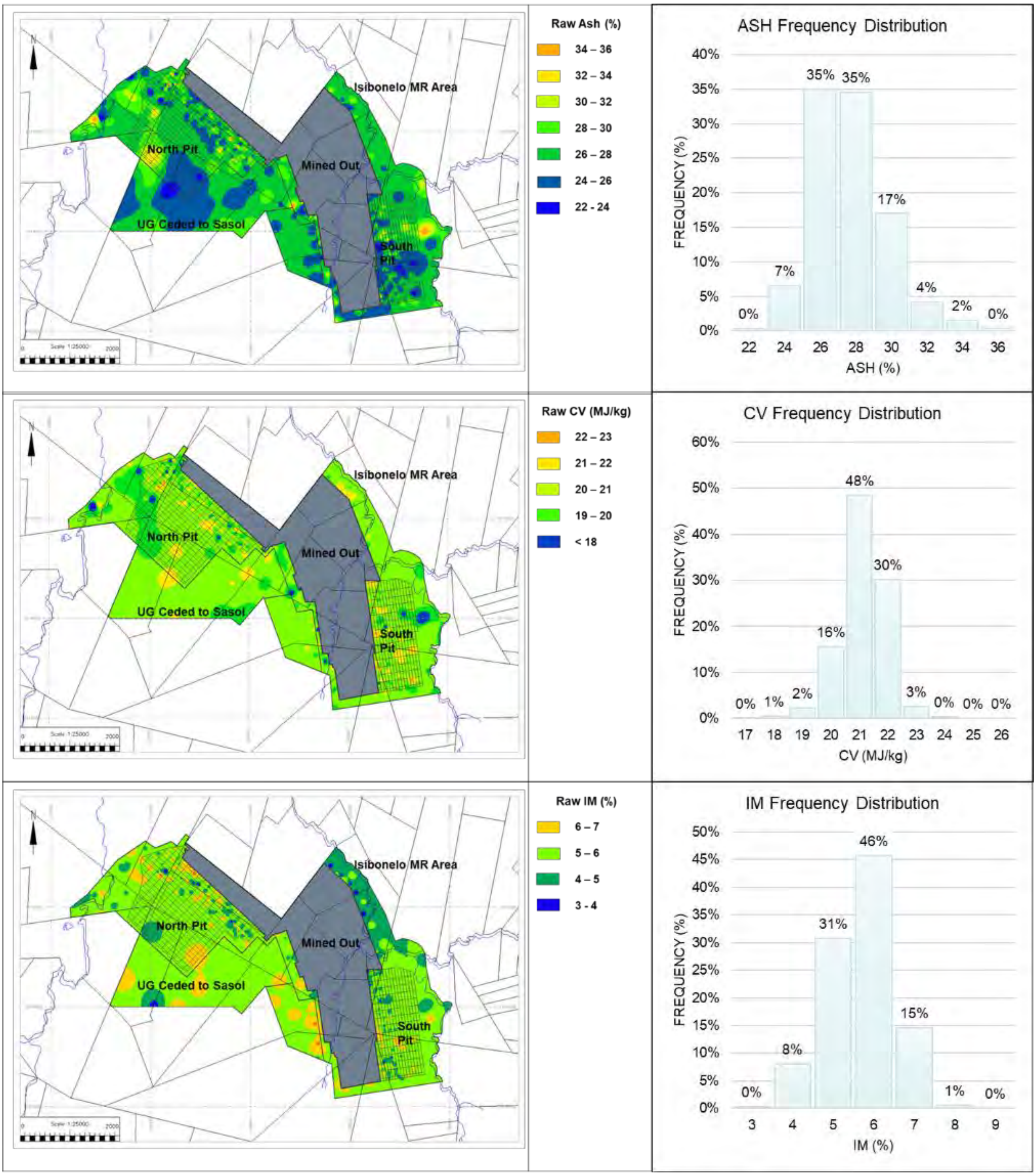
The raw TS content ranges between 0.4 and 1.2% across most of the licence area, with an average TS content of 0.76%. The TS frequency plot indicates that 93% of the TS content is less than 1.2%. There are a few isolated patches where the TS content increases to over 1.6%; however, this should decrease once blended. The maximum sulphur content as stipulated in the SSF agreement is 1.2%.

Raw Volatile Matter Content

The raw VM content of the No 4 Seam ranges between 20 and 24%, averaging 22%. The VM frequency distribution indicates that 99% of the coal has a raw VM content greater than 19%, and the DAFV frequency distribution plot indicates that 100% of the coal has a DAFV content greater than 28%. There are however a few isolated holes were the VM content is less than 20%. On a dry ash free basis, the low volatile values do not drop below 28%, an indication that the VM content is not heat affected, but rather has a higher degree of mineral matter. None of the plots indicate any areas of devolatilization.

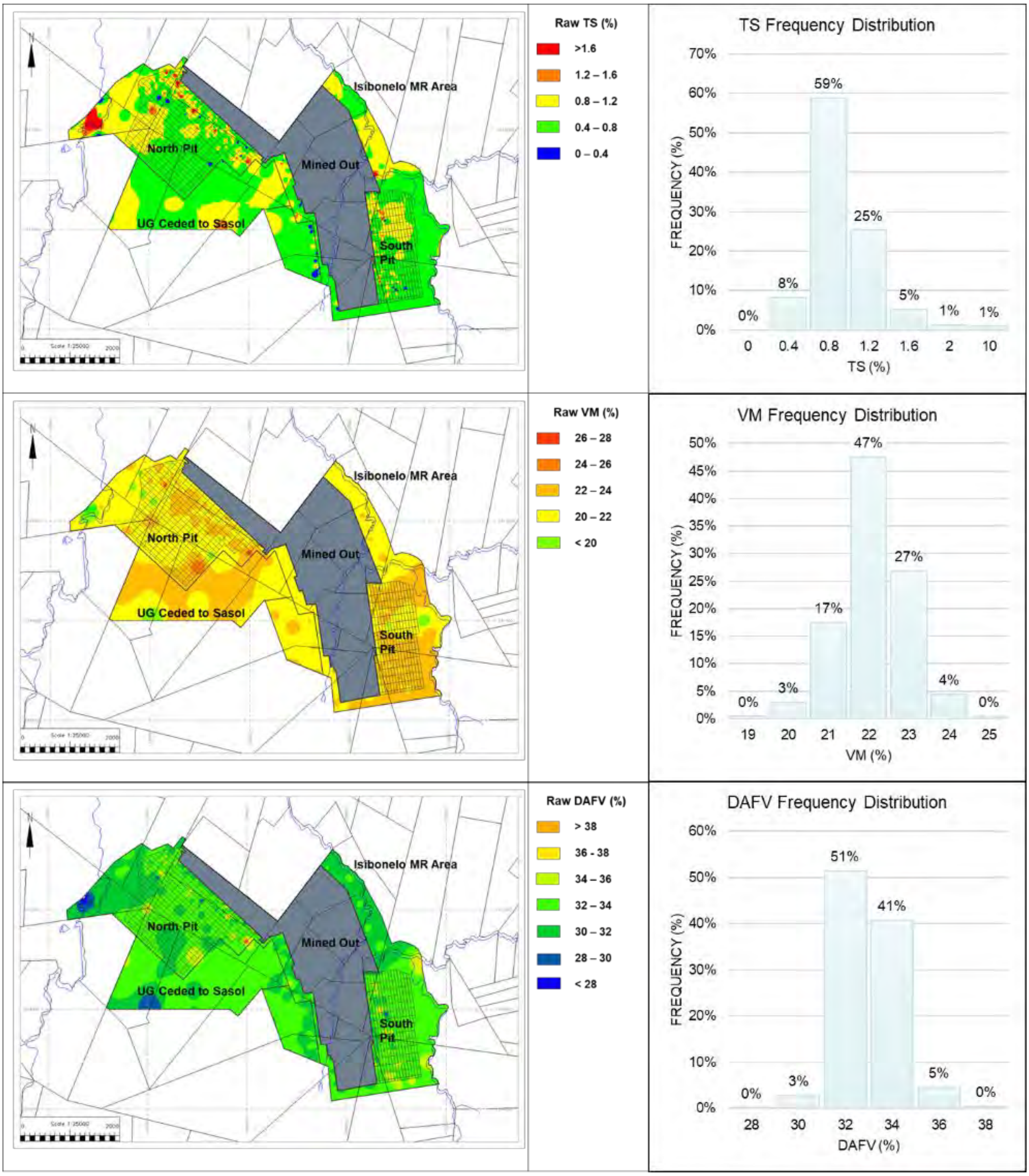
6.3.3. Washed Coal Product

Isibonelo sells its coal raw and no washed coal is produced; the theoretical yield is thus 100%.



srk consulting	**ISIBONELO COLLIERY CPR** No 4 Seam Raw Qualities: Ash Content, Calorific Value and Inherent Moisture	Project No. 566627

Figure 6-6: No 4 Seam Raw Qualities: Ash Content, Calorific Value and Inherent Moisture



srk consulting	**ISIBONELO COLLIERY CPR** No 4 Seam Raw Qualities: Total Sulphur, Volatile Matter and Dry Ash-free Volatiles	Project No. 566627

Figure 6-7: No 4 Seam Raw Qualities: Total Sulphur, Volatile Matter and Dry Ash-free Volatiles

6.4. Reasonable Prospects for Eventual Economic Extraction

[SR4.1(iv), SR4.2(ii) (iii) (iv), SR4.3, SR5.6(iii) (iv)]

Both the SAMREC Code and SANS10320:2020 provide guidelines on the determination of Reasonable Prospects for Eventual Economic Extraction (**RPEEE**). Table 1 of the SAMREC Code requires disclosure and discussion of the following items "*which, in the opinion of the Competent Person, are likely to influence the prospect of economic extraction"* (SAMREC Code, 2016). SRK has considered those items which it believes impacts on the prospects for extraction; they are listed below, together with the section in this report where they have been addressed:

- The geological parameters, including volume/tonnage, grade and value/quality estimates, cut-off grades and strip ratios (Sections 6 and 9);
- The engineering parameters, including mining method, dilution, geotechnical, geohydraulic, and coal processing parameters (Sections 8.3, 7, 16, and 10);
- Infrastructure including power, water and access to site (Sections 2.4.1, 2.4.2 and 11);
- Legal, governmental, permitting and statutory parameters (Section 3);
- Environmental and social parameters (Section 14);
- Marketing parameters (Section 16);
- The economic assumptions and parameters, including the coal price, capital and operating costs (Section 18);
- Any material risks (Section 19); and
- The parameters used to support the concept of "eventual" (the colliery has been in operation for over 15 years and has projected remaining LoM of seven years in the current schedule).

SANS10320:2020 states that there should be reasonable expectations that the coal deposit will be economically mineable and extractable and that a saleable raw or beneficiated coal product can be produced. The criteria that are used to determine this should consider the items below; the section referred to after the item is the section in this report where these items are discussed:

- Seam thickness and depth below surface (Section 6.3.1)
- The potential mining method (Section 8.3);
- The coal qualities (Section 6.3.2);
- The theoretical product yield and the target product quality (Section 6.3.3);
- The surface infrastructure (Section 2.4.2);
- Natural and manmade features that may impact on the extraction (Sections 4.3 and 2.4; and
- The time period over which this extraction might be possible (Section 8.8).

The Company states it has followed the SAMREC Code, 2016 and SANS10320:2004 guidelines, as well as internal company guidelines:

- Anglo American Group Technical Standards AA GTS 25 (AAG, 2019a) and AA RD 22-25 (AAG, 2019b); and
- AAC standard (AAC SD 23-35-104 Resource-Reserve Reporting);
    - AAC RD 23-35-104B: (RPEEE) Requirements Document;
    - AAC CK 23-35-104A: Factors for the Determination of RPEEE.

A detailed Resource Risk Assessment was undertaken by Mr M Katuruza, the Company's CP. To evaluate the RPEEE, Isibonelo considers the parameters listed in Table 6-1.

Table 6-1: Factors for the Determination of Reasonable Prospects for Eventual Economic Extraction

Factor	Issue	Site Specific Comments
Legal	Tenure	All estimated resources are contained within the Mining Right
	Regulatory	A 70 m safety barrier has been left between the Sasol underground mining and the opencast No 4 Seam resources
Environmental Cultural Socio-Political	Sterilised or Inaccessible Areas	Isibonelo complies with all environmental regulations; resources are only defined in areas where environmental restrictions do not apply
Geology	Seam Depth	The maximum depth to roof is 83 m
	Seam Thickness	Minimum seam thickness ≥ 0.5 m
	Coal Quality	Raw ash content <50%; DAFV content ≥ 24%
Mining	Mining Method	Only strip mining method is assumed to be economic in the opencast areas
Marketing	Market	No 4 Seam resources are dedicated to SSF
Commercial	Economic/Commercial	Archived in the financial model
Infrastructure	Infrastructure	All required infrastructure is in place

6.5. Resource Category Classification

[SR4.4(i)]

This CPR has been compiled in accordance with SANS10320:2020, although the Company documentation reviewed was compiled in accordance with SANS10320:2004. This does not impact on the Coal Resource estimation and classification, nor in the criteria used to determine the classification.

The coal seams at Isibonelo are of the multiple seam coal deposit-type, defined in SANS10320:2020 as "characterised by a discrete number of coal seams, typically between 0.5 m and 7.0 m in thickness, separated by interburden units with a thickness that generally significantly exceeds the thickness of the individual coal seams". The resource classification is based on the geological knowledge of the deposit, including that gained from mapping, remote sensing, geophysics, etc. and drilling.

The categories of Coal Resources are based on the level of confidence, as determined by the CP, in the estimate of both tonnage and the coal quality. The drill hole spacing for each Coal Resource classification category, as outlined in the SAMREC Code coal specific guidelines (SANS 10320:2020) represents the minimum requirement for resource classification (summarized for multiple seam coal deposits). Any deviation from the minimum standard must be fully justified and reported by the CP. The basis of Coal Resource statements in terms of drill hole spacing, seam structure, coal seam thickness cut-offs, physical coal seam continuity, relevant coal quality cut-offs, coal quality continuity, coal quality variability, computer-modelling techniques, classification principles and estimation confidence must be stated. Classification was guided by the following:

- Drill hole density;
- Geological and coal quality continuity;
- Geological structure and its influence on mining; and
- Complexity of the deposit geology.

Only valid Points of Observation (**PoO**) may be used to determine the resource classification categories. This is based on the number of cored drill holes that have appropriate quality data; in the case of Isibonelo, which produces an unwashed coal product, raw coal quality data is required for a drill hole to be considered a PoO. The drill holes determined by SRK to be valid PoOs are shown in Figure 6-8.

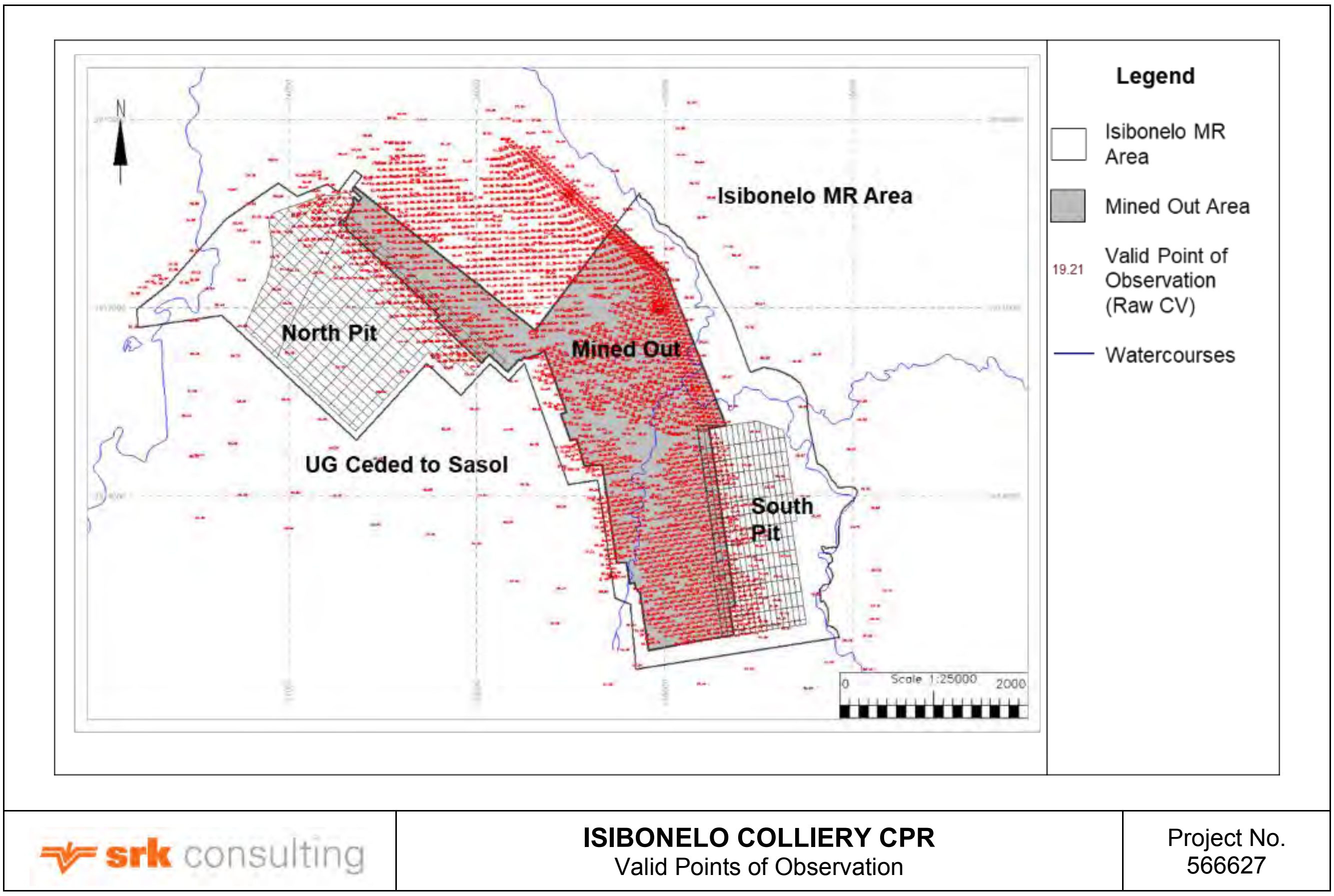


Figure 6-8: Valid Points of Observation

Drill hole spacing is used as a proxy for data density; for coal that is of the multiple seam coal deposit-type, the following minimum drill hole spacings apply:

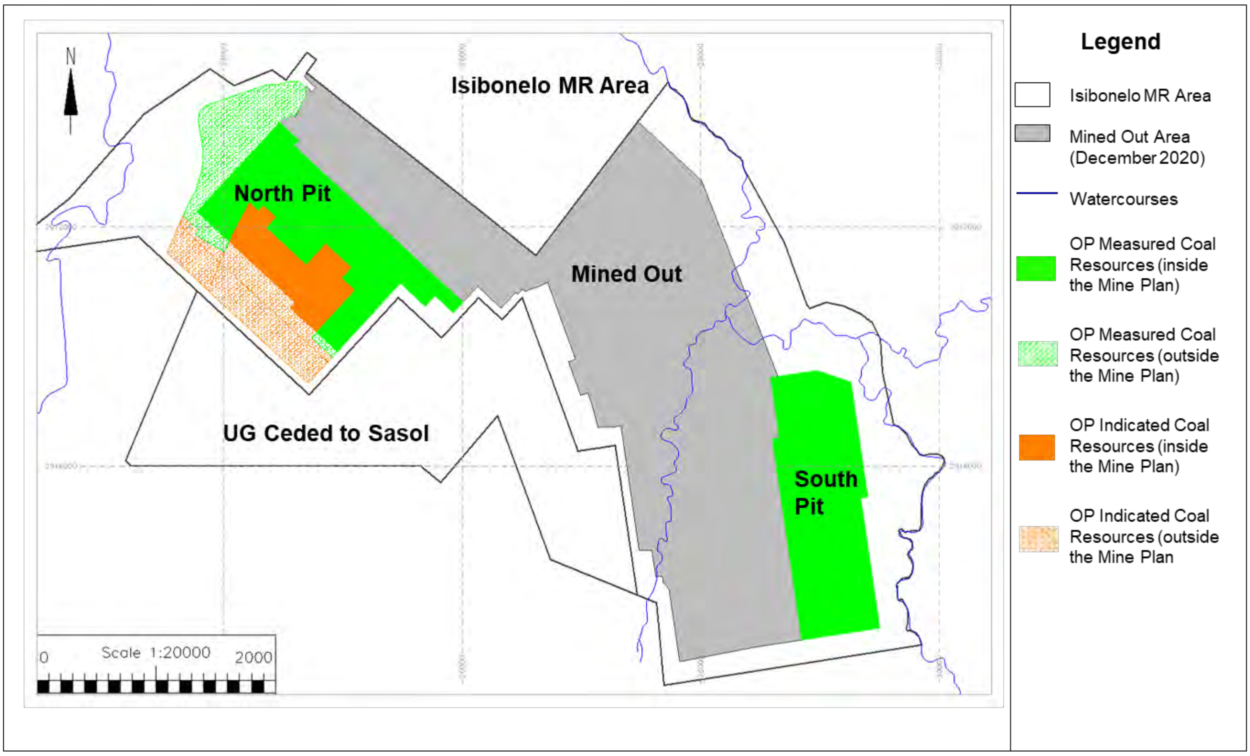
- Inferred Coal Resource 1000 m;
- Indicated Coal Resource 500 m; and
- Measured Coal resource 350 m.

This translates to a drill hole density as follows:

- Inferred Resource, one cored drill hole with raw coal quality data per 100 ha;
- Indicated Resource, four cored drill holes with raw coal quality data per 100 ha; and
- Measured Resource, eight cored drill holes with raw coal quality data per 100 ha.

The classification of Coal Resources into Inferred, Indicated and Measured categories is a function of increasing geological confidence in the estimate based on the density of points of observation, the physical continuity of the coal seams, the distribution and the reliability of the coal sampling data, the coal quality continuity, the reliability of the geological model and the estimation methods. Factors that contribute to the uncertainty in Coal Resource estimation include the key constraints used to construct the geological model, such as the seam thickness variation, structural complexity and the coal quality distribution. Figure 6-9 Illustrates the resource categories for the No 4 Seam.

It should be noted that Coal Resource tonnages are estimates with an associated degree of uncertainty in the actual values. Uncertainty is introduced by the key constraints used to construct the geological model, such as the coal seam thickness variation, structural complexity, and the coal quality distribution.



srk consulting	**ISIBONELO COLLIERY CPR** No 4 Seam Resource Categorization	Project No. 566627

Figure 6-9: No 4 Seam Resource Categorization

6.6. Reporting Definitions

The SAMREC Code, 2016 requires that only the Mineable Tonnes In Situ (**MTIS**) Coal Resource estimate is reported (Clause 55). Reporting definitions as extracted from SANS0320:2020 are given in Table 6-2 and have been adhered to in this report.

6.7. Coal Resource Cut-off Parameters

[SR4.1(vi), SR4.2(i) (ii) (vi)]

Weathering Cut-off

The limit of weathering was documented in the drill hole logs and modelled as a surface against which the coal truncates. This ensures that only unweathered coal is included in the resource estimate.

Structural Cut-offs

No faulting was identified within the resource area and only a couple of holes intersected dolerite (no devolatilization identified in any of the drill hole qualities). No areas were excluded from the resource estimation based on structural interpretations. The geological losses applied consider any coal losses that may occur due to unidentified dolerites.

Quality Cut-offs

A DAFV cut-off of less than 24% was applied to Resources – no areas were excluded based on this cut-off.

Ash Content

An ash content of less than 50% was used; no coal within the MR boundary has an ash content >50%.

Table 6-2: Summary of Reporting Definitions (SANS10320:2020)

Category	Definition
Mineable Tonnes In Situ (**MTIS**)	The tonnage and coal quality, at a specified moisture content, contained in the coal seam, or section of the coal seam, which is proposed to be mined, at the theoretical mining height, adjusted by the geological loss factors and de-rating factors for previous mining activities, with respect to a specific mining method and after the relevant minimum and maximum mineable thickness cut-offs, depth cut-off and relevant coal quality cut-off parameters have been applied. *NOTE 1 Mineable Tonnes In Situ (MTIS) Coal Resources are subdivided in order of increasing geoscientific knowledge and confidence into Inferred, Indicated or Measured Mineable Tonnes In Situ Coal Resource categories.* *NOTE 2 The geological loss factor is applied to the Gross Tonnes In Situ tonnage estimates and, therefore the impact of the geological loss is included in the Mineable Tonnes In Situ Coal Resource tonnage estimates.*
Measured Coal Resource	That part of a Coal Resource for which quantity, grade or quality, densities, shape, and physical characteristics are estimated with confidence sufficient to allow the application of modifying factors to support detailed mine planning and final evaluation of the economic viability of the deposit. *NOTE 1 Geological evidence is derived from detailed and reliable exploration, sampling and testing and is sufficient to confirm geological and grade or quality continuity between points of observation. A Measured Coal Resource has a higher level of confidence than that applying to either an Indicated Coal Resource or an Inferred Coal Resource. It may be converted to a Proved Coal Reserve or to a Probable Coal Reserve.* *NOTE 2 A Measured Coal Resource is defined by coal meeting the thickness cut-offs, depth cut-offs, and the relevant coal quality cut-offs, as defined by the competent person, which meets the criteria for reasonable prospects for eventual economic extraction.* *NOTE 3 Although a Measured Coal Resource has sufficient confidence to allow Coal Resource estimation and life of mine planning, it does not imply that further drilling and sampling would not be needed for optimization purposes prior to mining taking place.*
Indicated Coal Resource	That part of a Coal Resource for which quantity, grade or quality, densities, shape and physical characteristics are estimated with sufficient confidence to allow the application of modifying factors in sufficient detail to support mine planning and evaluation of the economic viability of the deposit. *NOTE 1 Geological evidence is derived from adequately detailed and reliable exploration, sampling and testing and is sufficient to assume geological and grade or quality continuity between points of observation. An Indicated Coal Resource has a lower level of confidence than that applying to a Measured Coal Resource and may only be converted to a Probable Coal Reserve.* *NOTE 2 An Indicated Coal Resource is defined by coal above the minimum thickness cut-off, depth cut-off, and the relevant coal quality cut-offs, as defined by the competent person, which meets the criteria for reasonable prospects for eventual economic extraction.* *NOTE 3 The level of confidence in an Indicated Coal Resource is usually sufficient to support a decision on whether a pre-feasibility study or feasibility study is warranted.*
Inferred Coal Resource	That part of a Coal Resource for which quantity and coal quality are estimated on the basis of limited geological evidence and sampling and shall not be converted to a Coal Reserve. *NOTE 1 Geological evidence is sufficient to imply but not verify geological and grade or quality continuity. An Inferred Coal Resource has a lower level of confidence than that applying to an Indicated Coal Resource. It is reasonably expected that the majority of Inferred Coal Resources could be upgraded to Indicated Coal Resources with continued exploration.* *NOTE 2 An Inferred Coal Resource is defined by coal above the minimum thickness cut-off, depth cut-off, and the relevant coal quality cut-offs, as defined by the Competent Person, which meets the criteria for reasonable prospects for eventual economic extraction.* *NOTE 3 The level of confidence in an Inferred Coal Resource is usually insufficient to justify a pre-feasibility study.*

Seam Physical Parameters

Coal seams less than 0.5 m were excluded from the Resource Estimates; not applicable as there are no areas within the mining area where the No 4 Seam sub-crops or pinches out.

Mining Parameters

As per the SAMREC guidelines, all Coal Resources must be reported on a Mineable Tonnes In Situ basis, which must be adjusted for the theoretical mining parameters specific to the proposed mining method. As the No 4 Seam at Isibonelo is mined via opencast methods, no theoretical mining height has been applied. As the No 4 Seam is less than 80 m below surface, no maximum depth to roof cut-off was applied.

A boundary polygon of 70 m between the opencast and the underground area being ceded to Sasol was applied.

Surface Features

A buffer zone of 500 m has been adhered to in the vicinity of the rivers to the west and the east of the resource area.

6.8. Coal Resource Estimates

[12.10(a)] [SR1.4(iii), SR4.1(iv), SR4.5(ii) (iv) (v) (vii), SR6.1(i), SR6.3(vi)] [SV1.9]

The Coal Resource estimates for the No 4 Seam were conducted in accordance with the SAMREC Code, 2016 Edition, as well as SANS10320:2020.

The Coal Resource estimate has been independently estimated by Ms K. Black of KJB GeoServices and signed off by Ms L. Jeffrey on behalf of SRK, based on the model supplied by the Company and verified by SRK. The Coal Resource estimate is declared as at 31 December 2020.

The Coal Resources for Isibonelo on a total basis[6] (100% attributable to Isibonelo) at 31 December 2020 are summarised in Table 6-3; the raw coal qualities pertained to the Coal Resources are shown in Table 6-4.

The Coal Resources have been subdivided into those inside and outside the Life of Mine Plan, which has been determined using the specified mine design parameters within the economic footprint (SANS 10320:2020, clauses 3.2.5, 8.1.1.1, 8.1.2.3 and Table F1).

Coal Resources inside the mine plan are reported inclusive of the Coal Reserves.

Provision has been made for a geological loss factor (discount). Losses may occur mainly as a result of intersection of dolerite dykes, small-scale faulting and other unforeseen geological losses. Based on the past reconciliation results between the geological model and the actual mining figures, the low variability regarding the coal qualities and seam thickness, as well as the drill hole density, the geological loss factor has been determined to be 5%. After considerable review of the drill hole data and geological model, SRK agree that 5% is a reasonable loss factor to be applied to both the Measured and Indicated Coal Resource estimates.

The Isibonelo Opencast Coal Resource a Mineable Tonnes In Situ (**MTIS**) adb for No 4 Seam amounts to 36.57 Mt for the North and South Pits combined. This estimate is made up of 27.45 Mt of Measured Coal Resources (75%) and 9.12 Mt of Indicated Coal Resources (25%). The average inherent moisture content is 5.6%.

It should be noted that Coal Resources are only declared for the No 5 Seam as SRK is of the opinion that the No 5 Seam does not have reasonable prospects for eventual economic extraction.

[6] Note that “total basis” refers to 100% of the Coal Resources and/or Coal Reserves within the Isibonelo Mining Right and is not necessarily the percentage attributable to the holder of the Mining Right.

Table 6-3: Isibonelo No 4 Seam MTIS Coal Resource Statement as at 31 December 2020 (adb)

Block	Resource Classification Category	Mining Method	Seam	Area (ha)	Seam Thick-ness (m)	Raw ARD	Geo. Loss (%)	MTIS (Mt)
INSIDE THE MINE PLAN								
North Pit	Measured	OP	No 4	136.70	5.78	1.57	5	11.75
	Indicated	OP	No 4	67.01	5.75	1.57	5	5.73
	Subtotal	**OP**	**No 4**	**203.71**	**5.77**	**1.57**	**5**	**17.48**
South Pit	Measured	OP	No 4	143.82	5.55	1.57	5	11.94
Total Inside the Mine Plan		**OP**	**No 4**	**300.10**	**5.56**	**1.57**	**5**	**29.42**
OUTSIDE THE MINE PLAN								
North Pit	Measured	OP	No 4	46.72	5.35	1.58	5	3.76
	Indicated	OP	No 4	40.10	5.67	1.57	5	3.39
	Subtotal	**OP**	**No 4**	**86.81**	**5.50**	**1.58**	**5**	**7.14**
Total Outside the Mine Plan		**OP**	**No**	**86.81**	**5.50**	**1.58**	**5**	**7.14**
GRAND TOTAL (Inside + Outside the Mine Plan)		**OP**	**No 4**	**434.35**	**5.65**	**1.57**	**5**	**36.57**

Note:
1. Note that “total basis” refers to 100% of the Coal Resources and/or Coal Reserves within the Isibonelo Mining Right and is not necessarily the percentage attributable to the holder of the Mining Right.
2. Minimum seam thickness cut-off of 0.5 m.
3. Ash Content >50% cut-off applied.
4. Dry ash-free basis (daf) >24% limit applied.
5. Weighted average qualities estimated on MTIS. All seam thicknesses used are true thicknesses.
6. CV[1] - Calorific Value, VM – Volatile Matter Content, FC - Fixed Carbon, TS - Total Sulphur, IM - Inherent Moisture, DAFV – Dry Ash Free Volatile Matter Content, ARD – Apparent Relative Density.
7. Coal Resources quoted in decreasing order of geological confidence.
8. Fresh coal only, and coal within Mining Right boundary.
9. OP = Open Pit.
10. adb = air dried basis.

Table 6-4: Isibonelo No 4 Seam Average Raw Coal Qualities (adb) as at 31 December 2020

Block	Resource Classification Category	Seam	Average Raw Coal Resource Qualities (adb)						
			Ash (%)	CV[1] (MJ/kg)	DAFV (%)	FC (%)	IM (%)	TS (%)	VM (%)
INSIDE THE MINE PLAN									
North Pit In Mine Plan	Measured	No 4	26.5	20.61	32.8	45.8	5.5	0.74	22.2
	Indicated	No 4	26.4	20.67	32.2	46.3	5.6	0.74	21.7
	Subtotal	No 4	**26.5**	**20.63**	**32.6**	**46.0**	**5.5**	**0.74**	**22.1**
South Pit In Mine Plan	Measured	No 4	27.0	20.44	32.7	45.5	5.6	0.78	21.9
	Subtotal	No 4	**27.0**	**20.44**	**32.7**	**45.5**	**5.6**	**0.78**	**21.9**
Average Inside the Mine Plan		**No 4**	**26.7**	**20.55**	**32.6**	**45.8**	**5.6**	**0.76**	**22.0**
OUTSIDE THE MINE PLAN									
North Pit Ex Mine Plan	Measured	No 4	27.6	20.17	32.3	45.4	5.6	0.86	21.5
	Indicated	No 4	27.1	20.45	32.3	45.7	5.7	0.71	21.5
	Subtotal	No 4	**27.3**	**20.30**	**32.3**	**45.5**	**5.6**	**0.79**	**21.5**
Average Outside the Mine Plan		**No 4**	**27.3**	**20.30**	**32.3**	**45.5**	**5.6**	**0.79**	**21.5**
AVERAGE (Inside + Outside the Mine Plan)		**No 4**	**26.8**	**20.50**	**32.6**	**45.7**	**5.6**	**0.76**	**21.9**

Note:
1. Minimum seam thickness cut-off of 0.5 m.
2. Ash < 50% cut-off applied.
3. DAF > 24% limit applied.
4. Weighted average qualities estimated on MTIS. All seam thicknesses used are true thicknesses.
5. CV[1] - Calorific Value, VM – Volatile Matter Content, FC - Fixed Carbon, TS - Total Sulphur, IM - Inherent Moisture, DAFV – Dry Ash Free Volatile Matter Content, RD – Relative Density.
6. Coal Resources quoted in decreasing order of geological confidence.
7. Fresh coal only, and coal within Mining Right boundary.
8. OP = Open Pit.
9. adb = air dried basis.

6.9. Reconciliation with the Previous Coal Resource Estimate

[SR1.4(iii), SR4.5(vi)] [SV1.6]

Table 6-5 shows the reconciliation between the 2020 and 2019 Coal Resource estimates for the No 4 Seam. The 2020 estimate was done by SRK as at 31 December 2020, while the 2019 estimate was done by the Company as at 31 December 2019 (2019y). The Company's resource estimate was originally done in 2017 and was then depleted by the amount of mining undertaken to 30 December 2019. It should be noted that Coal Resources are only declared for the No 4 Seam as SRK is of the opinion that the No 5 Seam does not have reasonable prospects for eventual economic extraction.

Table 6-5: Reconciliation between the 2020 and 2019 Coal Resource Estimates

Resources Classification Category	MTIS Coal Resources			
	Mass (Mt)		CV[1] (MJ/kg)	
	2020	2019	2020	2019[1]
Measured	27.45	27.6	20.47	20.01
Indicated	9.12	9.2	20.59	20.01
Total	**36.57**	**36.8**	**20.50**	**20.01**

The Company 2019 CPR (AAC, 2019y) includes an estimate of Coal Resources that fall outside of the current mine plan; these amount to 23.6 Mt and are located within the area that is being ceded to Sasol. SRK has not included these in the resource statement and they are not included in Table ES-7. The Coal Resources that remained, as estimated by the Company, amount to 36.8 Mt.

The differences between the SRK Coal Resource estimates and those of the Company are explained by the following:

- The mine plan has been updated since 31 December 2019;
- The inclusion of Zimele Block by SRK (7.22 Mt) in the above estimate (2.25 Mt is included in the mine plan and 4.97 Mt falls outside the mine plan); the Zimele Block was not included by the Company in their 2019 estimates;
- The exclusion of No 5 Seam resources by SRK (4.16 Mt); SRK has excluded these resources as they do not pass the Reasonable Prospects for Eventual Economic Extraction (RPEEE) test; however, they have been included by the Company; and
- The difference in the estimation dates (SRK: 31 December 2020; the Company: 31 December 2019), which reflects the mining that took place from 1 January to 31 December 2020.

Although the differences between the Coal Resource estimates for coal inside the mine plan are material (7.38 Mt, some 20%), this is balanced by the inclusion by SRK of the resources outside the mine plan (7.15 Mt, some 19.5%). SRK believes that the differences are not material due to the reasons stated above.

7. Rock Engineering

[12.10(h)(vii)] [SR3.1(i), SR4.1(ii), SR4.3(ii), SR5.2(ii), (viii)]

A geotechnical review was carried out on Isibonelo, including a site visit by SRK's Mr DH Mossop on 27 November 2019. The review focused on the geotechnical aspects on site from data acquisition, through geotechnical design and operational controls on design implementation. For the purpose of this review, several data streams and documents were assessed.

7.1. Codes of Practice

The Mandatory Code of Practice (**CoP**) to Combat Rockfall and Slope Instability Related Accidents was assessed and found to be in compliance with the Guidelines issued by the then DMR (Guideline for the Compilation of a Mandatory Code of Practice to Combat Rockfall and Slope Instability Related Accidents in Surface Mines, Reference No. DME 7/4/118 AB4). Furthermore, the CoP was up to date and referenced all relevant site procedures which were also found to be up to date and implemented.

Sign-off from the relevant stakeholders was found to be in order, along with the implementation and CoP communication plans.

The relevant slope design reports were assessed and were found to be compliant with the stipulations of the CoP and the associated Geotechnical reporting and slope management procedures and standards.

7.2. Technical Reports

Geotechnical design assessments and reports (AAC, 2019 *l1* to 2019 *l6)* are carried out by a combination of the Company's corporate staff, site staff and external consultants. During 2018 and 2019, these have taken the form of individual design assessments carried out prior to excavating a new strip, as well as during excavation. Similarly, a spoils assessment is carried out prior to, and during, spoiling operations. This provides a more rigorous level of design assessment than periodic overall design reports provided by external consultants and is considered good practice but would benefit from periodic external review.

The design assessments utilize the relevant rock mass strength data and geotechnical characterisation from the latest reports provided by Rocklab (a division of Soilab (Pty) Ltd) (Rocklab, 2018 and Rocklab 2019) and Middindi Consulting (Pty) Ltd (Middindi, 2015) respectively and consider all relevant aspects of the geotechnical environment that are known to influence slope stability in both highwalls and spoils.

During these design assessments, the strip and spoils designs (AAC, 2018a1 to AAC, 2018a5) provided by the Mine Planning department are verified according to predetermined stability standards, including for example the dragline positioning and reach, strip volumes and spoils balances. Limit equilibrium analyses (AAC, 2019o) are carried out on all resulting highwall and spoils designs per individual mining block.

The resulting technical reports are concise and were found to be of adequate quality, providing for the relevant aspects the site geotechnical risk management programme as outlined in the Geotechnical Management of Slopes Standard (AAC, 2017g).

7.3. The Geotechnical Environment

No significant faults have been identified within the mining lease area, with minor faults expected to occur in association with the dolerite dykes. Where these are encountered, inspections are carried out by geotechnical staff to initiate appropriate risk mitigation measures. These minor faults are not expected to have a significant impact on mining activities.

The site hydrogeology is characterised by the occurrence of three types of aquifer:

- Shallow perched unconfined aquifers in the soft overburden (soil horizon);
- Shallow Karoo weathered zone unconfined to semi-confined aquifers; and
- Deep Karoo confined aquifers.

Localised compartmentalisation of the groundwater is likely along the dolerite dykes, with the dykes acting as aquicludes/aquitards. Groundwater flow in all three aquifers types is mainly horizontal, with minor vertical flow introduced at interconnections between aquifers.

Groundwater flow was observed from both the highwall and low wall sides of the strip due to pipeline theft but was in the process of being pumped out during the site visit. Available records indicate that water in the strip is generally well managed.

Ground Control Districts

Ground Control Districts are areas with similar geotechnical characteristics and associated rock-related hazards, and have been determined at Isibonelo from:

- Geotechnical drill hole core logging;
- Laboratory and field test results from core samples; and
- Rock mass rating calculations derived from the geotechnical core logging.

The identified Ground Control Districts at Isibonelo are:

- Soft overburden and spoils – characterised by the potential for circular failure. This is controlled by removal of the spoils overburden as part of the pre-stripping operations and strict operational controls to avoid undercutting of the spoils;
- Hard overburden – characterised by the potential for wedge, planar and toppling failure modes along discontinuities in the rock mass. This is controlled by pit mapping and stability analysis applied to individual strip designs, with routine slope stability monitoring applied during operations, along with limit blasting controls; and
- Areas adjacent to dykes – characterised by an increased depth of weathering along the dyke contacts, with the associated increased clay content due to the dyke mineralogy. These areas have been defined as 10 m wide strips of ground on either side of, and parallel to, all known dykes. The geo-mechanical properties of the dyke material are significantly different to the normal hard overburden, and groundwater may be compartmentalised along the dykes increasing the water volumes that may be encountered. These areas are managed by geotechnical inspection, stability analyses and groundwater pumping as mining progresses towards and through the dykes.

Example soft and hard overburden hazard plans are shown in Figure 7-1 and Figure 7-2, respectively.

7.4. Open Pit Geotechnical Design

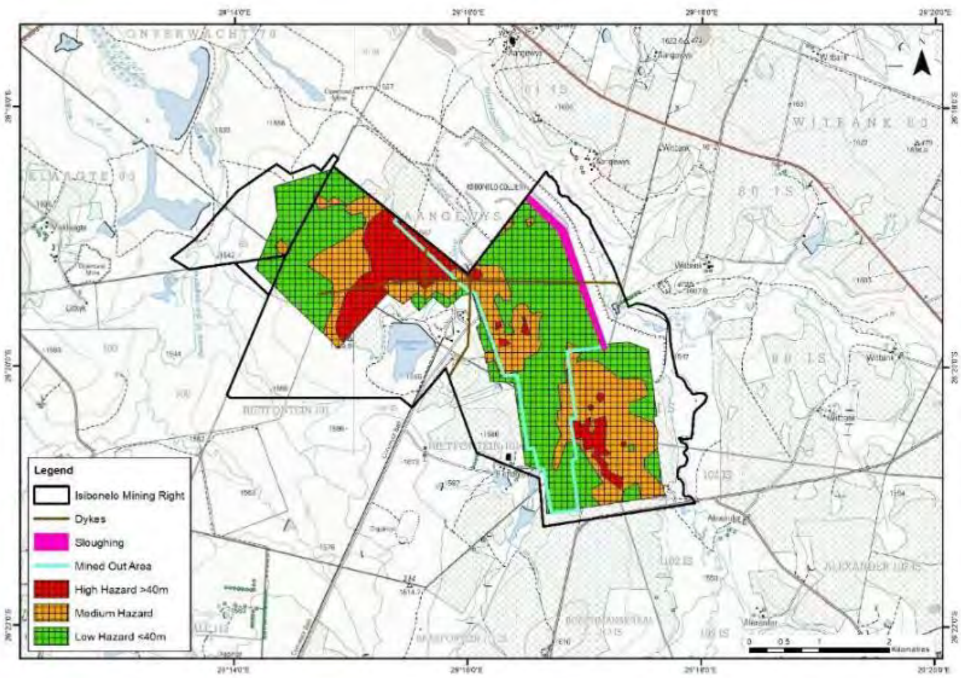
[SR5.2(vi)]

The current open pit design was geotechnically assessed and is considered adequate in terms of the safety, productivity and extraction considerations inherent to the design. The design is considered a dynamic process, modified as new information, circumstances and technology are identified. Such changes may be in consideration of unknown dykes or geological structures, and new blasting technology, for example.

Strip layouts are individually analysed and consider the intersection angle to dykes and major structures, with dykes intersected as close to perpendicularly as possible. Currently, no other major structures have been identified in the mining area.

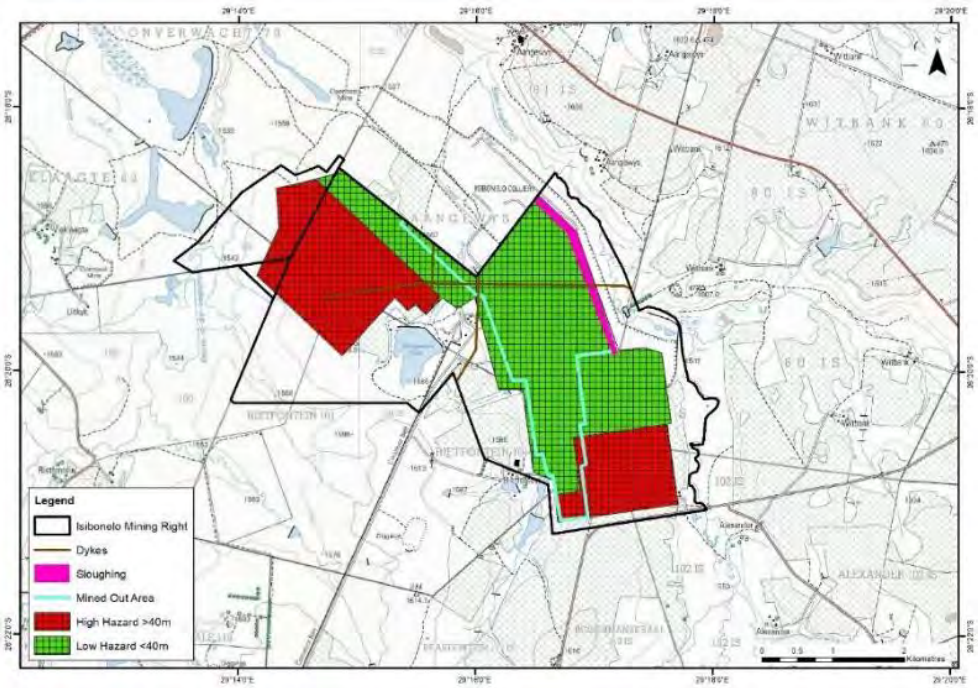
Highwall and low-wall limit equilibrium slope stability analyses are carried out as part of the individual strip design assessments for current and envisaged mining areas. During these analyses, the maximum anticipated lithological unit thickness is applied to determine the design safety factors and probabilities of failure. During operation, low-wall reconciliations are carried out to determine the design efficacy.

Additionally, strip risk assessments (AAC, 2019g) are carried out prior to mining, during which hazards that may impact highwall stability are identified and assessed, with the associated controls implemented during mining operations. Separate slope designs are carried out and implemented for the various Ground Control Districts identified, and dragline positioning and operation have been well integrated into the design and risk assessments. The design methodology for prevention of uncontrolled slope failures follows industry best practice and is considered adequate to the level of geotechnical risk observed. The overall residual geotechnical risk for Isibonelo is considered medium to low.



srk consulting	**ISIBONELO COLLIERY CPR** Soft overburden Geotechnical Hazard Plan	Project No. 566627

Figure 7-1: Example of Soft Overburden Geotechnical Hazard Plan (Isibonelo Colliery, 2019)



srk consulting	**ISIBONELO COLLIERY CPR** Hard overburden Geotechnical Hazard Plan (Isibonelo Colliery, 2019)	Project No. 566627

Figure 7-2: Example of Hard Overburden Geotechnical Hazard Plan

7.5. Observations During Site Visit

[SR5.2(vi)]

During the site visit, several observations were made and discussed with site geotechnical, mining and planning personnel. These observations include:

- The slope stability monitoring programme implemented on site is considered adequate in relation to the inherent slope stability risk posed by the Isibonelo highwall and low-wall designs. The appropriate level of slope monitoring is considered as row two in Figure 7-3, taken from the Guideline for Open Pit Slope Design (Read and Stacey, 2009), and the site slope stability monitoring programme is aligned with these internationally accepted guidelines.

Block size (m^3)	Speed of failure	Implications	Monitoring for detection	Typical remedial
1–10	Immediate	Rockfall – safety	**Visual**	**Catchment**
10–1000	Very rapid to rapid	Safety	**Visual** Radar	**Catchment**
1000–100 000	Rapid to slow	Operational	Visual Surveying **Radar** Seismic (?)	**Manage** Modify slope (step-out)
100 000–1 000 000	Moderate to slow	Operational/financial	**Surveying** **Radar** TDR/inclinometer Seismic	**Manage** *Modify slope (step-out)* Recut (?)
>1 000 000	Slow to moderate	Force majeur	**Surveying** TDR/inclinometer Seismic Radar	**Modify slope (recut)** Mine closure (>10 Mm^3) Manage

Speed of failure
Very rapid = immediate to minutes
Rapid = minutes to hours
Moderate = days to weeks
Slow = weeks to months
Monitoring and typical remedial
Bold = most likely
Italic = alternative or support system

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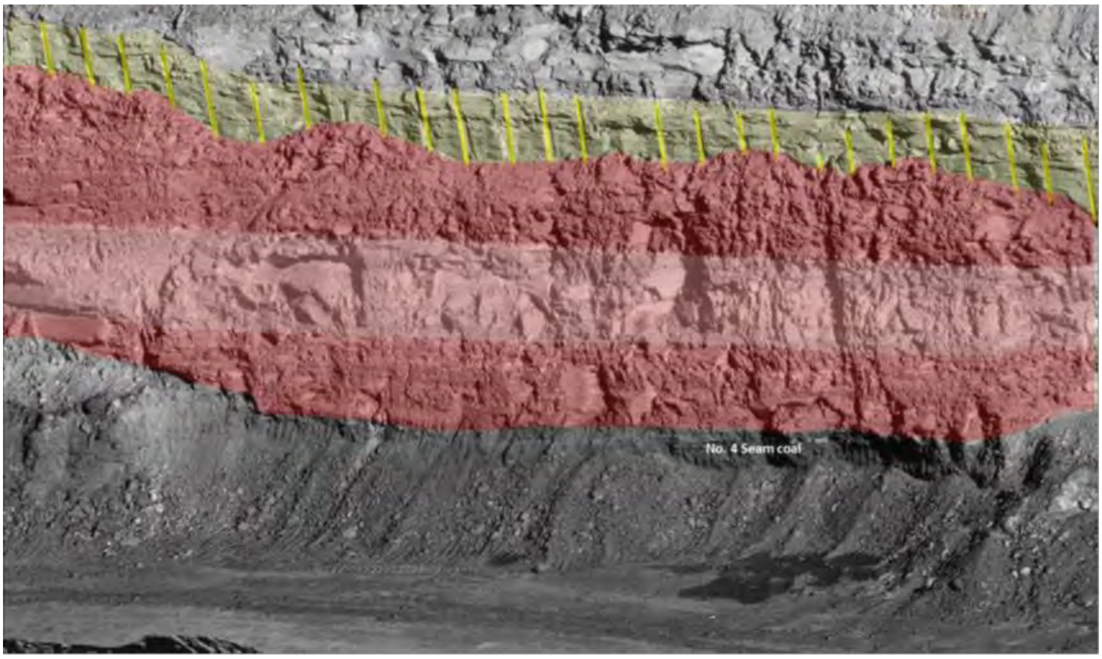
Summary of Slope Stability Monitoring Methods
(*Source: Read and Stacey, 2009*) | Project No. 566627

Figure 7-3: Summary of Slope Stability Monitoring Methods by Potential Size and Implication

- Site Codes of Practice and associated standard operating procedures were assessed to be up to date, in place and well implemented, with possible areas of attention as follows:
  - Some reported geotechnical concerns remained in site inspection reports for up to three months without evidence of remedial action. These were assessed as low risk concerns, but should be closed out as soon as possible in the reporting;
- General site conditions, including highwall and low-wall conditions, good, with good house-keeping evident throughout the mining areas;
- Ponding of surface water was noted in the pits and along the roadways. This was discussed with site personnel, who reported that theft had resulted in the main reticulation pipeline being out of service, and that urgent work had already started to rectify this issue. Historical geotechnical inspection reports indicate that surface water management is usually well handled;
- All site staff interviewed were aware of the generally geotechnical hazards in the mining areas, and were conversant with the highwall stand-off rules, including staff from the regional support services;
- Material frozen against the pre-split is resulting in an elevated rockfall risk and appeared to be prevalent throughout the mining areas. An example of this is shown in Figure 7-4. The safety risk (rockfall risk) posed by these "frozen toes" is well managed by the implementation of the highwall stand-off rule and placement of protective berms below the highwalls, but the phenomenon is resulting in locking up of variable volumes of coal in the individual cuts, which are mined with the next cut. This is also resulting in localised undercutting of the low-wall spoils. A remedial study has been commissioned by the regional

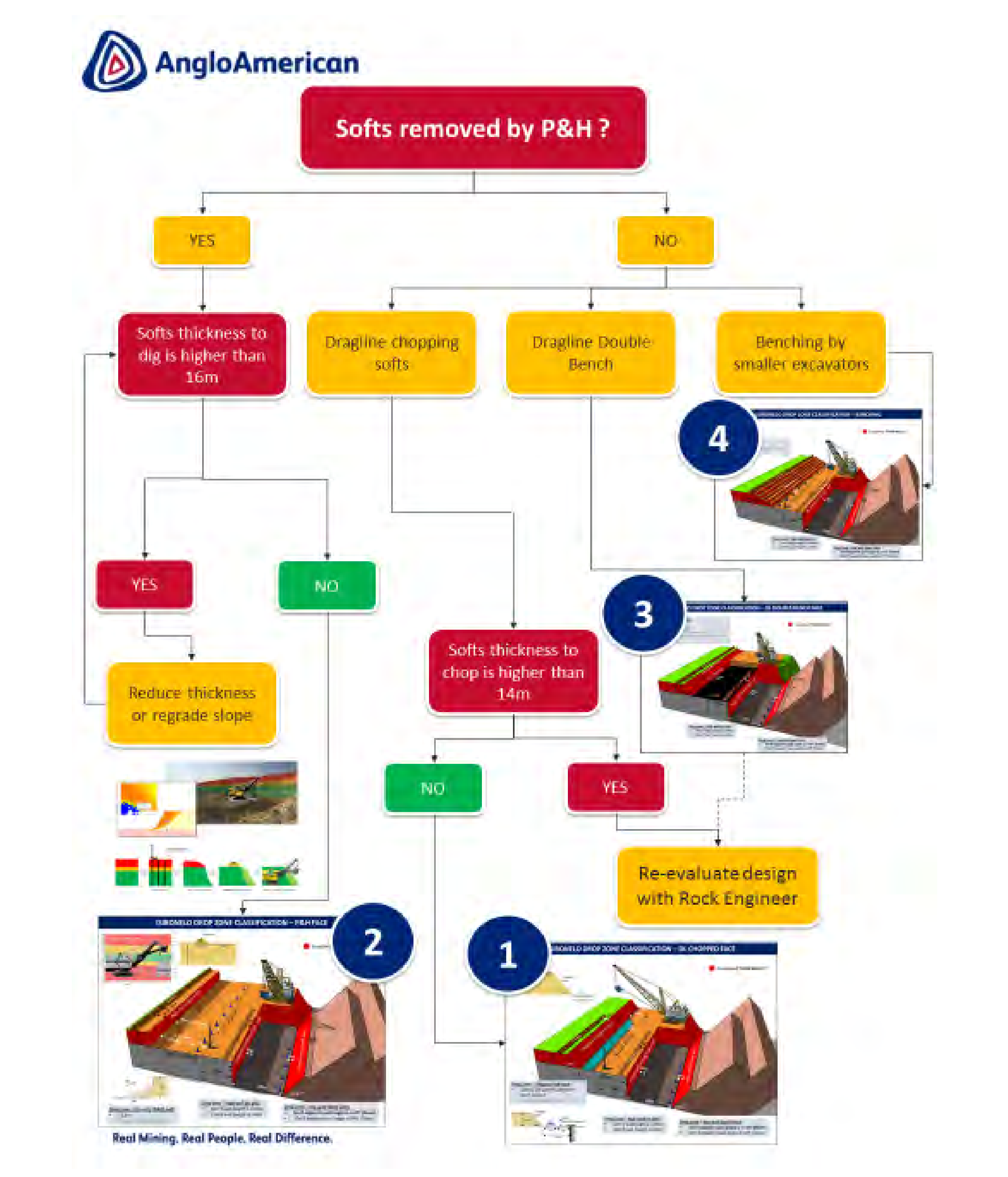
Strategic Planning Manager, with input from blasting and geotechnical specialists to rectify this, with good results achieved during Quarter 3 in 2020;

- Management of dragline positioning appears to be well implemented, with inspections carried out by geotechnical staff both pre and post dragline positioning to ensure a sound footing. Along with this, limit equilibrium stability analyses (AAC, 2019f1 to AAC, 2019f6) are carried out with dragline loading applied to ensure efficacy of the design;
- Overburden stripping is a truck and shovel operation and was a focus area during the visit, due to delays caused by equipment breakdowns and heavy seasonal rain; and
- The planned mining sequence (shown in Figure 7-5) is well designed, with geotechnical hazards considered.



srk consulting | **ISIBONELO COLLIERY CPR**
Frozen Material Against the Pre-Split Line | Project No.
566627

Figure 7-4: Frozen Material Against the Pre-Split Line Resulting in Locking Up Coal Reserves for Individual Cuts



srk consulting	**ISIBONELO COLLIERY CPR** Planned Mining Sequence Considering Geotechnical Constraints	Project No. 566627

Figure 7-5: Planned Mining Sequence Considering Geotechnical Constrains

7.6. Specific Geotechnical Risks

[12.10(h) (x)]

The identified geotechnical risks and risk management controls at Isibonelo are shown in Table 7-1.

Table 7-1: Summary of Identified Geotechnical Risks and Risk Management Controls

Hazard	Risk	Consequence	Controls
Loose or frozen material on the high wall	May result in rockfall/fall of ground incidents	Possible injury to personnel and damage to equipment	Battering of highwall crest with the dragline bucket and highwall inspection before dragline moves to next lift Placing of drop zone cones and protective berms to manage exposure to rockfall
Low wall failure/sloughing of spoils slope	Failure of spoils material into the cut	Possible injury of personnel and damage to equipment Pit entrance may be blocked off	Placement of unstable weathered material behind fresh spoils and follow the spoil design sequence No spoiling is permitted in water No undercutting of the low wall unless agreed by the Principal Rock Engineer and leave a void to separate coal from the spoils toe (i.e. coal edge trench) Placement of drop zone cones and protective berms.
Highwall failure	May result in fall of ground incidents	Injury or death of personnel Damage to equipment.	Pre-splits implemented to protect highwalls from impact of blast energy Scaling of highwalls with dragline bucket during dragline digging operations No undercutting of the highwall during coaling Highwall stand-off rule of 10 m implemented Cables to be placed at least 10 m from the highwall Softs left on the highwall crest are battered back by the dragline Installation and maintenance of cut-off drains parallel to the highwall to avoid surface water flowing over the highwall crest
Flooding of the mining area	Restricted pit access and egress Weakening and erosion of the highwall.	Slope instability due to surface water infiltration	Installation of pumps Construction and maintenance of in-pit drainage Surface landscaping to facilitate drainage away from the mining area
Open holes, such as blast holes or sinkholes	Falling into holes	Injury to personnel	Identified areas to be demarcated or barricaded Fill up all known sinkholes as soon as possible according to sinkhole procedure

7.7. Conclusions

The following conclusions are made from the review of the Isibonelo site geotechnical function as supported by the Central Rock Engineering Services:

- The site geotechnical function is well performed, with good support from the regional Central Services Office, resulting in the following aspects being considered adequate for successful management of the identified geotechnical risks. These aspects are aligned with industry best practice:
  - Slope design analysis;
  - Coal strip designs and reconciliations;
  - Operational procedures, including geotechnical inspections and reporting;
  - Dragline pad inspections and stability analysis;
  - Geotechnical soft overburden stripping design and planning;
  - Spoils design and operational reconciliations; and
  - Slope stability monitoring.
- The following aspects would benefit from additional focus, but are not misaligned with the coal industry:
  - Geotechnical data acquisition from drilling and face mapping;
  - Structural data collection, including joint surveys for rock mass fabric determinations;
  - Follow-up and close out on operational recommendations;
  - Operational geotechnical input to soft overburden stripping and scheduling;
  - Geotechnical input to limit blasting design and reconciliation; and
  - Management of surface water run-off and groundwater infiltration into the mine workings.

The overall geotechnical risk for Isibonelo Colliery is considered to be within manageable limits, with all necessary and reasonable geotechnical risk management implemented, regularly audited by the Principal Rock Engineer and reported to senior and executive leadership.

8. Mining

[12.10(h)(ix)] [SR4.3(ii), SR5.2, SR6.1(ii)]

8.1. Introduction

[SR5.2(i)(v), SR6.1(ii)]

Isibonelo is an opencast colliery using draglines and truck and shovel methods to exploit the coal within the Mining Right; the coal is solely dedicated to the SSF facility. The southern portion of North Pit is too deep for surface extraction and these potential underground resources are being ceded to Sasol for exploitation from the Sasol Syferfontein Shaft. The terms of the supply agreement with Sasol dictate the LoM plan. Isibonelo commenced operations in 2003 where the existing opencast equipment and some portions of the Kriel South resource (owned by the Company at that time) were swapped by the Company in return for an ongoing dedicated supply contract. This was intended to supply Sasol with 5 Mtpa for at least 20 years (i.e. 100 Mt). This deal was rationalised in 2019 to account for unplanned cost and resource constraints.

The main target coal seam is the No 4 Seam, although the No 5 Seam is also present (Figure 4-5). There have been historical attempts to recover the No 5 Seam where it was convenient to do so because of its location relative to the dragline method, but the results have not warranted its continued exploitation. This seam is thus considered as a waste horizon and does not form part of the Coal Reserve estimation. In previous Isibonelo reporting, the No 5 Seam was reported under low potential Coal Resources (a resource category purely for internal Company reporting but not recognised by the SAMREC Code) and was not included in the Coal Reserve estimations. In general, the No 5 Seam is of a higher coal quality than the No 4 Seam but due to it being thin it has a higher contamination than the No 4 Seam; this causes problems blending it into the suitable product. The No 2 Seam is also present but is not considered for mining due to the depth below surface and poor continuity across the mining area.

8.2. Colliery Organisation

[SR5.2(viii)] [ESG4.1]

The mine is under the control of a General Manager who then delegates the services into production, engineering, financial, human resources (HR) and technical services. The mine is a legal standalone entity and employs people under that responsibility, apart from some financial and engineering services that are provided by the Company's head office. There are also onsite services that are contracted out such as cleaning and security etc.; but the core functions are owner operated. The mine subscribes to the human resource policies of the Company and thus the workforce has to represent the diversity and racial composition as prescribed in the SLP. The coal is not beneficiated (only crushed and screened), so the responsibilities for this fall under the Engineering Department.

Figure 8-1 illustrates the mine control. The structure allows for the legal appointments to be made as required by the Minerals Act for the mine to run the operations on a continuous 24-hour basis and the services and HR functions on a 10-day fortnight basis.

8.3. Mine Design and Scheduling

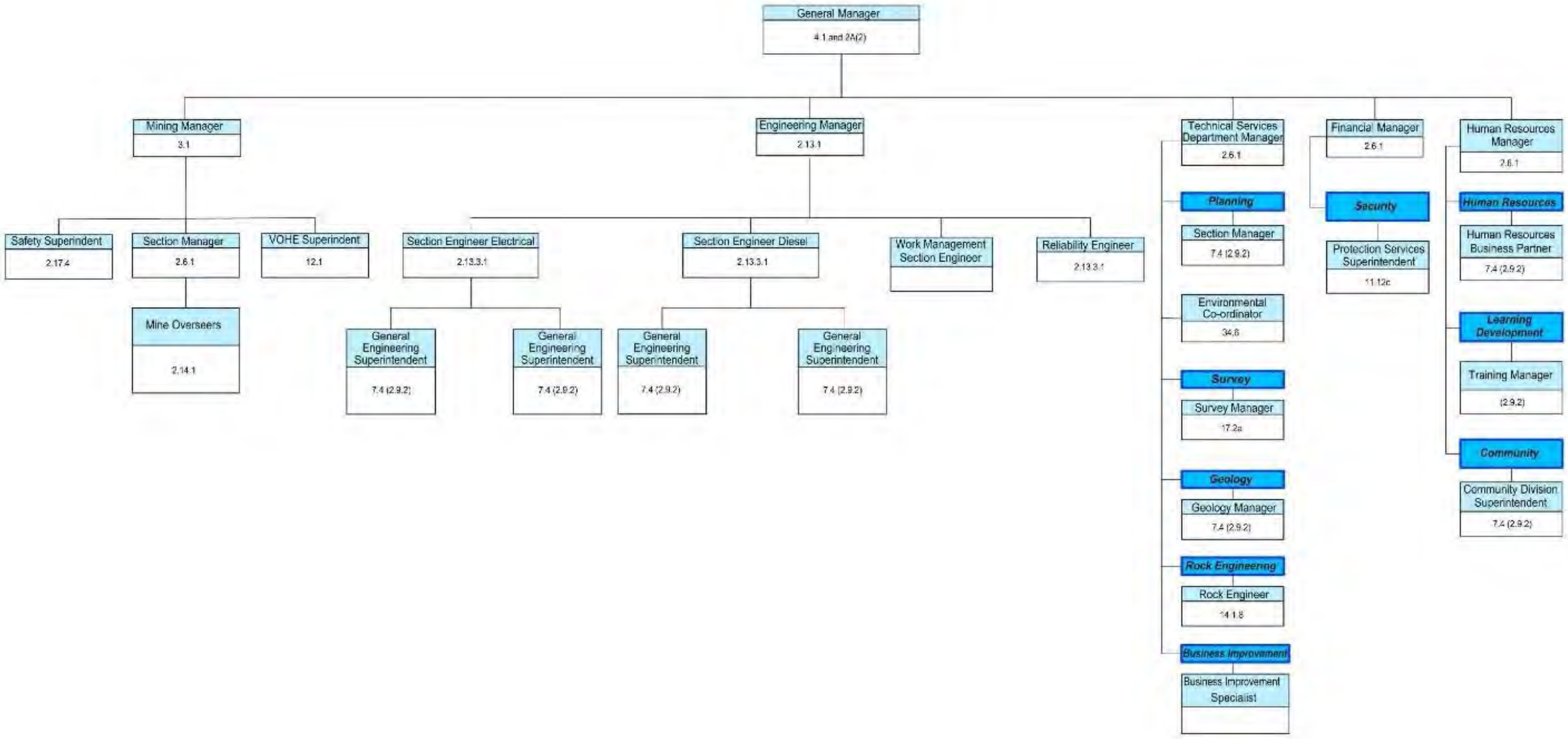
[SR4.2(iv), SR4.3(ii), SR5.2(i)(ii)(iv)(v)(vi)(viii)(ix)]

8.3.1. Opencast Design Parameters

[SR6.1(iii)]

The open pit is designed for dragline operations and in the case of the North Pit the dragline is assisted by a pre-strip truck shovel operation. The blocks are designed at 60 m wide by 150 m long with the geotechnical parameters designed as per Table 8-1.

This translates to a dragline cross section as illustrated in Figure 8-2. The layers form the basis of the mining method, dependent upon the respective thickness of the layers.



srk consulting	**ISIBONELO COLLIERY CPR** Management Organogram	Project No. 566627

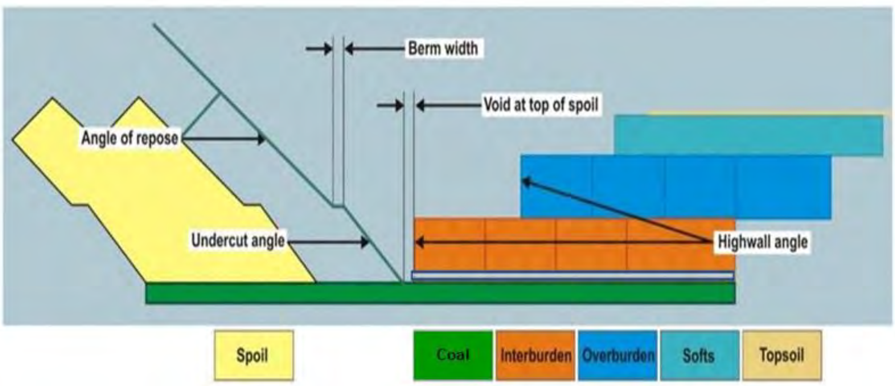
Figure 8-1: Isibonelo Colliery Management Organogram

Table 8-1: Geotechnical Design Parameters

Geotechnical Design Parameters	Unit	LoM (Aug 2019)
Spoil		
Void at toe of spoil	m	5
Undercut angle	°	45
Berm width	m	10
Berm height = pad height	m	Variable
Angle of repose	°	37
Burden		
Highwall angle	°	90
Offset – burden from No 4 Seam	m	5
Offset – overburden from interburden	m	75
Offset – softs from overburden	m	75
Offset – topsoil from softs	m	15

Note:

1. All offsets measure from highwall to highwall.



srk consulting	**ISIBONELO COLLIERY CPR** Dragline Cross Section Mining Method	Project No. 566627

Figure 8-2: Dragline Cross Section Mining Method

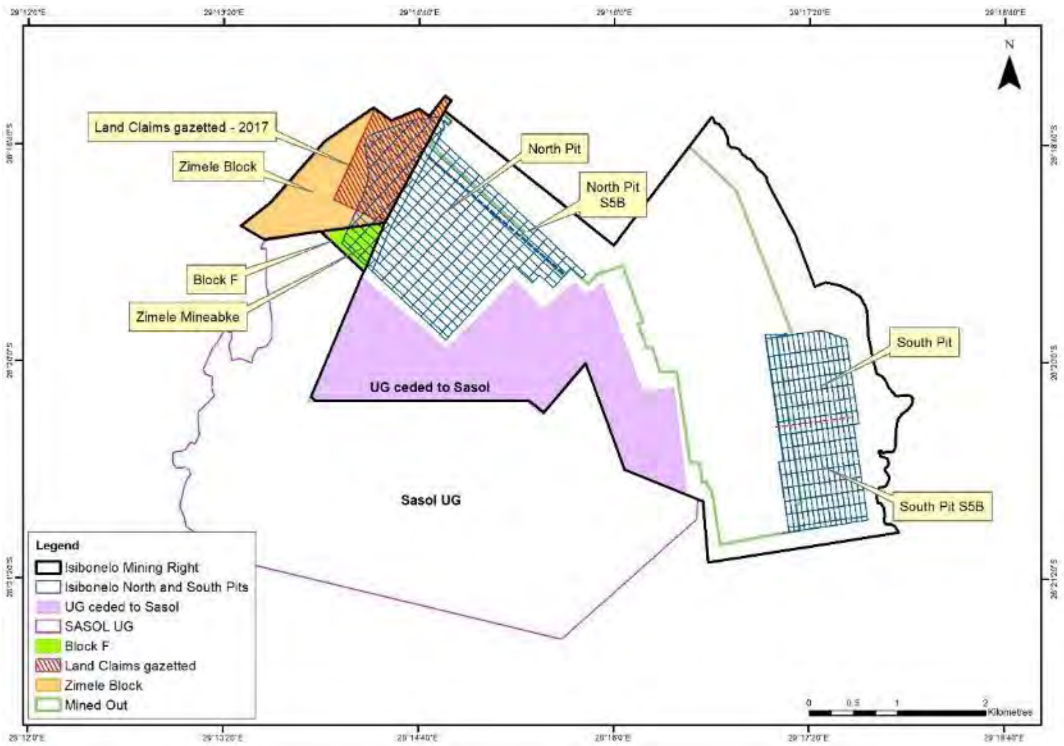
These mining layouts are laid out in the pit leaving the appropriate barrier pillars to the boundaries and watercourse as is illustrated in Figure 8-3. The South Pit layout is fully utilized, but the North Pit is limited to the length of the initial strip, which is extended by approximately 20 m in each subsequent strip to lengthen the strip without creating a boxcut to recover coal in the Zimele area. The main motivation for this is that the cost of digging a boxcut cannot be supported by the mine economics.

This leads to a mining method in the South Pit whereby the layers are an overburden thickness of approximately 35 m that is covered with a softs layer of six metres. The dragline removes the soft material in an advance chop down method and the remainder is moved by the dragline as a side casting method after it is drilled and blasted. This method is used as it leads to the least cost by avoiding the use of a truck shovel on the soft material.

The mining method in the North Pit is designed to mine a combined total thickness of approximately 65 m which is split into approximately six metres of soft overburden material mined with a hydraulic excavator along with 16 m of hard pre-strip material that is mined with a rope shovel after drilling and blasting. The remainder is mined by the dragline in a side-casting method. As is clear in Figure 8-3, the length of the strip reduces over time in the North Pit.

The coal recovery is done using low wall ramps through the spoil spaced approximately 500 m apart.

The dragline mining method is simulated for each block in the pit using Dragsim™ software to estimate the dragline rehandle and forecast the correct volume that the dragline must move. This volume is also adjusted for the material blasted into the void and ultimately the overall volume excavated by the dragline forms the basis for the scheduling of the dragline and the truck shovel equipment.



srk consulting	**ISIBONELO COLLIERY CPR** Mining Layouts	Project No. 566627

Figure 8-3: Mining Layouts

8.4. Mining Fleet and Machinery

[SR5.2(viii)]

The main mining equipment comprises of two draglines (Marion 8200 machines) with a 61 m³ bucket used in overburden removal. The hard rock pre-strip is mined with a P&H2800 rope shovel and a Hitachi hydraulic shovel EX3600 used for the soft overburden material. These are supported by six Hitachi EH3500 trucks along with four Hitachi EH3000 trucks. The fleet is supported with 310 mm rotary drills (Gardner Denver and Bucyrus) assisted by some contractor drilling to complete the drilling and blasting process. There are also track dozers and rubber tyre dozers (mostly Komatsu equipment) and some excavators and articulated dump trucks used mostly on coal removal. There is also the necessary support equipment in terms of water bowsers, cranes, service trucks; etc listed in the asset register.

There was a Caterpillar 6030 shovel on the mine which was the burnt out recently and which was replaced by the Hitachi shovel but as far as can be ascertained, it has not been refurbished so is not included in the coal exposure equipment.

A contractor fleet is used for the removal of the soft topsoil material.

8.5. Manpower Requirements

[SR1.1(ii)] [SR5.2(viii)]

The mine operates on a continuous operations basis for the equipment and the service departments work on a 10-day fortnight. The breakdown of the labour requirements is shown in Table 8-2.

Table 8-2: Isibonelo Manpower Requirements

Level	Category	Number
Management	HOD	6
	Mining	37
	Work Management	17
	Safety	4
	Sustainable Development Energy	2
	Asset Optimisation – 1	1
Officials	Geology – 2	2
	Survey – 4	3
	Technical Solutions – 5	5
	Engineering	26
	Human Resources / Public Affairs	15
	Finance and Administration Security	7
	Sub-total	125
Skilled - Mining	Coaling	48
	Rehabilitation	24
	EX1200	4
	Pumps	9
	Pre Strip	52
	Drilling	16
	Blasting	9
	Dragline	8
	Sub-total	170
Skilled – Engineering and Other	Technical Services	2
	Engineering Electrical and Mechanical	5
	Engineering Services	1
	Finance and Administration	1
	Sub-total	9
Senior Skilled	Mining	3
	Security	1
	Engineering Electrical and Mechanical	27
	Engineering Services	33
	Sub-Total	64
Total		**368**

The total mine labour requirement excluding the contractors is 368 people. The contractors comprise approximately another 500 people performing services such as security, cleaning, topsoil mining, explosives supply, tyre management etc. This number is typical for this size of mine. The mine is staffed by mining, engineering and services departments, which report to the General Manager. The mining function is subdivided into waste and coal mining and the engineering function split into electrical, mechanical and diesel engineering functions.

8.5.1. Legal Appointments

As is required by the various sections of legislation for licencing, health and safety etc., the mine has appointed senior personnel on the mine who then appoint the subordinate appointments as required. The mine has HR policies that it follows but the staff are characterised into Patterson bands which dictate their level of decision making and subsequently create the job descriptions for individuals as well as the employment criteria and ultimately their renumeration. The senior level employees are not unionised but do belong to employee associations that manage their interests and the lower Patterson graded staff are unionised and this creates the basis for wage negotiations, disciplinary matters etc.

8.5.2. Recruitment and Training

The mine has been operating for several years and hence has a limited need to recruit people as most of the staff have long tenure with the operation. Recruitment is done according to the Company's policy and the guidelines of the SLP to encourage diversity in both race and gender. Most skills are available within the local area as former employees of other mines which are abundant are available. Many of the specialist skills are managed through contractors or by staff recruited from within the Company's portfolio of mines.

Training is provided on mine for the refinement of skills and for the learning of new skills. Where possible, employees are encouraged to be multi skilled for their own job enhancement. Health and Safety Training is done at the mine as well as some of the engineering skills. The mine has several people under the learnership programme which is used to transfer skills where possible from older to younger employees.

8.6. Blast Monitoring

Blast monitoring is done at each overburden blast but there are no specific structures that have to be monitored in the mine area and the adjacent buildings comprise of some farmhouses and an informal settlement which are distant from the operations. The water-related structures such as the pollution dams are easily repaired if damaged by blasting and do not pose a flood risk to the mining pit.

8.7. Mining Costs

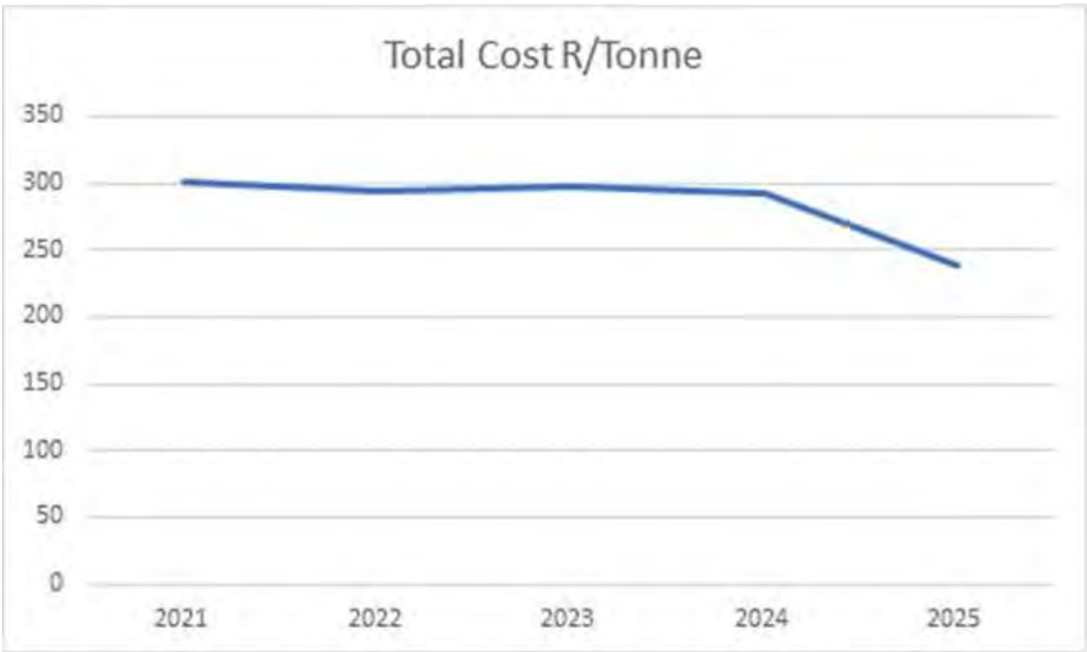
[SR4.3(vii), SR5.2(ii), SR5.6(iii)(ix)]

The mining cost model has been simulated in a series of process tasks that match the overall mining process of waste removal by draglines, shovels, followed by coal lining and loading and the pit services functions. Each of these has been split into a mining function and an engineering function and the respective costs in terms of labour, stores, diesel, explosives and contracts etc. are allocated in a ratio of fixed and variable costs. The fixed management and service function departments are simulated in a similar manner and incorporated into the model. These costs have then been applied to the mine scheduled volumes over time to generate the overall mining costs. The validation of this cost model was a reconciliation against the 2019 actual costs, which have been escalated to the current Effective Date. The forecasted costs for the 2021 year are shown in Table 8-3.

Table 8-3: Forecast Costs for Year 2021

[redacted]

The unit cost over the estimated LoM is shown in Figure 8-4:



srk consulting	**ISIBONELO COLLIERY CPR** Unit Cost Over the Estimated LoM	Project No. 566627

Figure 8-4: Unit Cost Over the Estimated LoM

As the estimated cash costs are below the estimated revenue for the coal per tonne, it demonstrates that the remaining coal is of economic benefit; i.e. positive margin. The average estimated cost in 2020 was ZAR355 per sales tonne and in 2019 was ZAR362 per tonne. The main issues for 2020 were the reduced productivity during the COVID-19 national lockdown and an unexpected failure on the shovel, which impacted production. The balance was substituted by increased buy-in of coal to rectify the problem. A similar issue occurred with the failure of the shovel in 2019 in which the impact caused undue schedule delays on the dragline in the North Pit, significantly affecting coal exposure and ultimately, the unit cost. The current plan does not anticipate any of these such failures and assumes reduction of coal services post-December 2020 with regard to COVID-19 issues.

8.8. Life of Mine Plan

[SR5.1(i)] [SR5.2(i)(ii)]

8.8.1. Block Ranking

The blocks for scheduling within the mine plan have been run through a financial model and the total average production costs are estimated at ZAR294 per RoM tonne for the remaining six years of operations, compared with ZAR301.87/t (RoM) for the 2021 period in the model. This is below the revenue per tonne in the contract. The difference between the revenue and the costs is positive and is thus is likely to lead to a positive Net Present Value for the colliery. This contract was renegotiated in 2019 to ensure that the remaining tonnage would have a positive margin; hence, the block ranking process would demonstrate a positive margin as the remaining blocks constitute the remainder of the available coal in the property. The contract has separate recovery items for rehabilitation and capital; they will not affect the margin ranking outcome. This is only true while the two pits are exploited such they are completed simultaneously. The mine plan has been scheduled accordingly, but due to the inability to meet targets in 2020, the final position of the North Pit leaves some of the final strips behind when the South Pit is completed.

8.8.2. Production Scheduling

The LoM plan is dictated by the requirements of the Sasol supply contract which was revised in 2019. The key obligation of the mine is to deliver 4.8 Mt of coal over a 12-month period within the specification quality from July 2019 to July 2025 (the initial six-year period of the contract). An extension period is possible beyond the initial period under negotiation for duration, annual volume and price. In the initial period, the mine has to make an advanced commitment of the tonnage for the next year (up to a maximum of 5 Mtpa) which becomes the target for the mine to achieve. The coal can be from sources other than Isibonelo on the proviso it meets the quality specifications and has been pre-approved by Sasol. Previously, material from within the Company's internal production sources have been used to make up approximately 10% of the supply requirement. The main risk is that the quality needs to be appropriately managed when blended with Isibonelo RoM.

To maximise the revenue and, in this case, the profit, the maximum amount of coal needs to be recovered, firstly, ensuring that the coal mined is margin-positive, and secondly, that the resource can last for approximately six years at a minimum of 4.8 Mtpa, i.e. 28.8 Mt in total from July 2019. The remaining coal can then be recovered in a combination of increased annual tonnage and the use of the extension period. This exploitation must be done such that the two mining pits conclude simultaneously as the fixed costs of the operation cannot be covered by the output of one single pit.

The probability that the extension period to the Sasol contract will be agreed to is high as the likely cost of the coal will not exceed the current contracted cost and an additional time period allows the fixed costs in the contract to be recovered over a longer period of time. At the current cost, this coal is cost-competitive with the Sasol underground supply (average ZAR310/t) and with all the mines within a reasonable radius of operation of approximately 50 km. Transport costs for 50 km would add approximately ZAR100/t to any competing supply. Similarly, the gasification facility at Sasol does not have a ready replacement supply for this coal.

The alternative market for any coal outside of Sasol would be supply to an Eskom Power Station by truck; at current Eskom contract prices, this material would be profitable at both the Kriel and the Matla Power Stations, where the quality would be suitable as well as the transport distances. These circumstances will only be true while both pits are operational; hence, the end date of the Mine Plan as the completion of the South Pit occurs.

The mining model allows the simulation of the coal exposure in each pit, dependent upon the productivity and availability of the respective primary mining equipment and the schedule constraints linking the respective operations in the pit. The time productivity model for the earthmoving equipment comprises availability and utilization of the equipment and the instantaneous digging rate. Any major shutdowns on the equipment are scheduled out of the time model. The combination of the availability and utilization is the Operational Effectiveness (**OEE**) and is an indicator of the performance of the system. For the starting point, the historical data was examined for Isibonelo and is shown in Table 8-4.

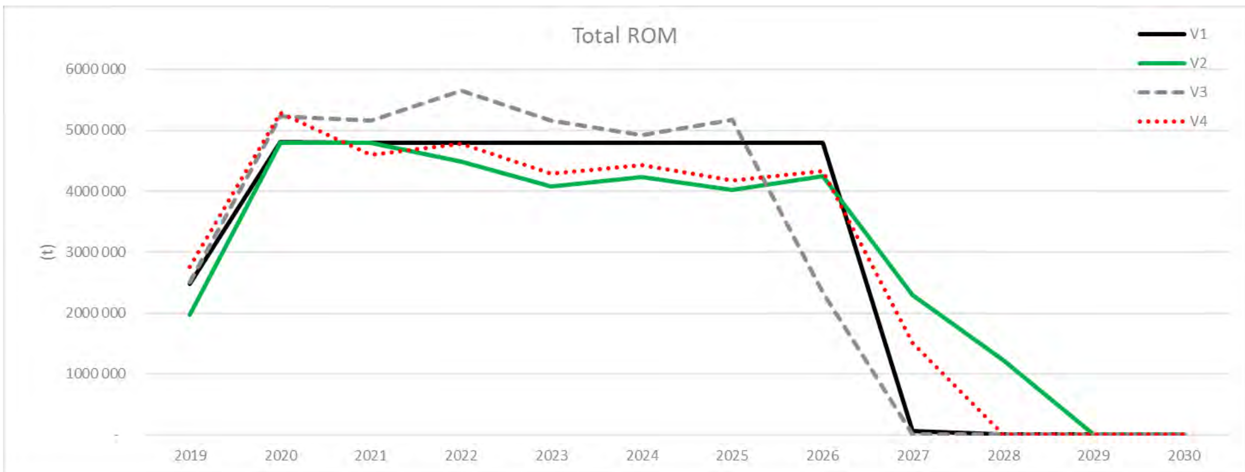
Table 8-4: Historical Equipment Availability and Utilization

	Unit	DL1	DL2	P&H
Equipment Availability (**EQA**)	%	73.8	75.3	64.2
Use of Availability (**UEA**)	%	86.0	80.9	89.6
Direct Operating Hours (**DOH**) per annum	Hours	5171	4873	4327
Rate	TCM/hr	3753	3609	1349
Total Cubic Metres	TCMs	19 403 716	17 548 310	5 838 857
OEE	%	73	66	50

Note:
1. TCM = Total Cubic Metres
2. TCM/hr = Total Cubic Metres per hour

A cursory glance at these numbers in comparison to expected benchmark rates (as developed internally from the Company's worldwide operations) show that the draglines should be digging around 26 million total cubic metres per annum and the shovel approximately 11 Mbcm/a. No data was available to validate the historical performance to explain possible errors due to definitions or incorrect measures.

Using the range of productivities and the modification of dependencies in the mining model, a range of potential exposure profiles was generated to simulate the potential of the mine exposure capacity (Figure 8-5). The outcome ranged from approximately 4.1 Mtpa to a maximum of 5.2 Mtpa and, if run unconstrained, the South Pit finished approximately three strips ahead of the North Pit. This results in around 4 Mt left behind as potential Coal Reserves.



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ISIBONELO COLLIERY CPR
Coal Exposure Scenarios vs Productivity

Project No.
566627

Figure 8-5: Coal Exposure Scenarios vs Productivity
Note:
V1 = Benchmark productivity capped at 4.8 Mtpa; V2 = Current productivity, no constraints;
V3 = Benchmark productivity unconstrained schedule; V4 = 50% of benchmark productivity.

At the low historical productivity rates, the mine would not be able to meet the Sasol contract tonnages. Hence, a schedule productivity was chosen that approximates a mid-case between the benchmark productivity and the actual historical productivity and the dragline exposure rate was slowed down in the South Pit to allow both pits to be completed simultaneously. This generates an exposure rate of 4.8 Mtpa, which extends to approximately end-2026; i.e. an extension period of approximately one year. This matches the Sasol contract parameters for volume as well as the required quality parameters. The key production parameters of this plan are illustrated in Table 8-5 and are used for the cost modelling of the LoM plan.

Table 8-5: Isibonelo Life of Mine Plan 2021 Results

Date	2021	2022	2023	2024	2025	Jan 2026 – Sept 2026
Topsoil (bcm)	850 000	850 000	850 000	850 000	394 189	0
Dragline 1 (TCM)	20 146 141	20 376 192	20 567 342	20 556 631	21 185 560	4 896 741
Dragline 2 (TCM)	16 239 514	19 676 387	17 336 788	19 499 950	17 694 663	11 509 889
Pre-strip: Soft and Hard (bcm)	7 902 927	8 164 261	7 813 739	8 618 407	6 658 722	1 183 844
Overburden Explosives (kg)	25 464 269	27 272 269	25 032 507	28 070 264	25 401 130	11 157 660
RoM as received (t)	4 800 000	4 800 000	4 800 000	4 800 000	4 577 895	3 348 213
Coal Explosives (kg)	688 082	688 082	688 082	688 082	656 243	479 968
Dragline Rehandle (%)	44%	44%	48%	43%	45%	24%

Note:
1. bcm = bank cubic metres.
2. TCM = Total Cubic Metres.
3. RoM = Run of Mine.

The time schedule for the Isibonelo LoM Plan is illustrated below from December 2020 to 2026, where both pits end simultaneously (Figure 8-6). The strips remaining behind in the North Pit are returned to Coal Resources outside the Mine Plan.

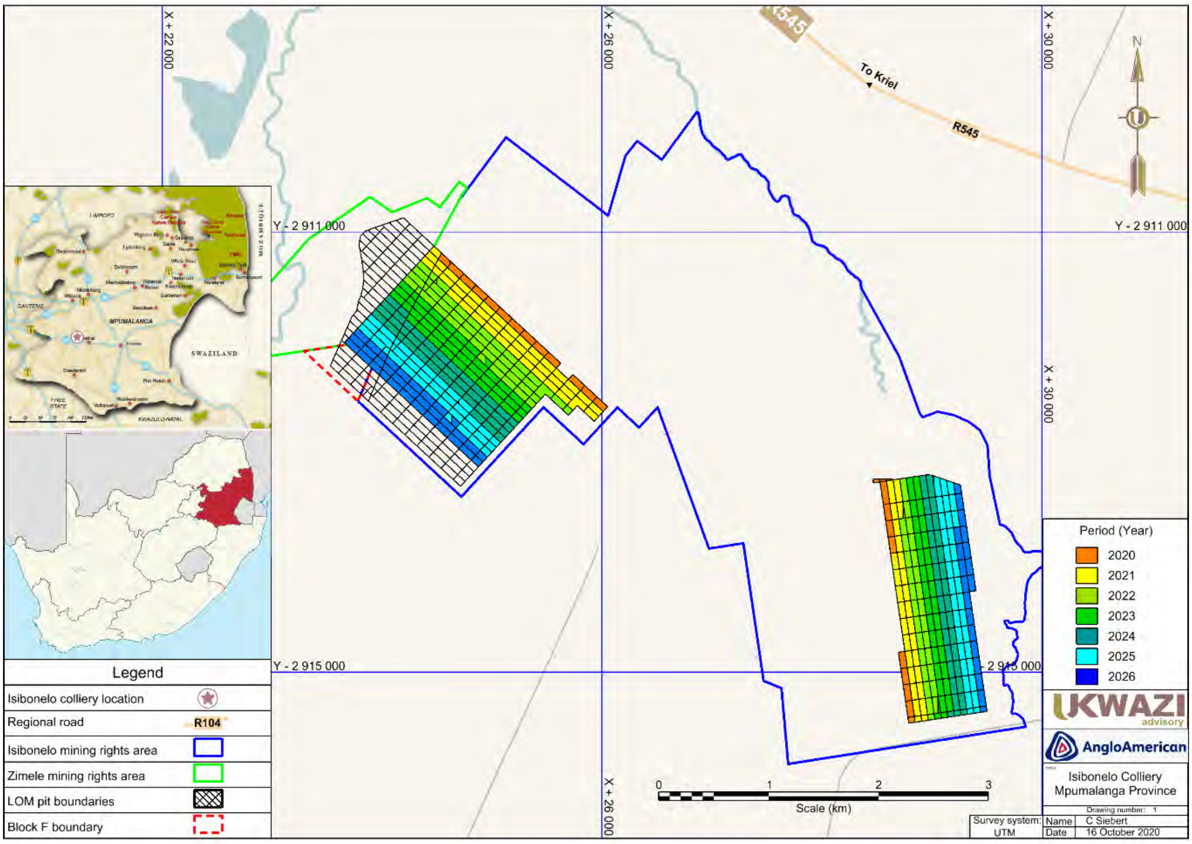

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Figure 8-6: Isibonelo LoM Time Schedule

9. Coal Reserve Estimates

[12.10(h)(vii) (ix)] [SR4.2(ii), SR4.5(i)(iii), SR5.1(i)(ii), SR5.2(ix), SR5.6(v), SR6.1(i)(ii)(iii), SR6.2(i), SR6.3(i)(vi)] [SV1.2, SV1.9, SV1.10]

9.1. Conversion of Coal Resources to Coal Reserves

9.1.1. Key Assumptions

[SR4.2(ii), SR4.5(iii), SR6.1(i)(iii)]

The estimation of the Coal Reserves from the Coal Resources is done by applying a series of factors and assumptions to the geological Coal Resource estimation and applying constraints to the exploitation of the resource through the mining method and equipment selected.

The Mining Right area (Figure 3-1) is bounded on the east of the main Isibonelo area and on the north of the Zimele area by a watercourse, requiring a 500 m barrier between the mining operation and the watercourse. There are also several national roads that constrain the resource, as well as the existing mine tip; other water-related infrastructure in the vicinity of the tip is considered as removable. The resource between the current North and South Pits has been mined out and the mining boundary requires a 9 m barrier to be left behind. A plan illustrating the infrastructure constraints is shown in Figure 9-1.

9.1.2. Key Parameters

[SR4.2 (ii)(iv), SR4.3(ii), SR4.5(iii), SR6.1(i)]

The conversion of Coal Resources to Coal Reserves is achieved by the construction of a mining model using the XPAC V14 software and applying the appropriate discount factors on a mining layout that has been designed to suit the available mining equipment. The layout has been constrained by the infrastructure limits within the property and the mine plan is thus a schedule of the mining layout over time until mining is no longer deemed economic. The Coal Reserves are the summation of the coal scheduled from the Effective Date to the end of the schedule. This is reported from the XPAC software and it is important to note it is not the coal as contained within the mining layout. In the chosen scenario, a decision has been applied in the mining schedule to complete the mining pits simultaneously in order to maximise the Coal Reserve recovery. Please refer to Section 8.3 for the detailed explanation. The Coal Reserves are quoted at 8% total moisture while the mine modelling is done on an air-dried (**ad**) basis. This combination is the best comparison to the RoM coal produced, which is what is measurable in the operation. The sales tonnes forecast is a function of the beneficiation process, in this case, a crushing and screening operation hence is a 100% yield.

Any coal sold to Sasol sourced from outside of the existing Mining Right is not accounted for in the Coal Reserve estimate.

9.2. Impact of the Modifying Factors

[12.10(h)(vii)] [SR5.1(i)(ii), SR6.1(iii), SR6.2(i)] [SV1.10]

The No 4 Seam is exploited by opencast methods with a dragline. A minimum mining thickness cut off of 1.0 m is applied, which is exceeded throughout the mining layout (Figure 9-2). There are also cut offs applied in the mine design with regard to strip ratio, which are a function of the limited margin at the mine and the limits of the dragline and pre-strip combined mining method with regard to depth (Figure 9-3). Historically, the mine was under financial duress under the first coal supply contract and this was renegotiated in 2019. On this basis the revised pricing provided sufficient margin to complete the exploitation of the remaining Coal Reserves. The coal quality of the No 4 Seam has sufficient variability to be blended into the product and hence there are no specific coal quality cut offs applied.

As is demonstrated from the strip ratio plot (Figure 9-3), there is an increase in strip ratio in the southeastern portion of the North Pit, which is a function of increased overburden depth. This restriction to overall depth formed the basis of the exchange of resources with Sasol, defining the opencast portion from the underground resources. A dolerite sill is present in this southeastern corner of the pit, and this may affect the coal quality if there are any dykes emanating from the sill that have not be identified by vertical drilling.

The estimation of the remaining discount factors is based on the historical experience of these deposits, combined with the overall coal reconciliations that have been done in the past. The following Modifying Factors were applied in Gradecon when converting No 4 Seam Coal Resources to Saleable Coal Reserves:

- **Geological loss** (losses due to unknown geological complexities): 5%;
- **Mining modifying factors** (conversion of MTIS on an air-dried basis (**$MTIS_{adb}$**) to air-dried contaminated (**adc**)):
  - *Mining loss*: 6% mining losses have been applied to $MTIS_{adb}$ to derive RoM on an air-dried basis (**RoM_{adb}**);
  - *Mining extraction*: A 94% extraction percentage is part of the layout design and is calculated based on the safety factor of an area. The factors calculated and applied for the various areas are included in the in-panel design discussion in the LoM plan.
  - *Contamination*: contamination of 2% at 100% ash has been applied on $MTIS_{adb}$ to derive RoM on an air-dried contaminated (adc) basis (**RoM_{adc}**).
- **Moisture correction factor** (conversion of the RoM_{adc} to RoM as received (**ar; RoM_{ar}**)): the moisture correction factor is applied to the RoM_{adc} either as total moisture or as surface moisture added to the inherent moisture. With the LoM plan, surface moisture of 2.5% was added to RoM_{adc} to derive $RoM_{ar;}$ this approximates a total moisture of 8%. To derive the Saleable Coal Reserves (equivalent to the RoM Coal Reserves), 8% total moisture was applied on saleable tonnes (ar).
- **Modelling limits**:
  - *Minimum practical mining height* – 1.0 m.

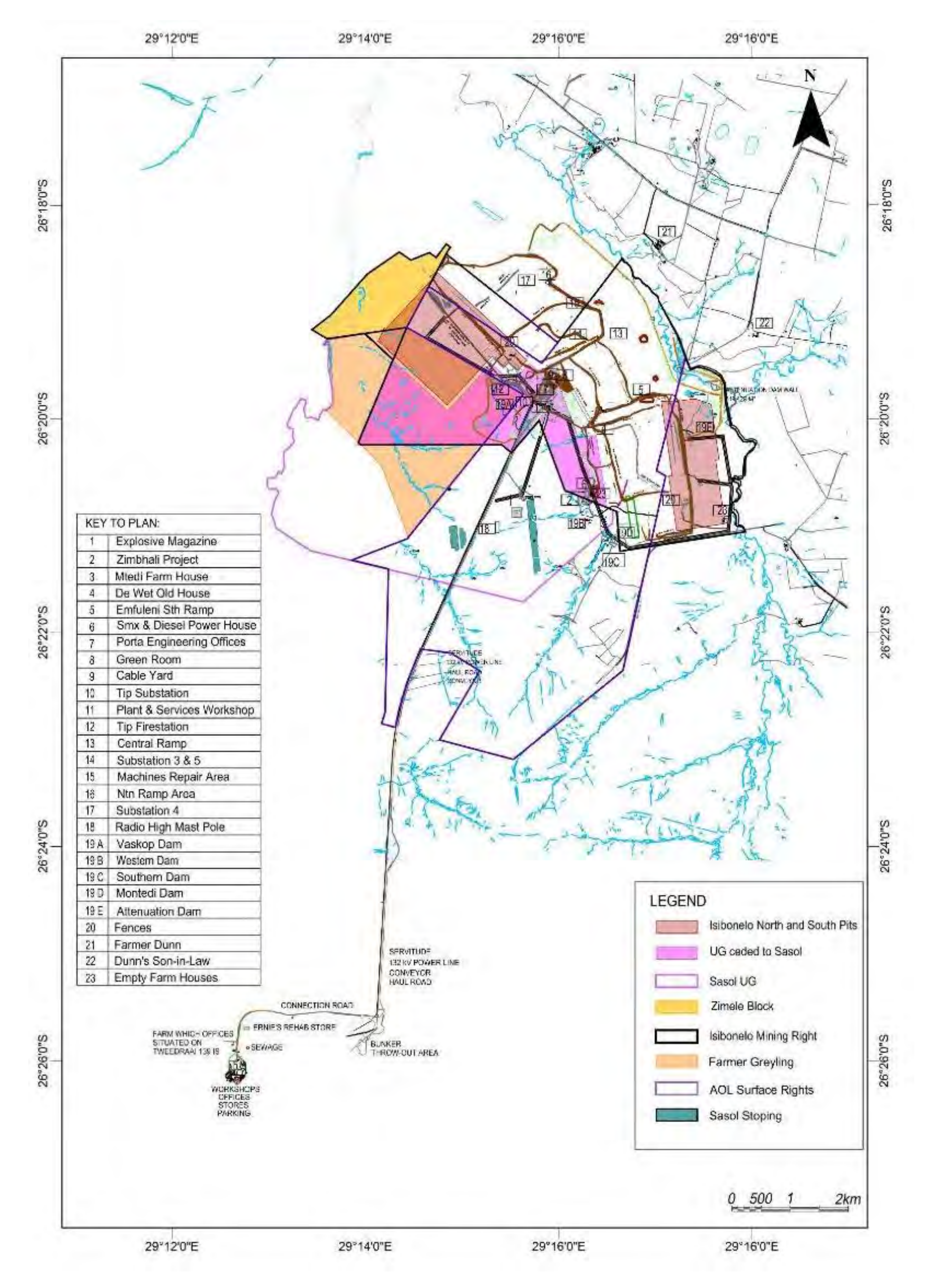
The Modifying Factors are summarised in Table 9-1.

Table 9-1: Modifying Factors

Factor	Loss (%)
Geological Loss – Measured Resources	5%
Mining Loss - Measured	6%
Mining Extraction	94%
Contamination	2%

The contamination is a combination of coal lost due to the cleaning of the upper surface and a gain from the floor material picked up during the coal loading process. Historical estimations have been made as shown in Figure 9-4 and the historical trend supports the application of the mining discount factors.

The surface rights required in the North Pit from Greyling have been acquired and do not limit the mining layout. Similarly, the land claims in the Zimele area are outside the mining area, so do not impact the Mine Plan



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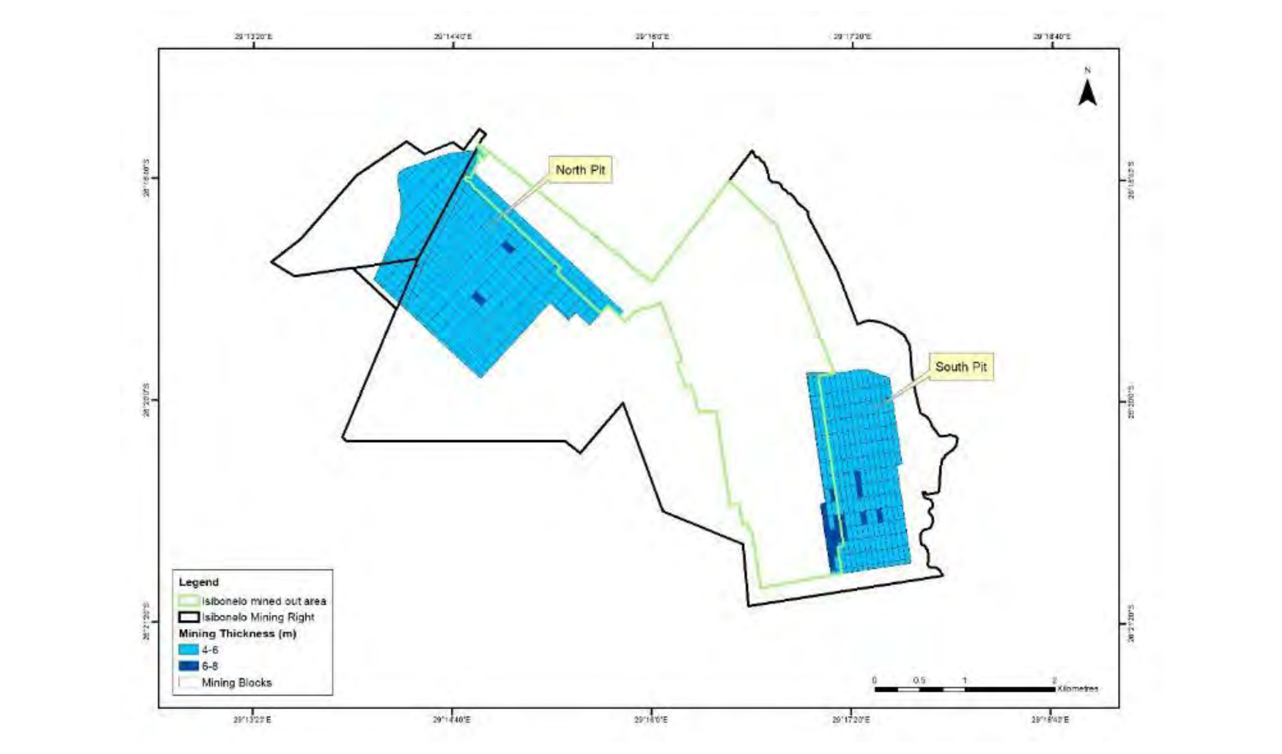
ISIBONELO COLLIERY CPR
Plan Showing Infrastructure Constraints

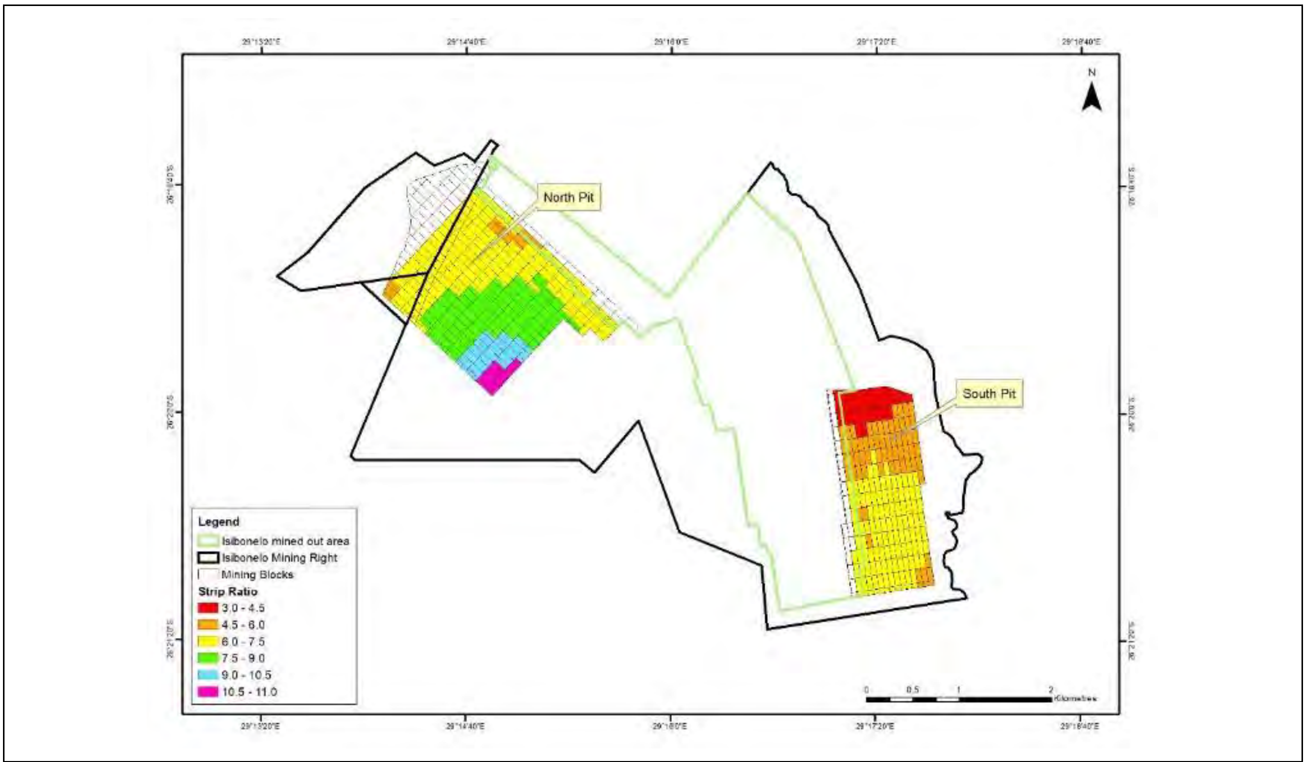
Project No.
566627

Figure 9-1: Plan Showing Infrastructure Constraints



srk consulting	**ISIBONELO COLLIERY CPR** No 4 Seam Mining Thickness (Average 4 - 6 m thick)	Project No. 566627

Figure 9-2: No 4 Seam Mining Thickness



srk consulting	**ISIBONELO COLLIERY CPR** In Situ Strip Ratio (bcm/tonne)	Project No. 566627

Figure 9-3: In Situ Strip Ratio (bcm/tonne)

srk consulting	**ISIBONELO COLLIERY CPR** Planned versus Actual Tonnes Mined (%)	Project No. 566627

Figure 9-4: Planned versus Actual Tonnes Mined (%)

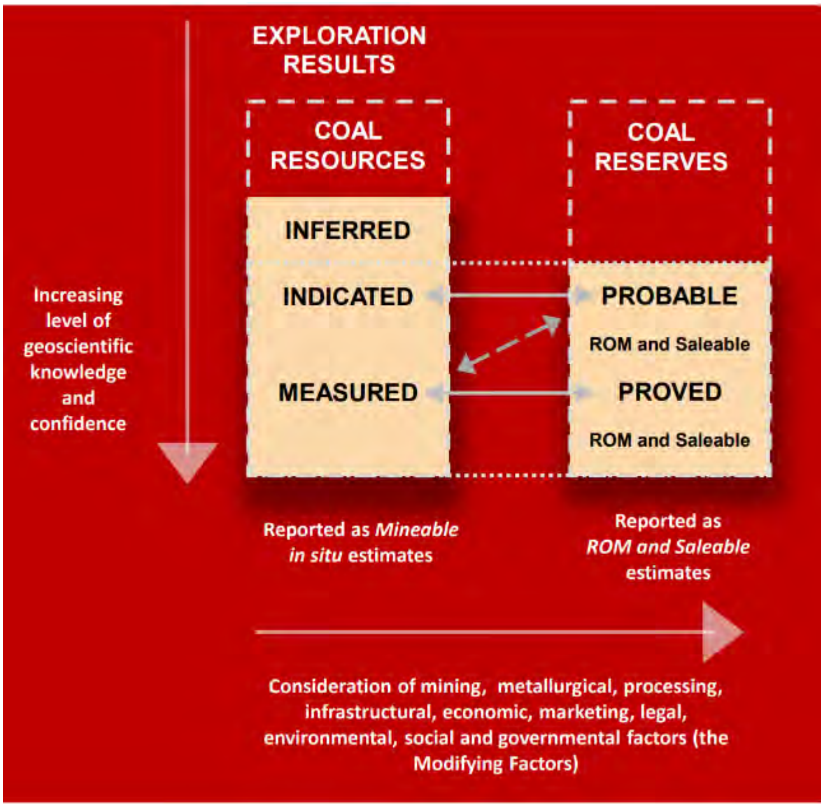
9.3. Coal Reserve Statement

[12.10(h)(ix] [SR6.1(ii), SR6.3(ii), SR5.2(ix), SR5.6(v)] [SV1.9]

9.3.1. Coal Reserve Category Definitions

[SR6.2(i)]

The Coal Reserves are classified into Proved and Probable Reserves dependent upon the geological classification of the Coal Resources included in the Coal Reserves, along with other factors of uncertainty pertaining to the mine design or coal quality. Typically, the Measured Coal Resources are the basis for the Proved Coal Reserves while the Indicated Coal Resources make up the Probable Coal Reserves. Where Inferred Coal Resources have been included in the mine planning in order to facilitate mining, they are not included in the Coal Reserves; the percentage of Inferred Coal Resources in the mine plan must be stated. In this case no Inferred Coal Resources are included in the mine plan. No Coal Reserves have been downgraded from Proved to Probable Coal Reserves in this plan. At Isibonelo, all the Coal Reserves are classified as Proved and Probable Coal Reserves. Figure 9-5 shows the relationship between Coal Resources and Coal Reserves, as per Figure 2 of the SAMREC Code.



srk consulting	**ISIBONELO COLLIERY CPR** Relationship between Coal Resources and Coal Reserves (SAMREC Code, 2016)	Project No. 566627

Figure 9-5: Relationship between Coal Resources and Coal Reserves according to the SAMREC Code

9.3.2. Moisture Reporting Basis

Whereas the Coal Resources are modelled on an air-dried basis (which includes the inherent moisture), the Coal Reserves are reported at a total moisture of 8% to replicate the moisture content of the delivered sales product.

9.3.3. Coal Reserve Statement

[12.10(h)(ix] [SR1.4(iv), SR6.1(ii), SR6.3(i)(ii)(v)] [SV1.9]

The Coal Reserve estimate has been independently estimated and signed off by Mr. N. McGeorge of SRK, based on the mining model supplied by the Company and verified by SRK. The Coal Reserve estimate is declared as at 31 December 2020. The Isibonelo Opencast Coal Reserve on a RoM basis amounts to 27.1 Mt for the North and South Pits combined. This estimate is made up of 21.9 Mt of Proved Coal Reserves (81%) and 5.2 Mt of Probable Coal Reserves (19%). The Coal Reserves are split between the North Pit (15.4 Mt) and the South Pit (11.7 Mt). The Proved Coal Reserves are derived from the Measured Coal Resources within the Mine Plan and the Probable Coal Reserves are derived from the Indicated Coal Resources within the Mine Plan. The distribution of the Coal Resources is illustrated in Figure ES-5.

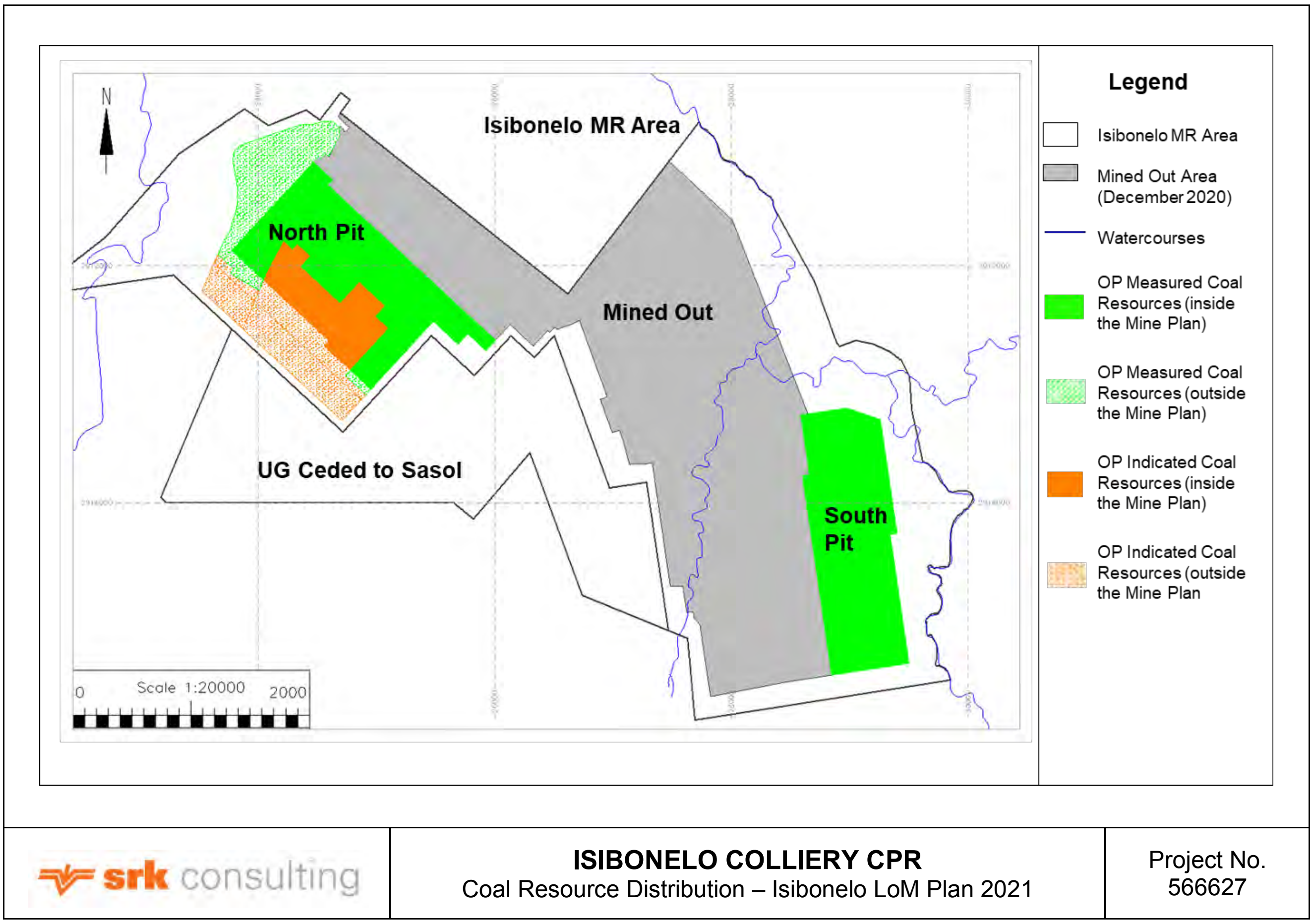


Figure 9-6 Coal Resource Distribution - Isibonelo LoM Plan 2021

The North Pit schedule stops when the South Pit is completed, and this line then defines the Coal Resources outside the Mine Plan that are not included in the Coal Reserves.

The Coal Reserves for Isibonelo on a total basis[7] (100% attributable to Isibonelo) at 31 December 2020 are summarised in Table 9-2. As the coal is sold unbeneficiated, the Isibonelo Opencast Coal Reserve on a Saleable basis amounts to the same figures as that of the RoM Coal Reserves (Table 9-2).

It should be noted that Coal Reserves are only declared for the No 4 Seam as SRK is of the opinion that the No 5 Seam does not have reasonable prospects for eventual economic extraction.

[7] Note that "total basis" refers to 100% of the Coal Resources and/or Coal Reserves within the Isibonelo Mining Right and is not necessarily the percentage attributable to the holder of the Mining Right.

Table 9-2: SRK Isibonelo Coal Reserve Statement at 31 December 2020

Reserve Category Classification	RoM Coal Reserves			Saleable Coal Reserves			
	RoM (Mt)	Total Moisture (%)	CV^1_{ar} (kcal/kg)	Sales (Mt)	Practical Yield (%)	Total Moisture (%)	CV^1_{ar} (kcal/kg)
NORTH PIT:							
Proved	10.2	8	4637	10.2	100	8	4637
Probable	5.2	8	4696	5.2	100	8	4696
Subtotal North Pit	**15.4**	**8**	**4657**	**15.4**	**100**	**8**	**4657**
SOUTH PIT:							
Proved	11.7	8	4682	11.7	100	8	4682
Probable	0.0	8	4720	0.0		8	4720
Subtotal South Pit	**11.7**	**8**	**4682**	**11.7**	**100**	**8**	**4682**
Total Proved	*21.9*	*8*	*4661*	*21.9*	*100*	*8*	*4661*
Total Probable	*5.2*	*8*	*4696*	*5.2*	*100*	*8*	*4696*
Grand Total	**27.1**	**8**	**4668**	**27.1**	**100**	**8**	**4668**

Note:
1. Note that "total basis" refers to 100% of the Coal Resources and/or Coal Reserves within the Isibonelo Mining Right and is not necessarily the percentage attributable to the holder of the Mining Right.
2. Assumes Sasol supply until September 2026.
3. Contract under agreed price to June 2025, 5.93 Mt extension option still subject to agreement.
4. RoM = Run of Mine.
5. CV^1_{ar} = Calorific Value as received.

The Coal Reserves are extracted from the mining schedule model and are from the Effective Date to the last period scheduled (1 September 2026). All the Coal Reserves are from the No 4 Seam. The coal sales quality is quoted on a gross as received basis to match the way coal prices are quoted in the financial evaluation.

Justification for Including 5.93 Mt of Coal after 2026 in the Coal Reserve Statement

The probability that the extension period to the Sasol contract will be agreed to is high as the likely cost of the coal will not exceed the current contracted cost and an additional time period allows the fixed costs in the contract to be recovered over a longer period of time. At the current cost, this coal is cost-competitive with the Sasol underground supply (average ZAR310/t) and with all the mines within a reasonable radius of operation of approximately 50 km. Transport costs for 50 km would add approximately ZAR100/t to any competing supply. Similarly, the gasification facility at Sasol does not have a ready replacement supply for this coal.

The alternative market for any coal outside of Sasol would be supply to an Eskom Power Station by truck; at current Eskom contract prices, this material would be profitable at both the Kriel and the Matla Power Stations, where the quality would be suitable as well as the transport distances. These circumstances will only be true while both pits are operational; hence, the end date of the Mine Plan as the completion of the South Pit occurs.

9.4. Reconciliation with the Previous Coal Reserve Estimate

[SR1.4(iv), SR4.5(vi), SR6.3(iv)] [SV1.6]

The previous estimate of Coal Reserves was conducted in 2019 with an effective date of 31 December 2019. The comparison between the Coal Reserves of 31 December 2019 and 31 December 2020 are illustrated in Table 9-3.

Table 9-3: Reconciliation between the 2020 and 2019 Coal Reserve Estimates

Reserves Classification Category	RoM$_{ar}$ Coal Reserves				Saleable Coal Reserves			
	Mass (Mt)		CV$^1_{ar}$ (kcal/kg)		Mass (Mt)	Mass (Mt)	CV$^1_{ar}$ (kcal/kg)	CV$^1_{ar}$ (kcal/kg)
	2020	2019	2020	2019	2020	2019	2020	2019
Proved	21.9	26.1	4 661	4 640	21.9	26.1	4 661	4 640
Probable	5.2	8.80	4 696	4 620	5.2	8.80	4 696	4 620
Total Reserves	**27.1**	**34.9**	**4 668**	**4 630**	**27.1**	**34.9**	**4 668**	**4 630**

Note:

1. Assumes Sasol supply until September 2026 for LoM 2020 plan.
2. 21.17 Mt under agreed price to June 2025, 5.93 Mt extension option still subject to agreement.
3. RoM^{ar} = Run of Mine as received
4. CV$^1_{ar}$ = Calorific Value as received

The estimated production from December 2019 to December 2020 is 3.4 Mt from both pits. The coal remaining in the North Pit at September 2026 is approximately 2.5 Mt, which is caused by the imbalance of the dragline exposure caused by not achieving the 2020 targets. The reconciliation to previous Coal Reserves shows that the main contribution to the difference between the estimates (4.2 Mt) is the depletion due to mining and the coal remaining in the North Pit at the end of the schedule.

9.5. Specific Coal Reserve Estimate Risks

[12.10(h)(x)] [SR5.7(i)]

The Coal Reserve estimate has several risks, which are indicated in Table 9-4; none of these are classified as High Risk.

Table 9-4: Specific Coal Reserve Estimate Risks

Risk	Detail	Rating
Sasol supply contract	Additional years after 2025 are constrained by pits concluding simultaneously; the last strips in the pit are left behind Equipment delay causes inability to mine 4.8 Mtpa up to 2025 Sasol applies *force majeure* on the contract	Medium to Low
Geological	Sill in south of North Pit has larger coal write-off required than planned	Low
Pit design	The short pit length in North Pit leads to lower coal exposure rate (due to multiple machine interactions	Medium
Machine age	Exposure rate cannot be achieved (age of machines and poor maintenance)	Low
Working Costs	Mine costs inflate faster than the revenue eroding the margin	Medium

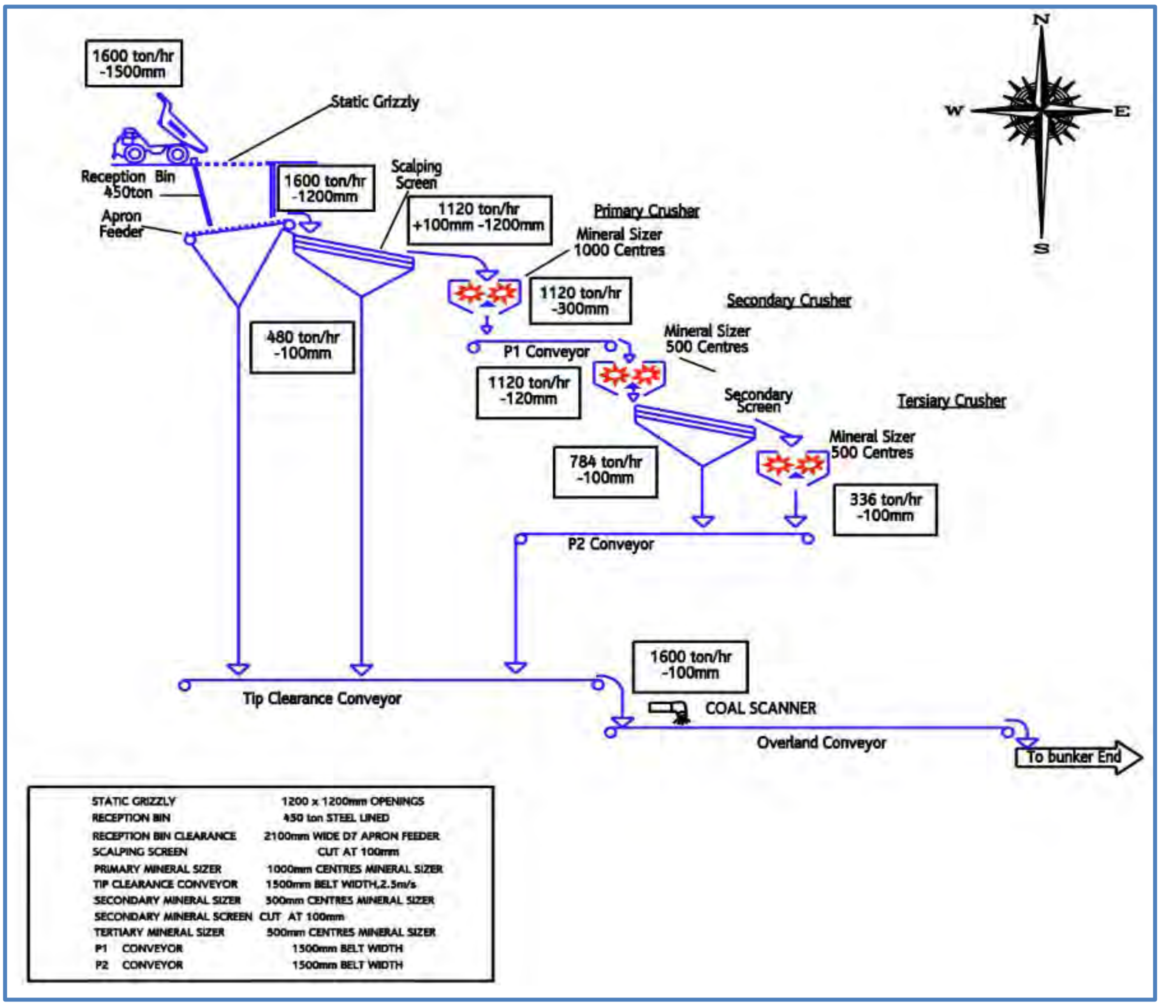
10. Coal Processing

[12.10(h)(vii)] [SR4.3(ii), SR5.2(viii), SR5.3]

10.1. Plant Description

[SR5.2(viii), SR5.3(iii) (iv), SR5.4(iii), SR6.3(iii)]

Isibonelo Colliery does not have a coal dense medium washing plant, only a crush-and-screen facility. The plant receives coal from the mine at the RoM tip, where the coal is screened and crushed to ensure that the sizing specifications are met. A critical area is the monitoring of the quality and the tonnage of the mined coal by sampling and weighing the product. In addition, a CoalScan CS 9500 (**CoalScan**) coal analyser is used as an indicator for control, but not for contractual purposes. Procedures are agreed between the mine and the customer, Sasol, to ensure agreement on tonnages and quality for contractual and payment purposes. The coal recovery plant flowsheet is indicated in Figure 10-1. The coal from the mine is transported to Sasol by a series of conveyors.



srk consulting	**ISIBONELO COLLIERY CPR** Coal Recovery Plant	Project No. 566627

Figure 10-1: Isibonelo Colliery Coal Recovery Plant

10.2. Plant Design, Characteristics and Specifications

[SR5.3(iii) (iv), SR5.6(ii), SR6.3(iii)]

The coal is hauled from the mine pit and back-tipped into a 450 t bin at the Rom tip, above which is a static grizzly with 1 m apertures (Figure 10-2, top left). The coal passes onto an apron feeder which discharges at a rate of up to 1 600 tph. From the apron feeder the coal is fed onto a scalping screen with 100 mm apertures. The plus 100 mm coal is crushed in a mineral sizer, crushing to a nominal 300 mm, while the minus 100 mm coal passes directly to the tip clearance conveyor.

The coal discharged from the mineral sizer is fed to a secondary mineral sizer for crushing to a nominal 100 mm. When the mine began this was the complete RoM circuit, but it was discovered that there was too much plus 100 mm coal in the product. The tertiary screening and crushing circuit is indicated in Figure 10-2 (top right). A further stage was added whereby the secondary crusher discharge is screened at 100 mm with the oversize coal being fed to the tertiary double roll mineral sizer. The screened undersize and the crushed coal from the tertiary crusher re-joins the coal on the clearance conveyor. The coal is fed from the clearance conveyor onto the overland conveyor.

The coal is transported by a 1 200 mm wide x 11.5 km long overland conveyor from the RoM tip at a rate of 1 600 tph. At the feed end of the overland conveyor an over-belt magnet, a sample station, a mass meter and an on-line analyser are installed. These are used for control and payment purposes and are critical for the mine quality control. The arrangement of the overland conveyor, the belt magnet and the sample station are shown at bottom left in Figure 10-2. The coal from the overland conveyor is fed into an 8 000-tonne surge bunker (Figure 10-2, bottom right) from which the coal is fed, along with other coals, to the Sasol stockpile system, via additional mass meters. The bunker arrangement is shown in Figure 10-3.

10.3. Manpower

[SR5.2(viii), SR5.3(iii)]

The plant is maintained and operated by the engineering department. The organogram of the engineering and plant maintenance department is shown in Figure 10-4.

10.4. Quality Control

[SR6.3(iii)]

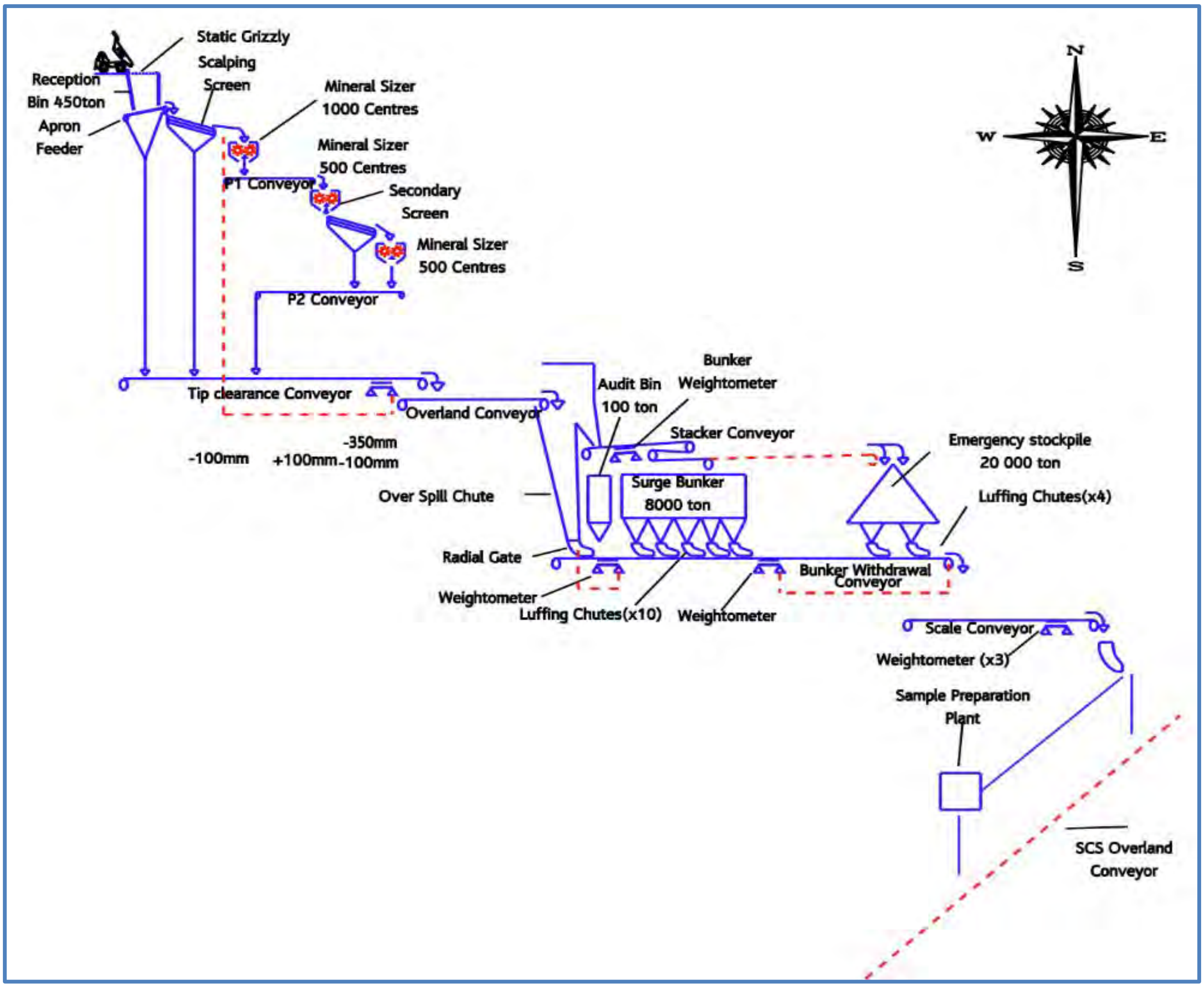
The Sasol contract specifications are shown in Table 10-1. The most critical items for Sasol are sizing, with the fines content (defined as minus 6.3 mm), being critical for the balance between gasifier and power station feed. Obviously, CV[1], ash, etc must also be within specification.

Table 10-1: Sasol Contract Specifications

Parameter	Indicative Value	Minimum/Maximum Rejection Levels; Penalty/Premium Threshold	Sample Composite
Delivery Ash Content % (db)	29.1	> 33%	Daily
Fine Coal Content <6.3 mm on wet screen	21% by mass on wet screen basis	> 23% < 23%; > 19% < 19% ;> 16% < 16%	Monthly weighted average
Total Moisture Content (as received) %	8%	> 11% < 11%; > 8% ≤ 8%	Daily
Volatiles (ad) %	21.8%	Minimum: 20.00	3 x daily
Volatiles (dry ash-free) %	> 28.0%	Minimum: 28.0	3 x daily
Calorific Value (ad) MJ/kg	20.4	Minimum: 19	3 x daily
Sulphur (ad) %	0.80	Maximum: 1.2	Monthly weighted average
Fixed Carbon (ad) %	45.18	Minimum: 43.00	3 x daily
Hardgrove Grindability Index	50 - 65	Minimum: 50 Maximum: 65	Analysis as required
Abrasiveness Index (Iron (mg) abraded/ kilogram of coal) (Yancey, Geer & Price)	< 400	Maximum: 400	Analysis as required
Top size of material	< 100 mm	Zero retained on 100 mm x 100 mm screen	Daily
Ash Fusion Temperature (Oxidising) Deformation °C	> 1 320	Minimum: 1 320 (as required)	Analysis as required

srk consulting	**ISIBONELO COLLIERY CPR** RoM Tip (top left); Tertiary Screening and Crushing (top right); Overland Conveyor, Magnet and Sample Station (bottom left) and Surge Bunker at the end of the Overland Conveyor (bottom right)	Project No. 566627

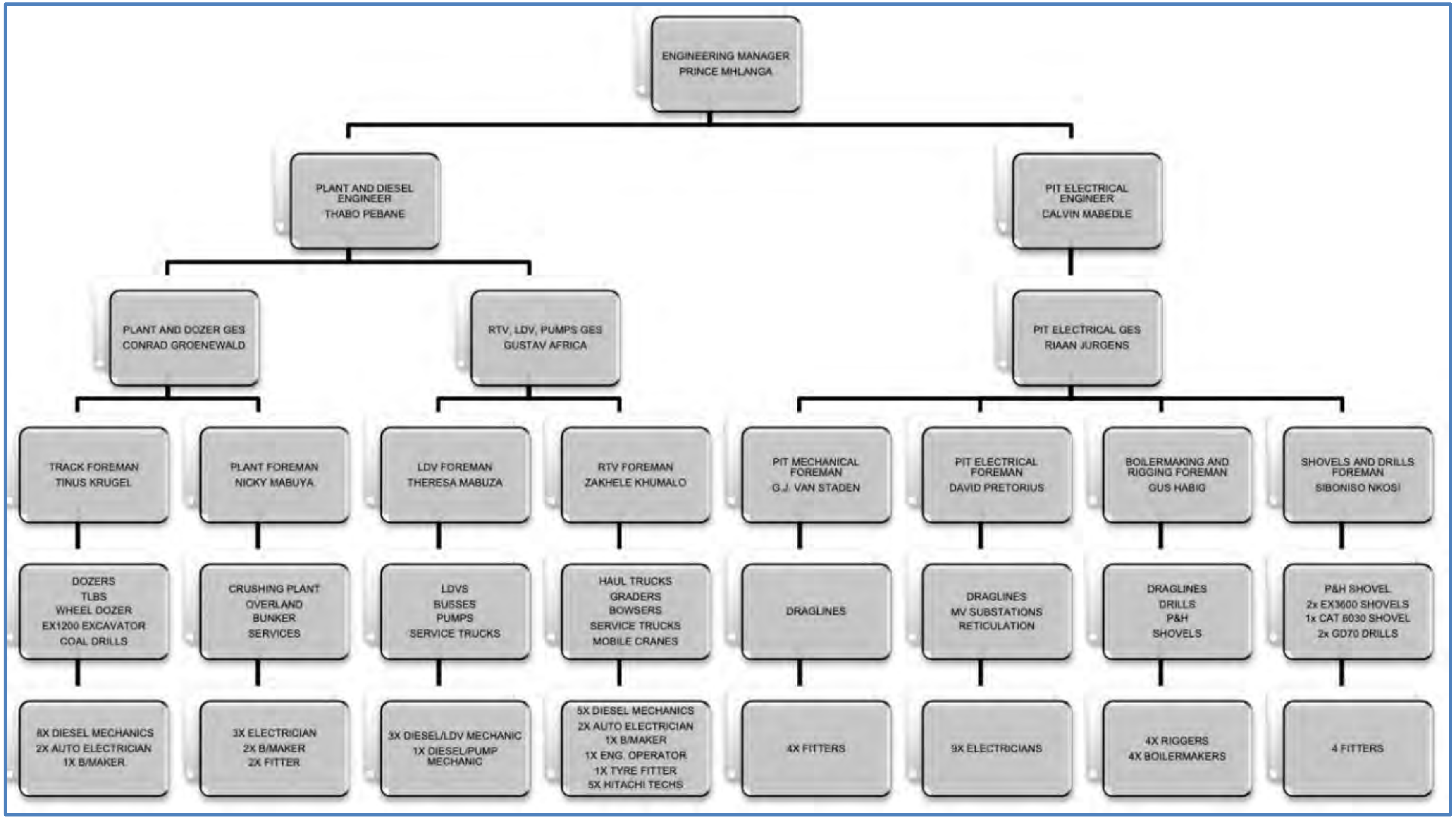
Figure 10-2: Infrastructure associated with the Crushing and Screening Operation



srk consulting	**ISIBONELO COLLIERY CPR** Coal Recovery Plant Showing Bunker Arrangement	Project No. 566627

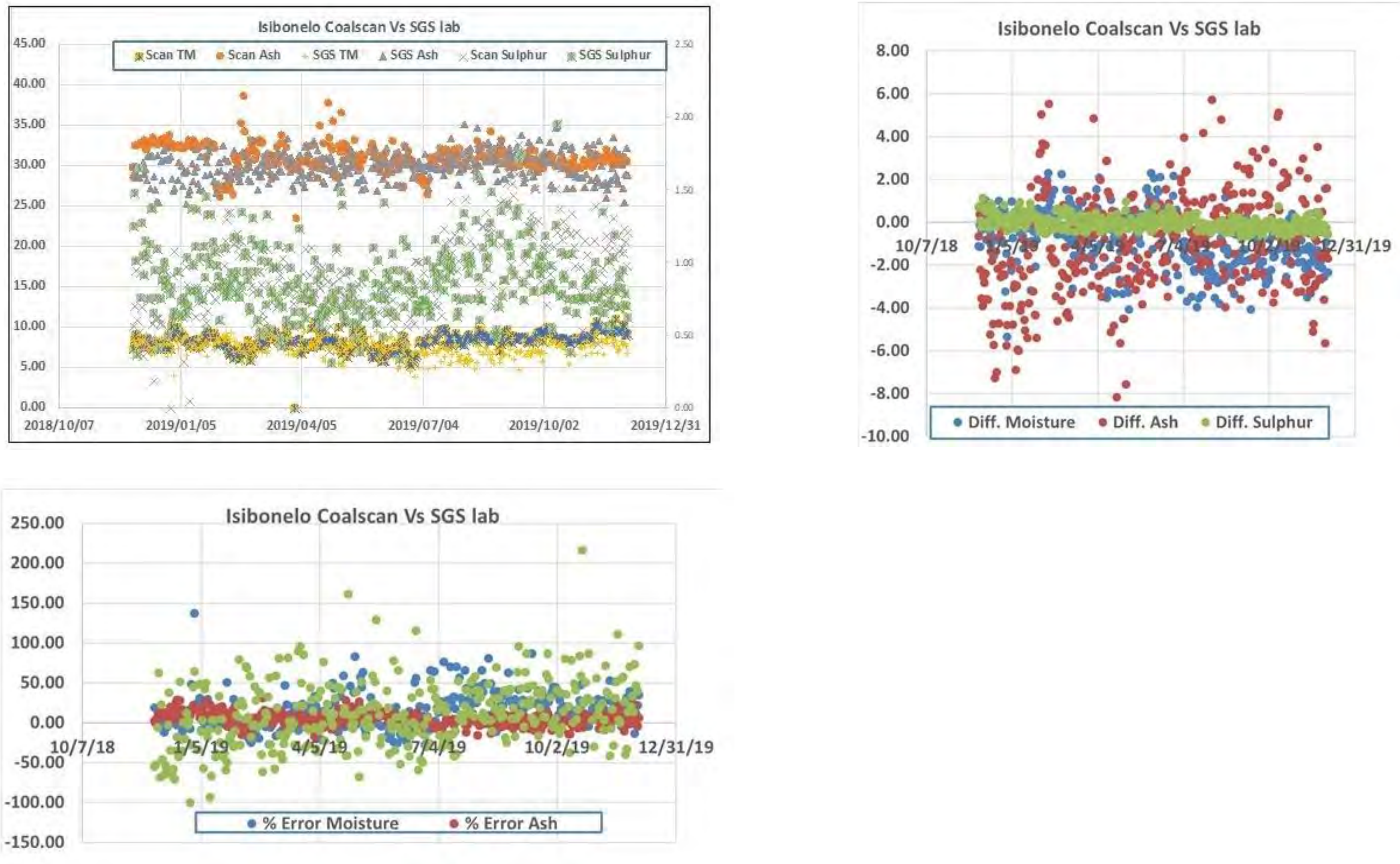
Figure 10-3: Isibonelo Colliery Coal Recovery Plant Showing Bunker Arrangement

Samples are taken in accordance with ISO 13909. The coal is sampled and weighed multiple times before it reaches the customer. The samplers are cross belt hammer samplers and are designed to produce crushed and uncrushed samples. The crushed samples are further sub divided and used for proximate analysis, while the uncrushed samples are used for the determination of total moisture and sizing. Bias testing of the payment sample station occurs each year. The samples are split, and a subsample is provided to the mine and to Sasol and a referee sample is kept. In addition, coal quality is determined on-line by the CoalScan. It is used only for an early warning indication of potential quality problems. The automatic samples and the laboratory analysis are the official arbiters. The output from the CoalScan is displayed in the mining control room and shows the hourly coal qualities; an additional screen shows the actions to be taken by the control room operator if the hourly ash and IM contents exceed the specified limits or the four-hourly FC and TS fall outside of the specifications. Short-term quality issues such as the moisture exceeding 11% for two consecutive hours or the ash content exceeding 33% for three consecutive hours are also monitored. The accuracy of the CoalScan is shown in Figure 10-5. In order to maintain the integrity of the sampling plant, regular inspections are conducted, and bias tests are performed as per Annex CS7 of the Coal Supply Agreement.



srk consulting	**ISIBONELO COLLIERY CPR** Engineering and Plant Organogram	Project No. 566627

Figure 10-4: Isibonelo Colliery Plant and Engineering Organogram



srk consulting	**ISIBONELO COLLIERY CPR** CoalScan versus SGS Laboratory Results	Project No. 566627

Figure 10-5: CoalScan versus SGS Laboratory Results

10.5. Plant Yields

As there is no washing process, the yields are nominally 100%. Geological factors, contamination, etc. have been applied to determine the RoM tonnages and qualities.

10.6. Plant Accounting

The coal stream quantities (Figure 10-6) at Isibonelo Colliery are measured using belt mass meters, which are installed on various strategic conveyors. The mass of the Tendered Tonnes of coal delivered to Sasol is determined in accordance with a detailed procedure for mass determination and reconciliation.

srk consulting	**ISIBONELO COLLIERY CPR** Sales Tonnes per Month	Project No. 566627

Figure 10-6: Sales Tonnes per Month

10.7. Plant Condition, Availability and Performance

[SR5.2(viii), SR5.3(iii)]

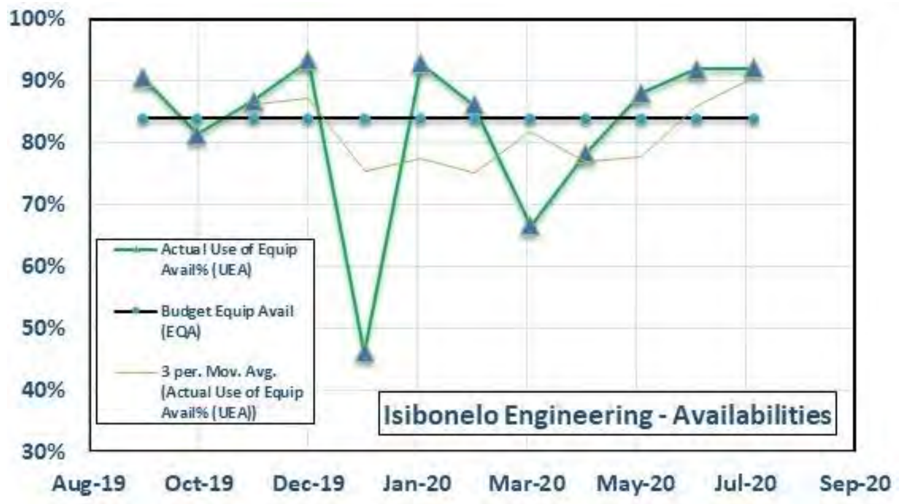
The plant is in a good condition and the maintenance plans are comprehensive. The plant availabilities are mostly in-line with budget (Figure 10-7) and, as expected, there are some months which have lower availabilities than budgeted (Figure 10-8). Actual operating hours are overall above budget and scheduled and unscheduled downtime has been reducing over the period shown. The plant has been effective in the period shown (Figure 10-8), as although the time to repair any defect is above budget, the actual time between defect/failure is consistently better than budgeted.

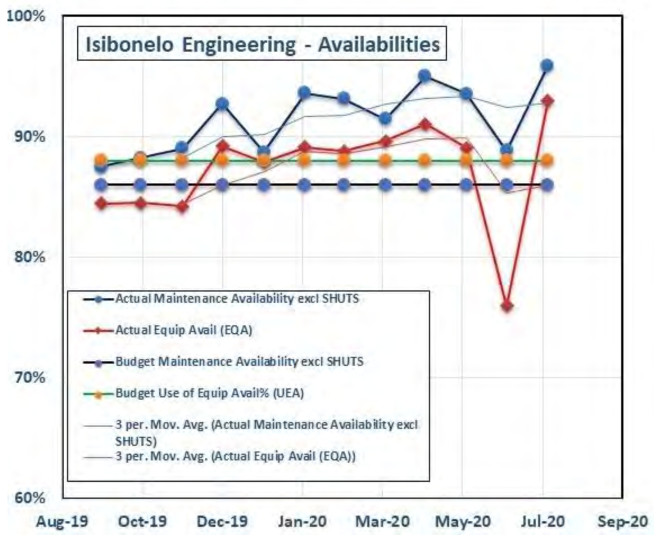
10.8. Plant Capital Expenditure

Major Capex is provided for as shown in Table 10-2. Other items such as conveyors and screen maintenance are an ongoing operating cost. All the Capex is identified as Stay in Business (**SIB**) capital.

Table 10-2: Isibonelo Coal Processing Plant Capital Cash Flow

Item	Units	LoM	2020	2021
Primary, secondary and tertiary crusher retro replacement	(ZARm)	20	6	14
Major chute repairs in plant and overland	(ZARm)	10		10
Plant Apron Feeder	(ZARm)	13	13	





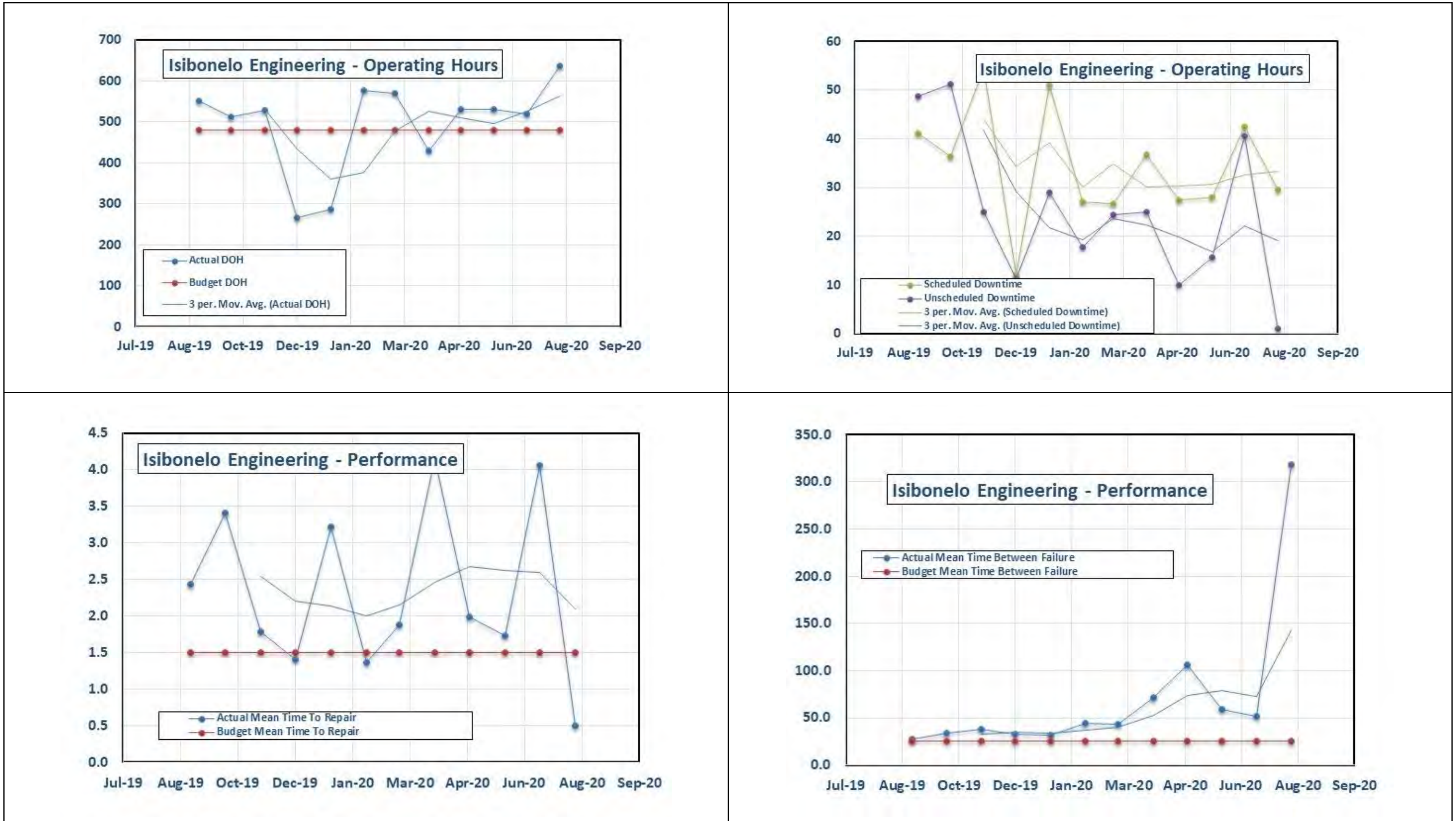
srk consulting | **ISIBONELO COLLIERY CPR** Plant Availabilities | Project No. 566627

Figure 10-7: Plant Availabilities

10.9. Specific Coal Processing Risks

[12.10(h)(x)] [SR5.7(i)]

Coal processing at Isibonelo falls under mechanical engineering/maintenance. Maintenance plans and sustaining capital programmes are in place. The coal quality being produced is purely a function of the mining and there is little that the plant can do to change the coal quality; its primary concern is to monitor quality and report back on issues.



srk consulting	**ISIBONELO COLLIERY CPR** Plant Operating Hours (top) and Performance (bottom)	Project No. 566627

Figure 10-8: Plant Operating Hours (top) and Performance (bottom)

11. Infrastructure and Engineering

[SR1.1(ii), SR4.3(ii), SR5.4(i)(ii), SR5.6(viii)] [SV1.5]

11.1. Introduction and Background

SRK mechanical and electrical engineers visited Isibonelo Colliery on 27 November 2019. The areas visited were:

- Management, Administration and Other Services office complex;
- Change house and ablution block;
- Crushing and screening plant;
- Overland conveyors and storage bunkers;
- North Pit, where inspections on a dragline, haul truck, water bowser and shovels were conducted;
- Pit and fire water pumps with standby facilities;
- Large, medium and small vehicles workshops;
- Hydraulic hose production;
- Maintenance management department;
- North Pit No.2 substation;
- Tip Medium Voltage (**MV**) and Low Voltage (**LV**) substations; and
- Overland conveyor MV and LV substations;

The mine was commissioned in 2005, with a sole purpose of supplying SSF with thermal coal. The main infrastructure of the mine is made of main offices and workshops, a coal tipping/crushing area, an overland conveyor, which is approximately 13 km long, a bunker and emergency stockpile and haul and access roads. The main mine infrastructure is indicated in Figure 11-1 and Figure 11-2.

srk consulting	**ISIBONELO COLLIERY CPR** Tip/Crusher Area Surface Layout	Project No. 566627

Figure 11-1: Isibonelo Tip/Crusher Area Surface Layout

srk consulting	**ISIBONELO COLLIERY CPR** Main Offices/Workshops Area Surface Layout	Project No. 566627

Figure 11-2: Isibonelo Main Offices/Workshops Area Surface Layout

11.2. Mechanical Infrastructure

Isibonelo is a fully operational opencast mine producing 4.8 Mtpa of coal for Sasol. The mine has all the required support infrastructure in place to sustain this rate.

11.2.1. Main Offices and Workshops

The workshops have enough space and are equipped with overhead cranes. The workshops have adequate facilities required to run a high availability programme. Offices and surrounding areas are neat with well-kept gardens, lawns and roads.

The service workshops are excellent, with ample space, overhead cranes and all the equipment needed to run a successful operation.

11.2.2. Change House and Ablution Block

The change house and ablution block were found to be in a good condition and well designed. The change house is correctly sized to cater for the requirements of the current mine operations.

11.2.3. Haul Roads and Pit Areas

Haul roads were in good condition, with dust well suppressed, but in some places the light vehicle roads were in a bad condition due to heavy rains that were experienced prior to the site visit. The mine has since reported that ongoing improvements are done to try and keep the roads in an acceptable condition.

The open areas of the pits are relatively small. Rainwater and groundwater are pumped into open dams, from where it is mostly used for dust suppression. The mine receives its potable water from Sasol as per the CSA. The new CSA has been finalised since the site visit; no amendments were made with regard to potable water supply, compared with the original CSA.

11.2.4. Conveyors and Coal Processing Plant

The conveyors and plants were not operating during the site visit; therefore, the effectiveness of the extensive dust suppression systems installed could not be witnessed.

The 13 km long overland conveyor transports broken coal from the tip at the pits to the bunker arrangement (the **Bunker**) from where coal is transported to Sasol via the “Sasol” conveyor. There is also an emergency stockpile close to the Bunker. The Bunker is the point where the responsibility for the coal is handed over from Isibonelo to Sasol. The CSA provides for both parties to address maintenance issues around the bunker area. The Company is responsible for the maintenance of the top Bunker and Sasol is responsible for the bottom of it, and onwards.

The coal is screened and crushed for effective conveying. There is no washing plant and fines are not removed. Hence there is no tailings dam at Isibonelo. The conveyors, crushing and screening, bunkers and other plant appeared to be well designed, installed and adequately maintained. The house keeping is generally good, with a few places requiring a coat of paint.

The coal processing plant is discussed in more detail in Section 10.1 of this report.

11.2.5. Mining Equipment

Equipment interchangeability is allowed for between Isibonelo and other Company mines, for critical machines and parts. The mine maintains all its machinery and equipment, except for the Hitachi rigid dump trucks and excavators, which are serviced by the Original Equipment Manufacturer (**OEM**). The Company’s Regional Engineering Services carry out monthly inspections on the draglines. Other major equipment is inspected at regular intervals by internal or external consultants as prescribed by the mine under the maintenance management policies.

The dragline, rope and hydraulic shovel, haul truck and water bowser and some other large machines were visually inspected and appeared to be in a good condition and properly maintained.

11.3. Electrical Infrastructure

[12.10(h)(x)] [SR1.1(ii), SR4.3(iii), SR5.4(ii)]

11.3.1. Bulk Power Supply

Bulk power supply to Isibonelo Colliery is from Sasol’s Syferfontein 132/22kV Substation. The agreed Notified Maximum Demand (**NMD**) between Sasol and Isibonelo 15 MVA, which the Engineering Manager indicated is as per the CSA, otherwise known as the ‘Syferfontein Agreement’. The agreed NMD remains the same in the new CSA. From Syferfontein substation, power is distributed throughout the mine via the following three main substations:

- Anglo/Isibonelo 132/22 kV substation;
- 22 kV/550 V Isibonelo Overland Conveyor Substation; andA4-SS-1 22/6.6 kV Substation, which in turn supplies power to the infrastructure (workshops, stores, admin building) minisubs. A 100 kVA generator has been installed to supply power to critical equipment connected to this substation during power failures; and
- The supply to the infrastructure minisubs (workshops, store etc.) is via a radial feed, which can result in extended power outages should this single supply experience a major fault.

The electricity bills as received from Isibonelo (April 2019 to September 2019, with July missing, and January 2020 to October 2020) were reviewed and it was evident that the agreed NMD with Sasol was never exceeded.

However, the June and August 2019 and June, July and August 2020 electricity bills indicate that there were some charges imposed by Sasol regarding reactive energy.

11.3.2. Surface Electrical Reticulation

North Pit Substation 2

The MV switchgear is made of SF6 circuit breakers, which allow for remote switching. The engineer noted that this is a standard applied for all skid substations across the mine, for spares interchangeability and ease of spares management. An automatic fire detection and suppression system has been installed in this substation, with a door-mounted automatic switch that switches the system from auto to manual as soon as the door is opened. The fire detection system reports to the control room in the event of a fire being detected.

Although Isibonelo did some re-wiring upgrades to interlock the substation pressurisation fan to the fire detection system, the insurer recommended that this be reviewed by an independent professional engineer to ascertain that the system's design is properly signed off as working safely and reliably. Quotes were requested and received by a third party professional engineer. The review is planned for December 2020.

The exterior lights on this substation are not connected to daylight switch or timer. The reason for this is to help maintenance personnel to easily identify those substations with power failures during callouts, and to limit the amount of theft that might occur as the substation is positioned remotely to the pit. There was evidence of transformer oil leaks around the tap changers of the 22/6.6 kV and the 6.6 kV/400 V transformers. It was recommended by SRK during the site visit that these oil leaks be attended to immediately, as this was a fire hazard. The mine has since reported that these oil leaks were repaired in July 2020. The equipment in this substation appeared to be well maintained.

Anglo/Isibonelo 132/22 kV Substation (Tip Substation)

The substation consists of a transformer yard housing two 20 MVA 132/22 kV transformers, a 132 kV control room, a 22 kV switchgear room and a 550 V Motor Control Centre (**MCC**) room. Each transformer has been sized to carry the entire load should the other transformer fail or be taken out of service for maintenance. On inspection, the 132 kV control room and equipment appeared to be well looked after and properly maintained. The control panels are equipped with digital relays for voltage control and transformer monitoring. The logbook was also inspected and was found to be up to date.

The 22 kV switchgear is equipped with Vacuum Circuit Breakers (**VCB**s) and allows for remote switching. The mine standard is to use VCBs for all fixed substations, for ease of equipment interchangeability and spares management. The feeders are also equipped with digital relays for overcurrent, earth fault and arc protection.

Four spare circuit breakers were kept in this substation at the time of the visit, to limit the downtime duration should any of the operating breakers fail. This is the main switchgear that supplies the mining and tipping areas, which are remotely installed (about 13 km away) from the main offices.

The substation is fully equipped with automatic fire detection and suppression system. The substation logbook was also inspected and was found to be up to date. The 22 kV substation appeared to be well looked after and properly maintained.

The 550 V MCC is supplied by two 1.6 MVA 22 kV/550 V transformers, for redundancy. There is an automatic fire detection system, but no suppression. The mine was busy installing air conditioners during the time of the visit. It has since been reported by the mine that installation of these air conditioners has been completed post the site visit. A risk assessment was done by the mine to determine whether these air conditioners will need to be interlocked to the fire detection system. The risk was found to be low, thus interlocking of the air conditioners to the fire detection system will not be implemented. The MCC substation appeared to be well looked after and properly maintained.

Isibonelo 22 kV Bunker/Overland Conveyor Substation

This substation comprises a 22 kV switchgear room and a 550 V MCC room. The 22 kV switchgear is equipped with VCBs and allows for remote switching. The switchgear room is also equipped with automatic fire detection and suppression system.

There is allowance for redundant supply to this substation via two overhead lines from the Anglo/Syferfontein 22 kV substation. The switchgear is also equipped with digital relays for protection, and test blocks for ease of testing purposes. The substation logbook was also inspected and was found to be in order. The 22 kV substation appeared to be well looked after and properly maintained.

The 550 V MCC is supplied by three 1.6 MVA 22kV/550V transformers, fed from the Isibonelo 22 kV Bunker / Overland Conveyor switchgear. Two transformers are always running, with the third transformer on standby. The MCC room is equipped with air conditioners to reduce the high room temperature that is normally caused by the VSDs. The MCC room has a fire detection system, but not suppression. A risk assessment was done by the mine to determine whether the air conditioners need to be interlocked to the fire detection system. The risk of not connecting the air conditioners to the fire detection system was found to be low, and therefore this will not be implemented. The 550 V substation appeared to be well looked after and properly maintained.

11.4. Communications and Control

The mine is equipped with Telkom Digital IP phones for office to office and mine to outside world voice communications. Handheld and mobile equipment mounted radios are used for production, with all radio communications controlled and initiated via the control room. There is adequate cell phone network coverage across the whole mine site.

The overland conveyor is driven by Siemens VSDs. The control system is based on a Siemens S7 Programmable Logic Controller (**PLC**), which most operators in the industry are familiar with. This PLC is then linked to a WinCC Supervisory Control and Data Acquisition (**SCADA**) system located in the control room. The SCADA system provides for remote and automatic operation of the conveyor/coal processing plant system, thus eliminating errors that are mostly caused by manual operation.

The control and communications system appear to be well designed for the requirements of the mine.

11.5. Security and Access Control

There is a perimeter fence around the mine, with the main entrance manned by security personnel. The visitors parking is just outside the main entrance and no visitors' cars are allowed beyond the main entrance. Access control of permanent employees and contractors is achieved through a Skycom system, which links to a SAP system, for time and attendance. Permanent employees and contractors are loaded on the SAP system and issued with activated Skycom access cards to access the mine through turnstiles and/or boom gate. Short term visitors are manually controlled by security slips, whereby visitors will manually sign in at the main security entrance before being given access into the mine. Visitors are also required to declare equipment such as laptops at security before entering the mine.

Security cameras are installed around the plant and the pit; however, there are no cameras installed along the overland conveyor corridor and at the pit substations. SRK considers lack of security cameras along the overland conveyor corridor and pit substations to be a security risk, which can result in copper or cable theft being experienced. It was also mentioned by the mine that although there is a cost saving opportunity to shut down the plant should it stay idle for more than 20 minutes to try and conserve energy, this can be an issue due to copper theft that might be experienced if the equipment is down, especially the overland conveyor.

All pit substations exterior lights are always kept on so that tripped out substations are easily identified especially during call outs, and also to try and prevent copper thieves accessing these substations. As these substations are remotely positioned from the pit, keeping the outside lights on indicates that the substation is "live" and thus dangerous to tamper with, or there might be some mine personnel attending to the substation. Night call outs around the pit areas are normally accompanied by security personnel.

11.6. Maintenance Management Systems

The mine uses the computerised Ellipse Maintenance Management System. An asset register is created, and the metrics of each asset entered in Ellipse. Depending on the type of equipment, the metrics for the service intervals are mainly based on the following:

- Hours of operation;
- Tonnage throughput;
- Time based systems such as:
  - six monthly intervals; and

- yearly intervals.

The maintenance management team is made up of the following personnel:

- One Reliability Engineer;
- One Senior Planner;
- Two Planning Assistants;
- One Technical Expeditor; and
- Two Maintenance Co-Ordinators (one responsible for diesel plant).

Discussions with the Reliability Engineer revealed that there are capabilities within the maintenance management team to act on behalf of each other should one of the team members go on leave or be off sick for an extended period.

For planned maintenance, planning meetings are held every Tuesday for maintenance that needs to be carried out the following week, whereby a proposed plan is discussed and incorporated into Ellipse. This proposed plan can be amended or modified as required until Thursday, when a committed plan with mining and engineering departments is finalised and logged on the system. The work packages are then printed on Friday and the plan discussed on how the physical maintenance work will be carried out the following week. Maintenance work is carried out in the scheduled week and the maintenance planning cycle then repeats itself. It was also noted by the mine that Ellipse has the capability of providing automatic reminders on maintenance that needs to be carried out in the following week. The standard is to have 92% availability on machines. Planned maintenance is only carried out during day shift.

For unplanned maintenance, the motto that is adopted by the mine is “if it breaks down, you go fix it”. Equipment standing time is captured by the control room; then this information is passed on to the engineering and maintenance planning departments. The breakdowns are discussed in the production meetings whereby the vetting on breakdowns is conducted and the results are then captured in Ellipse for records. Breakdowns or callouts are attended to during both day and night shifts, depending on the criticality of equipment. It was mentioned by the mine that there are logistics challenges, especially during callouts, for breakdowns on the pit infrastructure and/or equipment, due to the following reasons:

- Most technicians stay in eMalahleni, which is approximately 84 km from the mine;
- Distance of about 13 km from the offices to the pit; and
- The speed limit restriction between the pit and the offices.

Due to the above reasons, the mine was looking at introducing a 13-hour shift to try and reduce the amount of downtime on breakdowns. This had not been implemented at the time of writing this report.

To close jobs, the foreman will sign off the job card which will then be sent to the maintenance planning office. The maintenance planning office will then issue the job card to the General Engineering Superintendent (**GES**) for review and signing off. The GES will then pass the job card to the Engineer and Engineering Manager for final sign off. The job will then be captured as closed in Ellipse and the job card filed.

Yearly injection tests are carried out by WPI on all MV switchgear across the mine. It must, however, be noted that although the service sticker on the North Pit Substation 2 switchgear indicated that the injection testing was done on 18 July 2019, the injection testing prior to this was performed on 25 November 2017, as shown on the “Isibonelo Maintenance Record Complete” schedule. SRK recommends that the maintenance intervals on major equipment such as switchgear be strictly adhered to, as switchgear failure due to issues that could have been detected earlier and corrected can result in prolonged production losses. The latest 2019 WPI injection test reports were reviewed and there were some issues identified on some of the switchgear. The Engineering Manager has since indicated that these issues have been attended to and closed out.

The transformer oil sampling and analysis is carried out by Fluidex. The transformer oil analysis summary report reviewed (dated 22 July 2019) indicates that, of 39 transformers that were sampled, only five required oil purification. This is a clear indication that the mine is focussed on keeping the transformers thoroughly maintained.

Besides the injection testing on switchgear, which records indicate there was a time when this yearly scheduled maintenance was not adhered to, the maintenance management system protocol appears to be followed. However, SRK recommends that scheduled maintenance on all equipment be strictly adhered to so any defects can be detected early before causing major issues.

The mine has a maintenance contract with the OEM on Hitachi trucks and excavators. It is a “Life Cycle Guarantee for Heavy Mining Equipment” agreement between Anglo and Hitachi Construction Machinery S.A. (Supplier), where the Supplier guarantees that each machine will achieve the minimum availability guarantee of 92%, over the service life of the machine. The Supplier must provide a full repair and maintenance service for the machines including, inter alia, all skilled labour, parts and machine components, preventative and emergency maintenance services. The contract commenced in November 2013 and the expiry date of each machine is the date upon which such machine achieves 50 000 operating hours. The contract applies to the following Machines:

- Five EH 3500 Rigid Dump Trucks;
- Four EH 3000 Rigid Dump Trucks;
- One EX 3600BE Hydraulic Excavator, Electric; and
- One EX 3600LD Hydraulic Excavator Diesel.

Fixed and variable costs are clearly defined and calculated according to set rules in the contract.

The Draglines and P&H shovel are inspected and maintained by the mine. Repairs are done by the mine, or specialist contractors where required.

The most recent inspection reports on the draglines indicate that:

- For ISI DL1, there are several large cracks in the structures which are being monitored and repaired. The number of cracks re-appearing in previously repaired areas are a concern; and
- For ISI DL2, the report states that “the amount of oil leaks is alarming”.

The author was told that the P&H 2800 XPA was previously scrapped by Sasol, but then refurbished by the Company, and is now still operating well. This machine is now obsolete and obtaining spares is becoming very difficult. Sufficient alternative equipment is available if this shovel is out of action.

11.7. Engineering Capital and Operating Costs

[SR4.3(vii), SR5.6(iii)]

11.7.1. Capital Costs

[SR5.6(iii)]

The following is a summary of the Capital Dataset (Base Case) document provided by the Company, which contains the following provisions in the Isibonelo Forecast and Business Plan for the next four years, from 2021 to 2024. The total SIB Capex of ZAR392 million which include amongst others, items as indicated in Table 11-1.

Table 11-1: Isibonelo Capital Cash Flow

Item	Units	LoM	2021	2022	2023	2024
Dragline Major Spares	(ZARm)	203	46	60	73	24
EH 3000 Dump Truck overhauls	(ZARm)	15				15
Bowser and Service Truck Replacements	(ZARm)	18	9	9		
Coal and Overburden Drills	(ZARm)	18	12		6	
Replacement of Rubber Tyre Dozer	(ZARm)	13		13		
Replacement of two D10 Dozers with 475s	(ZARm)	46	23	23		
Other	(ZARm)	79	54	19		6
Total Capital	**(ZARm)**	**392**	**144**	**124**	**79**	**45**

It is SRK's opinion that these allocations provide sufficient funding to support the Business Plan. The Capital has been scheduled up to 2024, and although an assumption has been made that coal production will be up to 2026, any engineering costs from 2025 to 2026 is classified as Opex.

11.7.2. Operating Costs

[SR5.6 (iii)]

Table 11-2 is a summary of the historical engineering operating costs based on the historical production as indicated, while Table 11-3 is the SRK forecast operating cost over the next six years.

Table 11-2 shows that there was a significant increase of approximately ZAR81.8 million in engineering operating costs in 2018. This was mainly in the Working Cost Suspense (**WCS**) with an increase of ZAR48.4 million, followed by sundries with an increase of ZAR22.8 million. The WCS covers items such as overhauls and repairs, replacement of equipment, plant maintenance, transport replacement and repairs, and repairs and replacement of infrastructure and buildings.

Table 11-2: Isibonelo Historical Engineering Operating Costs

Item	Units	2017	2018	2019	2020
Tonnes	(Mt)	4.4	4.6	4.5	4.2
Labour	(ZARm)	78.7	87	94.2	99.8
Stores	(ZARm)	31.5	33.7	40.7	44.8
Sundries	(ZARm)	71.7	94.5	100.7	110.8
WCS	(ZARm)	162.5	210.9	202.1	307.5
Grand Total	**(ZARm)**	**344.3**	**426.1**	**437.7**	**567.1**
Total Eng Opex	**(ZAR/t)**	**78.25**	**92.63**	**97.27**	**135.02**

Note:

1. The figures for 2020 are based on actual data for January – September and forecast estimates for October – December.
2. Historical Tonnes for 2020 are the sales Tonnes estimate.
3. For the labour, stores and sundries items, 2019 costs were used and escalated to arrive to the 2020 costs.

For the WCS, an amount of ZAR205 million was already spent by the end of August 2020.

Table 11-3: Isibonelo Forecast Engineering Operating Costs

Item	Units	2021	2022	2023	2024	2025	2026
Tonnes	(Mt)	4.8	4.8	4.8	4.8	4.6	3.4
Overburden	(ZARm)	279	295	282	296	261	112
Engineering Planning	(ZARm)	2.5	2.5	2.5	2.5	2.4	1.3
Coaling	(ZARm)	59.2	59.2	59.2	59.2	56.8	43.9
Pit Construction	(ZARm)	51.1	51.1	51.1	51.1	50.4	46.6
Plant Eng	(ZARm)	34.6	34.6	34.6	34.6	34.2	24
Rehab	(ZARm)	13.4	13.4	13.4	13.4	13.4	13.4
Surface Eng Serv.	(ZARm)	74.3	74.3	74.3	74.3	72.5	46.6
Electricity	(ZARm)	75.5	75.5	75.5	75.3	74.9	57.2
Grand Total	**(ZARm)**	**589.6**	**605.6**	**592.6**	**606.4**	**565.6**	**345**
Total Engineering Opex	**(ZAR/t)**	**122.83**	**126.17**	**123.45**	**126.33**	**122.96**	**101.47**

Note:

- Table as per cost model “ISI LoM cost model 2021.xls”.
- Base date January 2021 real costs.
- Cost forecast based on assumption that coal production will be up to 2026.

Sundries include, amongst other things, power and water costs. The third largest contributor to the increase in operating costs was the labour costs, which saw an increase of about ZAR8.3 million.

The factors that have a major influence on operating costs at Isibonelo (and most other mines) are:

- The cost of electricity and fuel. Except for efficiency improvements, these are for the most part beyond the control of the mine;
- Salaries and wages; which should increase approximately in line with the Business Plan and inflation;
- Machinery repairs and maintenance. Major overhauls and replacements are provided for in the Stay in Business Capital. The maintenance costs for the Hitachi trucks and excavators are pegged according to the maintenance contract;
- Mining or other contractors’ expenses can be controlled by firm contracts; and
- Other expenditure such as explosives and consumables are mostly sourced locally, and therefore fairly immune to foreign currency exchange rates.

Based on the above, it can be assumed that the mine’s current operating costs should continue for the next five to six years with increases approximately in line with inflation. Although it appears that there is little opportunity to reduce the operating costs, the mine indicated that an external consultant has been appointed to conduct energy efficiency audits. These audits have been completed; however, it was noted by the mine that the recommendations did not justify any viable impact on the operations.

It is noted that pending legal action by Eskom against NERSA may result in additional increases in future power costs, impacting the forecast operating costs. Eskom is known for requesting tariff increases that are significantly above inflation. It is in the public domain that Eskom has taken NERSA to court over the ZAR69 billion bailout that the government of South Africa gave to Eskom, which NERSA deducted from Eskom’s approved revenue for the current tariff period, which ends in March 2022. The Johannesburg High Court has on 28 July 2020 found that NERSA acted unlawfully in doing this, and that the money must now be reinstated to Eskom’s revenue in a phased manner over a period of three years. This may lead to tariff hikes of about 15%, which may take effect as early as April 2021. NERSA indicated at the time that they will appeal against a High Court ruling judgement on its Eskom tariff decisions. NERSA was granted leave to appeal the High Court ruling in October 2020, with NERSA indicating that the appeal will be heard by the Supreme Court of Appeal. The matter is important for the country as a whole, as higher tariff increases will put more financial strain on the customers, especially high consumption customers such as the mines.

11.8. Risks

[12.10(h)(x)] [SR5.7(i)]

The bulk power supply unreliability remains a concern for the entire country. Operations such as the mines are normally asked to reduce their consumption (load curtailment) during Eskom load shedding, depending on the Stage of load shedding at that particular time. This can result in disruption to production for the mine operators.

Year on year Eskom tariff increases which are above inflation result in higher than anticipated operating cost increases. There may be an opportunity to implement energy efficiency programmes to try and offset the high power costs. However, the recommendations from the energy efficiency audits carried out by the mine in December 2019 did not justify any viable impact on the operations.

Lack of security cameras along the conveyor belt corridor can result in vandalism and theft of the infrastructure, which result in disruption to production and damage to equipment. Installation of cameras along this corridor and connecting them to the control room for monitoring purposes can reduce this risk, as the conveyor corridor will be monitored 24/7 from the control room.

The reader is referred to the risk assessment section (Section 19) of this report for further identified risks and their mitigations.

11.9. Conclusions

Generally, the mechanical infrastructure appears to be well maintained and no inherent material risks were identified in terms of infrastructure and equipment.

The mine’s infrastructure is robust and sufficient to provide for the LoM requirements. The agreed NMD is also enough to supply the power requirements of the mine. Forecast capital is in the right ballpark; however, operating costs can be highly influenced by year on year tariff increases that are way above inflation. The electrical infrastructure inspected during the site visit appeared to be well looked after and well maintained.

12. Logistics

[SR5.4(iii)]

All the RoM coal is supplied to SSF as per the CSA between the Company and SSF. Coal from the pits is transported to the RoM tip by truck, from where it goes through the crushing and screening plant before being transported to SSF via a series of conveyors. Reference should be made to the coal processing section of this report for more information on the coal handling.

13. Occupational Health and Safety

[12.10(h)(viii)] [SR5.2(viii)] [SR5.7(i)] [ESG4.1]

13.1. Introduction

Due to the nature of mining operations, exposure to various hazards exist that may cause harm to employees and contractors. The prime responsibility for health and safety rests with the mine management.

The MHSA requires that the employer must be able to prove risk reduction and risk control using various forms of risk assessments (baseline risk, issue-based risk, continuous risk assessments, etc.).

The consensus in the South African mining industry is that zero harm is achievable.

While significant progress has been made in improving safety performance in the South African coal mining industry in recent years, additional safety improvement plans are required to achieve an environment of zero harm.

13.2. Occupational Hygiene and Health

Occupational health is aimed at the protection and promotion of the health of workers by preventing and controlling occupational diseases and accidents by eliminating conditions hazardous to health at work. The aim is to minimize all occupational hygiene exposures to below Occupational Exposure Limits as contemplated in all mandatory CoPs and Regulation 9.2 of the MHSA.

The working environment for the Company is similar to all opencast and underground collieries and the identified occupational health risks are similar. Identified occupational health risks include airborne pollutants (dust), noise induced hearing loss (**NIHL**) and heat/cold stress-related illnesses.

13.2.1. Occupational Risk Management and Controls

The HSE risk assessment processes are applied equally to matters of occupational hygiene and health. In addition to the risk assessment procedures, the Company has all the HSE management system documentation in place with respect to:

- Hazards to health to which employees may be exposed to be identified and recorded;
- The risks to health to be identified and assessed;
- Control measures are required to eliminate or control any recorded risks at the source;
- In so far as the risk remains, the following should be in place;
    - Where possible personal protective equipment is provided; and
    - A programme to monitor the risk to which employees may be exposed has been instituted.

13.2.2. Occupational Hygiene/Health System for Mines

The Company has implemented occupational health control systems as set out in Table 13-1 and complies with the requirements in all material aspects. Occupational health risks to which employees at the mine may be exposed are summarised in Table 13-2.

Table 13-1: Summary of Occupational Hygiene and health Legal Aspects for the Company

Aspect	Requirements	Status
Pollution sources: Drilling, blasting, cutting, loading, hauling, crushing and process plant.	MHSA Section 11 (1) requires: Hazards to health to which employees may be exposed to be identified and recorded; The risks to health to be identified and assessed; Control measures are required to eliminate or control any recorded risks at the source; and in so far as the risk remains, the following is required: Where possible personal protective equipment to be provided; and A programme to monitor the risk to which employees may be exposed has to be instituted.	Employees continuously exposed to dust containing silica concentration in excess of 18% are at risk of contracting the lung disease silicosis. Coal seam silica content: 3 to 5%. The Occupational Hygiene Baseline Risk Assessment will have to be reviewed for any material changes in the underground operations and the required controls implemented.
Irrespirable atmospheres	MHSA Section 16.2 (2) If the risk assessment in terms of Section 11 shows that there is a significant risk that employees may be exposed to irrespirable atmospheres at any area of the mine, the employer must ensure that no person goes into such area without a body-worn self-contained self-rescuer which complies with the SABS 1737 specifications.	No surface operations identified with irrespirable atmospheres. All underground employees are issued with approved self-contained self-rescuers.
Occupational hygiene measurements	MHSA Section 12 (1-3) The manager must engage the part-time or full time services of a person qualified in occupational hygiene techniques to measure exposure of health hazards at the mine.	The mine has an appointed Ventilation/Occupational Hygienist.
Mandatory reports to the Regional Principal Inspector (DMRE)	MHSA Section 9.2 (7) The employer must submit to the Regional Principal Inspector of Mines the following reports on occupational measurement results: 21.9 (2) (a) – Airborne pollutants personal exposure; 21.9 (2) (b) – Heat stress exposure; 21.9 (2) (c) – Cold stress exposure; and 21.9 (2) (d) – Personal noise exposure.	These reports are compiled and submitted to the Principal Inspector on a quarterly basis.
System of medical surveillance	MHSA Section 13 (1-8) The manager must establish and maintain a system of medical surveillance of employees exposed to health hazards. A record of medical surveillance for each employee exposed to health hazards must be kept; The records are to be retained until the mine closes; The medical surveillance programme should ensure that the baseline health of every employee entering the workforce is recorded, that their state of health is monitored throughout the duration of their employment. The programme should diagnose early signs of ill health, which have to be treated and investigated; All diagnosed cases are thoroughly investigated to determine if the illnesses are worked related or inherited cases before the cases are certified; and Certified cases are referred to the certification board for possible compensation.	The Mine makes use of the Witbank Mine Hospital to conduct medical surveillance of employees.
Annual medical report	MHSA Section 16 (1) (2) Every occupational medical practitioner at a mine must compile an annual report covering employees at that mine, giving an analysis of the employees' health based on the employees' records of medical surveillance, without disclosing the names of the employees.	Annual reports are compiled by the Witbank Mine Hospital occupational medical practitioner (OMP).

Table 13-2: Identified Occupational Health Risks

Source	Health Hazard	Occupational Exposure Limit (OEL)	Risk
Coal dust	Inhalable ≥10 µm	10 mg/m³	Upper respiratory diseases Coal miners Pneumoconiosis, Chronic Bronchitis, Emphysema. Compensation claims
	Respirable ≤10 µm	2.0 mg/m³	
	Crystalline Silica	0.10 mg/m³ (New milestone 0.05 mg/m³)	Silicosis Compensation claims
Welding	Metal fumes	5.0mg/m³	Lung diseases. Kidney damage
Diesel emissions (enclosed areas, workshops etc.)	<u>Gases</u>		
	Carbon Monoxide	30 ppm	Poisonous
	Nitrogen Oxide	25 ppm	Poisonous
	Nitrogen Dioxide	3 ppm	Poisonous
	<u>Particulate Matter</u>		
	Diesel Particulate Matter	DMRE milestone: 0.16 mg/m³	Carcinogenic (Cancer) Compensation claims
Mine fires	<u>Gases</u>		
	Carbon Dioxide	5 000 ppm	Asphyxiation/toxic
	Carbon Monoxide	30 ppm	Poisonous
Thermal	Heat Cold	WB> 27.5°C DB > 37.0°C ECT ≤ 5.0 > - 30	Heat stress Heat stress Cold stress
Noise	>85 dB for duration of 8 hours	85 dB	Noise induced hearing loss Compensation claims
Radiation (weightometers)	Ionizing radiation	20 mSv per annum	Cancer
UV radiation (environment)	Sun burn	-	Skin disorders
Power tools and TMM vehicles	Vibration	-	Musculoskeletal disorders and neurological effects
TMM vehicles	Ergonomics	-	Discomfort, fatigue and musculoskeletal disorders

Note:

1. WB = wet bulb temperature.
2. DB = dry bulb temperature.
3. ECT= equivalent chill temperature.
4. TMM = Trackless Mechanised Mining

13.2.3. Occupational Hygiene Measurements

Airborne Pollutants – Dust

Coal dust is the main airborne pollutant in coal mines and the cause of Occupational Diseases such as Coal Workers Pneumoconiosis (**CWP**) and Chronic Obstructive Airway Disease (**COAD**).

The main sources of coal dust at opencast operations are removal of overburden, drilling, blasting, crushing, loading/hauling and tipping/conveying. The dust measurement results from 2017 to 2020 for Isibonelo are set out in Table 13-3.

Table 13-3: Isibonelo Dust Measurement Results

Reporting Area	2017	2018	2019	2020
Coal Dust				
Total samples	51	59	34	39
Total samples > OEL (OEL: 2.0 mg/m³)	0	0	0	39
Silica Dust				
Total samples	51	59	34	39
Total samples > OEL (OEL:0.10 mg/m³)	0	0	0	0

Note:

1. Individual measurements exceeding the OEL
2. The 2020 data is based on actual data for January – September 2020 and forecast estimates for October – December 2020.

SRK Comments

The Company has good dust prevention control systems in place. In terms of the dust measurement results, all measurement results from 2017 to 2019 were below the OEL, a commendable achievement.

Employees exposed to dust with a Silica content in excess of 18% (gold mines) are at risk of contracting the lung disease silicosis. Coal seam dust with a silica content of 3 to 5% is regarded as a low health hazard (no silicosis samples exceeded the OEL and no diagnosed silicosis cases).

Dust Management Plan (Control Measures)

The dust prevention programmes include the following:

- Natural ventilation (dilution);
- Wet drilling;
- Dust suppression in haul roads;
- Enclosed drivers' cabins;
- PPE: dust masks;
- Extraction fans in specific areas;
- Dust sampling; and
- Lung function tests.

Airborne Pollutants - Diesel Particulate Matter

The Company is an opencast operation. Compared with underground mines, employees at opencast operations are not exposed to the same extent of diesel exhaust emissions and Diesel Particulate Matter, i.e. opencast exposure is significantly less.

Airborne Pollutants – Welding Fumes

Although welding fumes have been identified as a health hazard, measurement results are below OEL of 5.0 mg/m³.

Noise Exposure

The Company routinely monitors noise exposure at the operations. There are areas on the mine where noise levels exceed 85 dB(A) over an 8-hour time weighted average (TWA). In terms of the 2019 quarterly reports, the highest recorded instantaneous noise level did not exceed 103 dB(A). This is the protection level [103 dB(A)] of the current hearing protection devices (HPDs).

The following controls are in place to prevent employees from contracting NIHL:

- All areas with noise levels in excess of 85 dB(A), have been demarcated as noise zones;
- Employees must wear hearing protection devices (HPD) in noise zones. The HPDs can reduce noise levels from a maximum of 103 dB(A) to below 85 dB(A); and
- All mining equipment noise levels will not exceed the DMRE milestone limit of 107 dB(A).

Radiation

The weightometers (Scale, Troxler gauge etc.) in the process operations are nuclear sourced. In terms of the Occupational Hygiene reports, Radiation is not included in the measurement results nor is it recorded in the annual medical reports. Although weightometer Radiation does not pose a significant hazard, Radiation levels should be monitored on a quarterly basis. Radiation levels should not exceed the maximum permissible level of 20 mSv per annum.

Heat and Cold Stress

In terms of the average surface mid-summer temperatures in the eMalahleni area ,which average between 25.0˚C and 30.0˚C dry bulb and the shallow mining depths (±100 m) in the underground collieries (average rock temperatures: 22.0˚C), there is no risk of heat disorders for either the surface and underground operations. The mid-winter surface temperatures of 1.0˚C can cause cold stress. Thermal clothing is provided to employees when the temperature approaches the action level of 6.0˚C.

Flammable Gas

Flammable gas (methane) can be intersected during the opencast cover drilling. Controls include procedures to manage flammable gas intersections.

13.2.4. Occupational Health Surveillance

The Company compiles annual health surveillance statistics, as shown in Table 13-4.

Table 13-4: Occupational Health Surveillance Statistics

Item	2017	2018	2019	2020
NIHL: diagnosed cases	0	0	0	0
Silicosis: diagnosed cases	0	0	0	0
Chronic Obstructive Airway Disease (COAD)	0	0	0	0
Coal Workers Pneumoconiosis (CWP) diagnosed	0	0	0	0
Occupational Cardio-respiratory Tuberculosis (TB)	0	0	0	0

Note:

- The 2020 data is based on actual data for January – September 2020 and forecast estimates for October – December 2020.

In terms of the dust measurement results, all measurements from 2017 to 2020 were below the OELs. The zero diagnosed occupational diseases linked to Coal dust during the past four years is an indication of good dust control systems at the Company.

It is possible to record occupational tuberculosis cases in the health surveillance statistics. However, from an occupational health viewpoint, tuberculosis should not be classified as an occupational health illness. Pulmonary tuberculosis is caused by bacteria and therefore, coal dust or any other dust for that matter, can cause tuberculosis. Many employees contract tuberculosis when they have low immune systems, due to underlying illnesses such as HIV/AIDS and/or silicosis. Due to the low silica content in coal seams (3 to 5%), there should be no risk of any silicosis-related tuberculosis cases.

NIHL also has long lagging periods before there any symptoms. Compared with previous years, the diagnosed There were no diagnosed NIHL cases from 2017 to 2019. However, there four diagnosed cases in 2020. This can be ascribed to NIHL having long lagging periods before there are any symptoms of hearing loss.

All diagnosed occupational health disease cases are thoroughly investigated to determine if the illnesses are work related, inherited or non-occupational illnesses before the cases are submitted for certification and compensation.

13.3. Safety

13.3.1. Health and Safety Policy

The Company has a Safety, Health, Environment and Quality policy in place (updated January 2020) and gained OSHAS 18001 and ISO 14001 certification. SRK understands that the Company has embraced all the key aspects that would be needed to ensure that the operations are operated and managed effectively in these areas.

13.3.2. Safety and Health Legal Compliance

The safety aspects and requirements for the Company are summarised in Table 13-5, illustrating that the Company complies with all the safety requirements.

Table 13-5: Summary of the Main Safety Aspects for the Company

Aspect	Requirements	Status
Regulatory requirements	Legal compliance necessary for managing risk, developing trust with government and other stakeholders Mine Manager is responsible for observance and enforcement of all safety and health regulations. Non-compliance can result in Section 54 temporary closure, penalties or loss of licence.	The Company complies with the minimum legal requirements.
Legal appointments	In terms of the MHSA, the following main legal appointments should be in place: Sect. 2A(1) - CEO; Sect. 4(1) and 2A(2) - General Manager; Sect. 3(1) - Mine/Operational Manager; Sect 2.17.4 - Chief Safety Officer; Sect. 2.13.1- Engineer; Sect. 2.6.1- Site Manager; Sect. 2.6.1- Plant Manager; Sect. 17.2 - Chief Surveyor; Sect. 2.9.2 - Chief Geologist; Sect. 14.1(8) - Rock Engineer; Sect. 12(1) - Occupational Hygienist; Sect. 5.1(a) & (b) - Occ. Hygienist; Sect. 16.1(1) - Occ. Hygienist; and Sect. 13 (3) - Occ. Medical Practitioner	The required legal appointments for the Company are in place.
Health and Safety Policy	MHSA Section 8(1)(a-d) Every manager must prepare a document that describes the organization of work, establishes a policy concerning the protection of employees' health and safety at work, establishes a policy concerning the protection of persons who are not employees but who are directly affected by mining activities and outline the arrangements for carrying out and reviewing policies. Management's commitment towards zero harm.	A Health and Safety policy is in place.
Health and Safety Committee	MHSA Section 8(2) and 8(3)(b) The manager must consult with the health and safety committee on the preparation or revision of the document and policies referred to in Section 8(1), prominently and conspicuously display a copy of the document referred to in Section 8(1) for employees to read. Each health and safety representative must be supplied with a copy of the document	The Company has the required health and safety committee in place.
Risk management, risk identification and controls	MHSA Section 11(1-4) The employer must be able to prove risk reduction and risk control. The risk management standard should determine how risks are identified and managed	Baseline, issue based and continues risk assessments have been compiled; From the baseline risk assessments, risk registers are created whereby risks are listed in order of severity; Additional Controls: Workshop risk assessment and control; A stop, look, assess and manage (SLAM) document has to be completed before a task

Aspect	Requirements	Status
		commences; Examination and making safe of working places; Occupational Hygiene risk assessment; Fire and Explosion risk assessment; Irrespirable Atmospheres risk assessment for confined spaces; Incident reporting and investigations; Risk and change management procedures; Job safety analysis (JSA); Safety improvement plans; Internal audits; Hawcroft fire audits (external); OSHAS 18001 audits (external); ISO 14001 and 18001 audits (external); Monitoring audits and review; An excellent system of group and individual mine procedures are in place at all operations; and All documents controlled by document controllers.
Mandatory Codes of Practice	MHSA Section 9(1-6)(7a and b) A manager must prepare and implement a code of practice on any matter affecting the health and safety of employees and other persons who may be directly affected by activities at the mine if the Chief Inspector requires it. Required CoPs: The prevention of mine fires; Emergency preparedness and response; Occupational health programme on personal exposure to airborne pollutants; Thermal stress; Fatigue Management; Noise exposure; Medical incapacitation to work; Combat rock falls and slope instability in surface mines; Right to refuse unsafe work; Minimum standard for fitness to perform work at a mine; Women in mining PPE; Trackless mobile machinery; Safe use of conveyor belt installations; Safe operation of draw and tipping points; Isolation, lockout and clearance to work; and Mine residue deposits	The required mandatory CoPs are in place.
Safety training	MHSA Section 10(1-3) An employer must provide employees with any information, instruction, training or supervision that is necessary to enable them to perform their work safely and without risk to health.	A comprehensive training procedure is provided for all new appointments. Refresher training is provided annually.

13.3.3. Safety Performance Monitoring

This section sets out the current and planned safety targets as well as control/mitigation measures.

Safety Statistics

In terms of the available statistics, there were no fatalities from 2017 to 2020.

The number of lost time injuries (**LTI**) and the Lost-Time Injury Frequency (**LTIFR**) per million man-hours (2017 to 2020) is set out in Table 13-6. The LTIFR decreased from 1.74 in 2017 to 0.67 in 2018 and increased to 2.68 in 2020. Although there was only one LTI in each of 2017 and 2018, the reason for the decrease in the LTIFR was due to more man-hours worked in 2018 (1 492 472) compared with 2017 (575 167). The increase in the LTIFR during 2019 and 2020 was as a result of four lost time injuries in 2019 and a progressive three lost time injuries in 2020.

There were no fatalities from 2017 to 2020. Total fatality free shifts to the end of 2019 is 2 427174, a commendable achievement.

The principle causes of the LTIs reported from 2017 to date were as follows:

- Struck by tools and equipment (mostly finger injuries);
- Falling from height;

- Mobile vehicle accident; and
- Slip and fall.

Table 13-6: Isibonelo Safety Statistics

Category	2017	2018	2019	2020
Lost Time Injuries	1	1	4	3
LTIFR per million man-hours	1.74	0.67	2.68	2.0
Fatalities	0	0	0	0

Note:

1. The figures for 2020 are based on actual data for January – June and forecast estimates for July – December.

SRK Comments

The Company achieved zero LTI and a progressive LTIFR of 0.63 for the period July to September 2020. The prediction for 2020 H2 is possibly one LTI with a progressive LTIFR of 2.0.

DMRE Safety Stoppages

Table 13-7 sets out the number of stoppages imposed by the DMRE on the Company from 2017 to 2020. These Section 54 stoppages are generally implemented for fatalities and where in the opinion of the DMRE there is non-compliance with the MHSA and mine procedures. The one Section 54 in 2017 was lifted by the DMRE after corrective action was taken by the mine.

Table 13-7: Isibonelo DMRE Stoppages

Category	2017	2018	2019	2020
Number	1	0	0	1
Total production days lost	2	0	0	5

Note:
The figures for 2020 are based on actual data for January – June and forecast estimates for July – December.

Two production days were lost as a result of the one Section 54 stoppage in 2017. The reason for the stoppage was recorded as a blasting incident.

Five production days (± 40 000 tonnes) were lost as a result of the Section 54 notice issued in July 2020. A summary of the reasons for the stoppage were as follows:

- Dangerous highwalls not barricaded;
- Highwall failures not reported to DMRE;
- No means to measure safety berms; and
- Non-compliance with COVID-19 requirements.

The notice was uplifted by the DMRE after corrective actions was taken by the mine.

Safety Improvement Plan

In the quest towards zero harm, the Company identified focal areas to reduce the LTIFR and work-related incidents and accidents.

13.4. Safety and Health Risks

[12.10(h)(x)] [SR5.7(i)]

13.4.1. Falls of Ground

The potential for fall of ground incidence does not exist at opencast operations. However, in opencast mines, there is a risk of high wall failure and sloughing. The reader is referred to the discussion in Section 7 for rock engineering aspects If not managed adequately, the consequences of this risk could be:

- Section 54 work stoppage orders from DMRE;
- Production delays;
- Injuries and/or fatalities; and
- Damage to surface structures depending on the severity and extensiveness of the collapses.

Adherence to legislation, approved CoPs and standard procedures, validation of the designs by industry experts and active training and development of staff is required to mitigate this risk.

13.4.2. Lost Time Injuries

Continued harm to employees can have the following implications:

- Impact on production and profits;
- Increased involvement of DMRE with the possibility of additional Section 54 stoppages; and
- Revenue losses.

13.4.3. Flammable Gas

Flammable gas (methane) explosions are one of the principle hazards in coal mines. Intersections of flammable gas can occur during surface drilling operations. The Company has a methane monitoring and management procedure in place.

13.4.4. Spontaneous Combustion

The occurrences of heating progressing to full-scale spontaneous combustion is a risk at opencast coal mines. Procedures of preventing and dealing with spontaneous combustion are in place.

13.4.5. Mine Fires

Surface mine fires and specifically conveyor belt fires have occurred at South African mines (the most recent, the conveyor belt fire which burnt extensively at Khwezela Colliery in 2016). The Company has a Mandatory CoP for the Prevention of Mine Fires (surface) in place.

13.4.6. Airborne Pollutants

Employees continuously exposed to respirable dust levels exceeding the occupational exposure limits in the mining operations can contract compensable occupational diseases such as CWP.

13.5. Risk Management

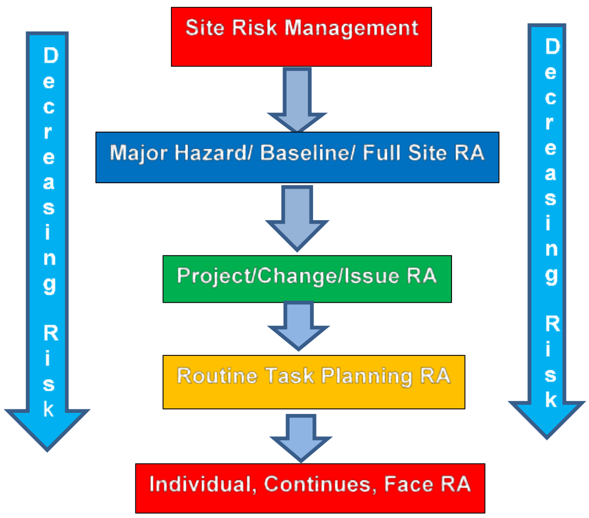
The purpose of applying a risk management process is to proactively and systematically reduce losses. The basic rationale for safety risk management continues to be the need to improve safety performance through improved decision making.

13.5.1. Overall Function, Site Major Hazard, Baseline or Full Site Risk Assessment

The objective is to look across an entire site, find potential major incidents and analyse, establish controls, document and apply approaches so related risks are as low as reasonably practicable (ALARP).

The Company’s mines all make use of the comprehensive “Safety Risk Management Process”.

An example of a flow chart for the systematic approach to risk management is shown in Figure 13-1.



srk consulting	**Isibonelo Colliery** Systematic Approach to Risk Management	Project No. 566627

Figure 13-1: Systematic Approach to Risk Management

14. Environmental and Social Compliance

[12.10(h)(viii)[SR5.5(i)(ii)(iii)] [ESG4.3, ESG4.4] [SV1.2]

14.1. Environmental Authorisations and Licenses

[SR1.5(ii) (v), SR5.5(ii) (iii)] [ESG4.3]

14.1.1. Mining and Prospecting Rights

The reader is referred to the discussion in Section 3.3.1

14.1.2. Environmental Management Programme

The reader is referred to the discussion in Section 3.4.2.

14.1.3. Water Use Licence

The reader is referred to the discussion in Section 3.4.1 for the details; the WULs and exemptions are summarised below (Table 14-1).

Table 14-1: Summary of Water Use Licences

Licence Number	Description	Approval Date	Comments
06/B11D/FBCGIJ/9121	Isibonelo Colliery Zimele Block WUL	19/11/2019	Amended WUL, which has replaced the original WUL (Licence No. 03/A31J/ABCFGIJ/2869 granted on 08/11/2017)
Ref. No. 2064B	Exemption for Sewerage Treatment Plant	29/03/2000	STP Exemption

14.1.4. Mine Waste Disposal

The reader is referred to the discussion in Section 3.4.1.

14.1.5. Social and Labour Plan

The reader is referred to the discussion in Section 3.4.2.

14.1.6. Mining Charter

The Company promotes home ownership with the long-term goal of meeting the Mining Charter's requirement that all employees live in sustainable human settlements (AATC, 2015). The Mining Charter requires the following:

- Convert and upgrade hostels into family units;
- Attain an occupancy rate of one person per room; and
- Facilitate home ownership options for all mine employees in consultation with organised labour.

A transition away from housing provision at operations to full homeownership was initiated by the Company in 2007 (AATC, 2015). Accordingly, housing allowances are aligned with market conditions to encourage employees to relocate to sustainable residential settlements in established areas. The Company further supports bulk infrastructure development within the host communities in order to fast-track housing delivery.

Based on the information presented in the 2020 to 2024 SLP (AAC, 2020b), Isibonelo meets the housing requirements of the Mining Charter; therefore, no housing infrastructure projects are envisaged or are under way. There are no hostels or mine villages at Isibonelo, and all employees, except for approximately 14 employees, provide for their own housing (AAC, 2020b). A review of Isibonelo's latest Mining Charter Scorecard report (AAC, 2019z), submitted on 26 March 2020, indicates that eight employees are currently residing in mine owned houses. Another 247 employees receive a housing allowance to cater for their own accommodation arrangements, including mortgage or rental payments.

Based on the 2019 Mining Charter Scorecard report (AAC, 2019z), the site meets the requirements in terms of ownership, mine community development and housing and living conditions. Isibonelo achieved more than half of its target on employment equity, procurement, supplier and enterprise development, and human resource development (AAC, 2019t).

14.2. Environmental Aspects

14.2.1. Environmental Profile

The reader is referred to the discussion in Section 2.6.1.

14.2.2. Environmental Management at Isibonelo Colliery

[SR5.5(i), SR7.1] [ESG4.1] [ESG4.7]

Environmental management at Isibonelo is undertaken by the environmental department which includes Mr Marthinus van Wyk (Environmental Coordinator) who is assisted by Ms Willencha Snyders (Environmental Person in Training (**PiT**)). The environmental staff report to the Mining Manager (Mr Hein Reyneke – currently serving as Acting Mining Manager), who in turn reports to the General Manager. The reader is referred to Section 8.2 for Isibonelo Colliery Organogram.

The environmental management approach for Isibonelo was presented by the Environmental Coordinator at the site visit on Wednesday 27 November 2019. SRK also met with the Environmental Coordinator as part of the Isibonelo Environmental Update via a MS Teams Meeting on Tuesday 6 October 2020.

Isibonelo has an Environmental Management System (**EMS**) where environmental information and data is collected validated and managed. The EMS is saved on the Company's SHE (Safety, Health and Environment) Management System (Enablon). As part of the EMS, environmental staff at Isibonelo capture all environmental-related issues, risks and opportunities on an EMS register. Risks are rated, assigned management options and then tracked to ensure that the effectiveness of the risk mitigation is achieving the objective.

Isibonelo is ISO 14001:EMS:2015 accredited and as such is committed to continual improvement of environmental management at Isibonelo. The mine undertakes annual internal ISO 14001 audits and recertification will take place in 2020.

The mine has SHE Policy which is posted at various locations within the mine offices. As part of the EMS, Isibonelo has several internal environmental procedures as listed in Table 14-2. The procedures have been prepared by the Environmental Coordinator and reviewed by the Mining Manager. All procedures are approved by the General Manager.

Table 14-2: Internal Environmental Procedures

Description	Summary of Purpose	Implementation Date	Document Number	Revision Number
EMS-Related Procedures				
EMS Communication Procedure	To provide a framework for the overall internal and external communications which are relevant to the EMS as per the scope that has been defined in the EMS Manual	2019/12/17	AATC026029	01
EMS Documentation and Control Procedure	This procedure governs the monitoring, audits and reviews required for Isibonelo Operations	2019/12/17	AATC026039	01
EMS Emergency Preparedness Procedure	This procedure identifies potential emergency situations and potential accidents that can have an impact on the environment and how the mine will respond to these situations. This procedure also defines the roles and responsibilities required to handle the emergency response in a manner, which will minimize the impact on the environment	2019/12/17	AATC026045	02
EMS Evaluation of Compliance and Environmental Audits Procedure	To ensure that periodic audits of Environmental Management System (EMS) are undertaken as required by the ISO 14001:2015	2019/12/17	AATC026046	01
EMS Incident Management Procedure	This procedure provides guidance and rules specifically for classifying, investigating and reporting environmental incidents. The objectives of this procedure are to ensure that environmental incidents are reported to the relevant responsible persons; to eliminate, minimise or control any hazard to the environment; and to prevent the recurrence of incidents	2019/12/17	AATC026040	01
EMS Legal and Other Requirements Procedure	This procedure describes actions required for accessing the legal register, monitoring mining related environmental legislation, and updating the legal database.	2019/12/17	AATC026047	02
EMS Manual Procedure	The purpose of the ISO14001:2015 EMS Manual procedure is to provide a framework for the overall environmental monitoring audits and reviews that take place. Monitoring, audits and reviews have been set out to meet compliance obligations as per the scope that has been defined in this procedure	2019/12/17	AATC026041	01
EMS Monitoring, Audits and Reviews Procedure	The purpose of the ISO14001:2015 Environmental Monitoring, Audits and review procedure is to provide a framework for the overall environmental monitoring, audits and reviews that take place. Monitoring, audits and reviews have been set out to meet compliance obligations as per the scope that has been defined in the EMS Manual	2019/12/17	AATC026042	01
EMS Objectives and Targets Procedure	The purpose of the ISO14001:2015 Objectives & Targets Procedure is to give guidance into the setting and measurement of objectives and targets	2019/12/17	AATC026043	01
EMS Operational Control Procedure	This procedure provides guidance with regards to operational planning and control	2019/12/17	AATC026030	01
EMS Policy, Leadership and Commitment Procedure	The purpose of the ISO14001:2015 Policy, Leadership and Commitment Procedure is to ensure that the policy, leadership roles, and commitment to the EMS	2019/12/17	AATC026044	01
EMS Risk Management Procedure	The purpose of the ISO14001:2015 Risk and Change Management is to provide a framework for the identification of risks as per the scope that has been defined in the Environmental Management Systems Manual	2019/12/17	AATC026037	01
EMS Training, Competence and Awareness Procedure	This procedure gives an outline of the typical training, awareness and competency requirements that are needed	2019/12/17	AATC026038	01
Other Procedures				
Enablon Environmental Data Management Procedure	To document the overall data management (capturing, validating, approval and storage) process as required for sustainability reporting requirements at Isibonelo Colliery.	2019/12/17	AATC017899	02
Environmental legal requirements procedure	The aim of this procedure is to ensure that environmental permits and licensing requirements are identified in a timely manner, for all new project on the operation and to incorporate International Finance Corporation (IFC) Performance Standards (PS) and Guidelines into all projects	2020/01/28	AATC002368	03
Handling, storage and transportation of chemicals procedure	To ensure that hazardous materials are handled and stored in a safe and responsible manner, to clarify which hazardous chemicals should be stored in	2019/12/17	AATC002390	08

Description	Summary of Purpose	Implementation Date	Document Number	Revision Number
	contained areas, to minimize the impact of hazardous materials on the environment including surrounding and vulnerable communities. that could occur due to emergency situations and to ensure the incorporation of IFC PS and Guideline and the goal of Zero Waste to Landfill			
Noise and vibration monitoring procedure	The noise and Vibration Monitoring Procedure describes actions involved in the monitoring of ambient noise in the workplace, as well as ground vibration and air-blast from opencast workings	2019/12/17	AATC009312	09
Oil and silt trap operation and maintenance procedure	To ensure that all oil and silt traps on the mine are fully operational and regularly maintained; to ensure that one person in each area is responsible for the oil and silt trap, and that this person is fully aware of the operating mechanisms of the oil and silt trap; to ensure that as far as possible, oil and silt is drained directly from machinery and subassemblies into appropriate containers so as to minimize the amount of wash down oil and silt ending up in the oil and silt trap; to ensure that the oil and silt emanating from workshop and wash bay areas are recovered by the oil and silt trap and to ensure structures development and operation take into consideration the IFC PS and Guideline and the goal of Zero Waste to Landfill	2019/12/17	AATC002394	08
Operation of a sequencing batch reactor (**SBR**) Sewage Plant and management of septic tanks procedure	To ensure that the effluent discharged from the sewage plant is compliant according to Department of Water Affairs (now called Department of Human Settlements, Water and Sanitation) standards and the exemption	2019/12/17	AATC002396	07
Resource Efficiency Procedure	To ensure that resource inputs and outputs are monitored per area. Identify areas of priority in terms of reducing resource consumption. To ensure that the inputs and outputs of the different areas are sent to the she team, for information to be centrally and readily available	2019/10/30	AATC002392	06
Stakeholder Engagement Procedure	The purpose of this procedure is to detail who and how stakeholders will be engaged. This will ensure that Isibonelo Integrated Management System (**IIMS**) is appropriately managing concerns and needs of all identified stakeholders (including interested, affected and authorities)	2019/10/30	AATC002393	06
Waste Management Procedure	The purpose of this procedure is to ensure that all waste material generated at Isibonelo Colliery is prevented and where not possible to be prevented is reduced, sorted, stored, handled, recycled, recovered and where possible bio-remediated or otherwise disposed of in accordance with legislative requirements, Environmental Policy and objectives and targets. To ensure the correct and responsible disposal of waste products and to maximise recycling opportunities in accordance to the International Finance Corporation Performance Standards and Guideline and the goal of Zero Waste to Landfill; to promote separation and management of waste at source; safe separation and disposal of waste; and to minimize the impact of waste on the environment including surrounding and vulnerable communities	2019/12/17	AATC002391	10
Waste Categories Colour Codes Supporting Document	Indicates the different waste types as well as how these wastes should be disposed. The mine has different coloured containers for the disposal of different types of wastes	2019/12/17	AATC018930	-

14.2.3. Environmental Monitoring

[ESG4.1, ESG4.7]

Isibonelo environmental staff undertake surface, groundwater, air quality and bio-monitoring and report on meteorological conditions (Figure 14-1 indicates the various monitoring sites at Isibonelo based on the most current monitoring reports reviewed). Blasting and vibrations analysis is also undertaken and reported on.

Monitoring is carried out by several external sub-consultants. Table 14-3 indicates the type and frequency of monitoring at the colliery as well as the name of sub-consultants presently commissioned to conduct monitoring.

Table 14-3: Environmental Monitoring at Isibonelo

Monitoring	Sub-consultant	Frequency
Air quality: $PM_{2.5}$ and PM_{10}	WSP Global Inc.	Continuous monitoring with monthly reporting
Air quality: Dust	WSP Global Inc.	Monthly reporting
Blasting and Vibration	Blast Analysis Africa cc	Monitored per blast event with monthly reporting
Meteorological conditions	WSP Global Inc.	Monthly reporting
Surface water	Aquatico Scientific (Pty) Ltd	Monthly monitoring and quarterly reporting
Groundwater	Aquatico Scientific (Pty) Ltd	Quarterly monitoring and reporting
Biomonitoring	Afrika Enviro & Biology and The Biodiversity Company (Pty) Ltd	Bi-annually (wet and dry season)

Based on a review of the recent monitoring reports (January to August 2020), the following applies for each monitoring parameter:

- **Air quality: $PM_{2.5}$ and PM_{10}:** Particulate matter is monitored at one location (Mr Mahlangu residence) using a Topas monitor. According to air quality monitoring reports reviewed for January-August 2020 (WSP, 2020a, b, c, d, e, f, g and h) compiled in 2020 the following was observed in terms of the $PM_{2.5}$ and PM_{10} levels:
  - $PM_{2.5}$: $PM_{2.5}$ concentrations remain compliant with no exceedances recorded to date in 2020. The $PM_{2.5}$ running annual average of 6.77 μg/m^3 (up to August 2020) is compliant with the annual average $PM_{2.5}$ standard of 20 μg/m^3; and
  - PM_{10}: PM_{10} concentrations were only compliant in January and March 2020 however the Colliery has exceeded the allowed exceedances per calendar year (four exceedances allowed per calendar year) in the remaining months to date with a total of 55 PM10 exceedances recorded for 2020 according to the latest Air Quality Monitoring report (WSP, 2020h). The Colliery is non-compliant with the annual average PM_{10} standard of 40ug/m^3 with a running annual average of 55.31 μg/m^3. It is noted that all PM_{10} exceedances are investigated by Anglo onsite personnel and these investigations are recorded in the real time investigation register which has been made available to SRK for review. It is observed that some of the exceedances observed are not originating from Isibonelo but rather from surrounding activities (agriculture and open land) however PM_{10} exceedances attributed to Isibonelo originate largely from the pit;
- **Air quality: Dust:** Dust fallout monitoring at Isibonelo Colliery is currently conducted at seven monitoring locations all equipped with single dust fallout units. All of the monitoring stations have been largely compliant with the National Dust Control regulations over the past twelve months (WSP, 2020h) with only two sequential exceedances recorded at the Mr Mahlangu monitoring location (in October and November 2019). No exceedances have been recorded for 2020 to date. The Colliery do submit a formal letter to the Gert Sibande District Municipality to inform them of dust fall out exceedances and provide proof of the investigations undertaken to determine the cause of the exceedances;
- **Surface water:** Isibonelo currently monitors surface water quality (physical and chemical) at 16 surface water points within and around the Mining Rights area (Figure 14-1). These points have been located at the three rivers boarding the mine, the various mine dams and wetlands. In general, according to the latest quarterly water monitoring report prepared by Aquatico Scientific (dated 3 August 2020), none of the sampled surface water localities at the mining and office areas complied with the limits set in the Isibonelo Resource Water Quality Limits where exceedances were observed in terms of nitrates, alkalinity, total dissolved solids (**TDS**), electrical conductivity and chloride concentrations. Chemically, the majority of localities could be classified as ‘ideal water quality’ while the remaining localities could be

described as ‘good’ or ‘marginal’ water quality (according to the DWA classification system). Exceedances have been observed but the values obtained to date are regarded as low according to the quarterly report (Aquatico, 2020). Based on the report and as confirmed through discussion with the Environmental Coordinator, the most concerning localities are Montedi Dam and Farm Dam (also called S3 dam) which exhibit high sulphate and TDS concentrations. The Colliery are currently undertaking studies to understand their downstream and upstream water qualities as well as how these are contributing to the poor qualities observed in the monitoring data;

- **Groundwater:** Isibonelo Colliery currently monitors groundwater quality (physical and chemical) at 16 boreholes within and around the Mining Rights area (Figure 14-1). In general, according to the latest quarterly water monitoring report prepared by Aquatico Scientific (dated 3 August 2020), most sampled groundwater localities can be described as alkaline and saline. None of the localities were fully compliant to the Isibonelo Water Quality Guidelines and included notable exceedances in calcium, magnesium, ammonium, electrical conductivity and TDS. Groundwater quality varies from good and ideal to poor and marginal across the site The KRL borehole, located north and downstream of mining exhibited the most concerning results being described as ‘extremely saline’ with extremely high sulphate values;
- **Blasting and vibration:** Seven permanent seismograph monitoring stations are located within the colliery Mining Right area (Figure 14-1). From the period January-August 2020 blasting events were registered on the seismograph with ground vibrations exceeding the United States Bureau of Mines (**USBM**) recommended maximum (134 dB) to prevent human irritation and blasts registering a high air blast reading that exceeding the USBM recommended maximum level occurring during each month of 2020 at the various monitoring points; and
- **Biomonitoring:** Biomonitoring is conducted at upstream and a downstream sites along the Steenkoolspruit (Figure 14-1) and at one site on the Dwars-in-die-wegspruit and at the Rietkuil and Witbank wetland systems during the wet and dry seasons. Results indicate that land use impacts have largely modified water chemistry in terms of its dissolved solid and manganese content. The 2020 Biomonitoring Report (The Biodiversity Company, March 2020) mentions that this observation is likely caused by decant or seepage from the adjacent historical opencast activities at Kriel Colliery together with pollution from agricultural runoff surrounding the Steenkoolspruit catchment. The PES of the Steenkoolspruit was derived to be largely modified (class D). The Dwars-in-die-wegspruit River was monitored for the first time in 2019 and it was found that the watercourse is heavily impacted on by a water transfer scheme and has altered biological features. Wetland monitoring results indicate that both the Rietkuil and Witbank wetland systems are in a stable condition, with no additional impacts observed in the 2019 study period. Their PES was derived to be largely modified (class D) for both systems due to impacts from livestock agricultural practices.

Isibonelo does not have a formal alien invasive weed control programme in place, but the mine has an ongoing weed control programme.

14.2.4. Environmental Performance

[SR7.1] [ESG4.1, ESG4.7]

To comply with South African legislation and the commitments undertaken in the EMPr, and to ensure that operations are conducted to good international industry practice, it is necessary to regularly assess performance and progress against the EMPr, environmental authorisations and the relevant corporate policies. In terms of the MPRDA and NEMA, a mine is required to regularly conduct audits to ascertain compliance with the requirements of the environmental management programme.

The Environmental Coordinator as Isibonelo confirmed that performance audits are undertaken. This was verified through a review of the Isibonelo Closure Plan (Golder Associates (**Golder**), March 2018). Based on discussions held with the Environmental Coordinator, the following environmental internal and external audits are carried out by the colliery:

- Internal audits:
  - WUL audits – annual;

  - ISO 14001 EMS audit – annual; and
- External audits:
  - WUL audits – annual;
  - Environmental performance audits/legal compliance audits (EMPr PAR and EA) – annual;
  - ISO 14001 EMS audit – annual; and
  - GN704 water audit – every second year.

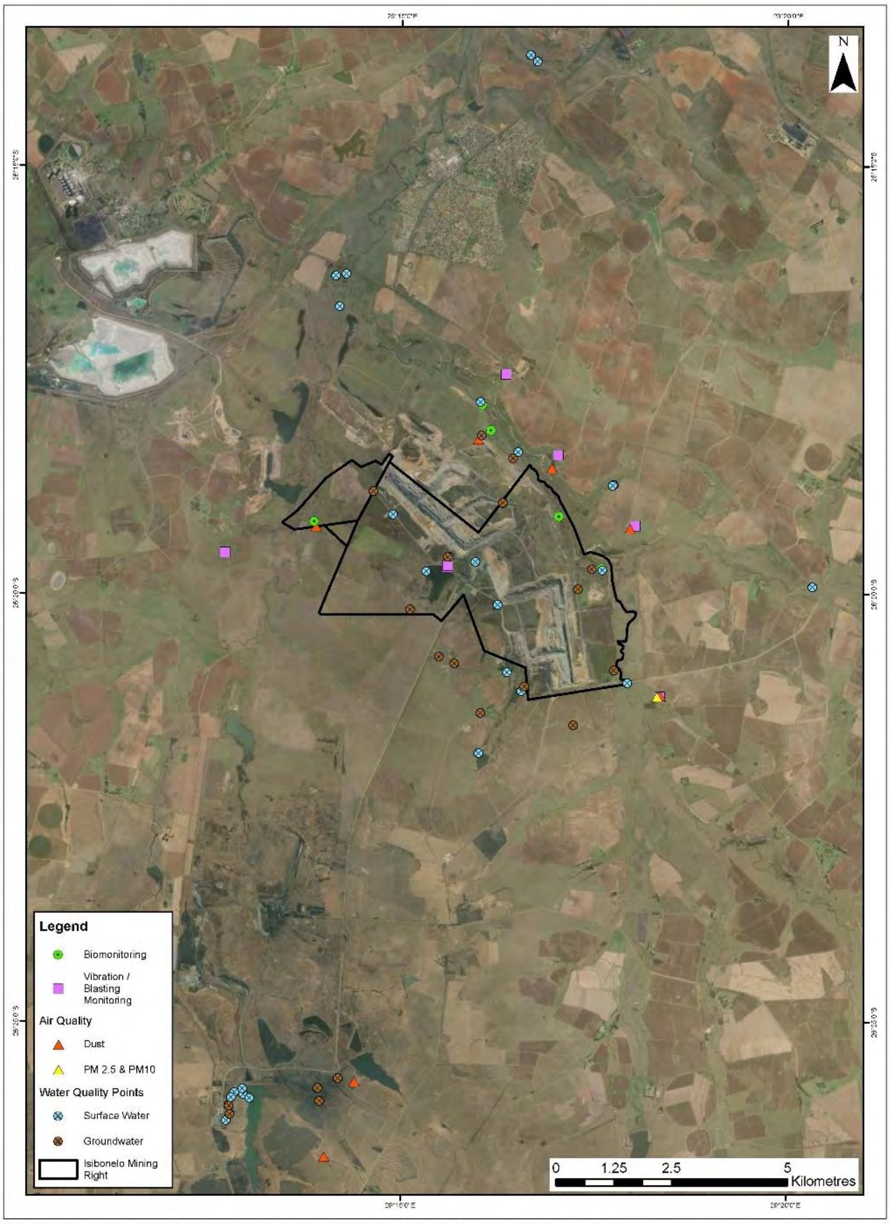
Audit Findings

The findings below are based on a review of the latest available internal and external audits.

Internal Audits

A summary of the main findings from each type of internal audit conducted for Isibonelo are summarised below:

- **Internal WUL audit**: According to the internal WUL audit undertaken in November and December 2019, 26 non-compliances, 11 partial compliances and 75 noted/not applicable conditions were noted. The majority of the non-compliances noted where for conditions that were 'unattainable' or not possible to comply with. Other non-compliances were noted for activities triggering Section 21 uses that are not licenced. The action plan for addressing these non-compliances is to amend the existing WUL and to apply for a WUL to licence activities currently been undertaken but for which no WUL is in place. Based on discussions with the Environmental Coordination, the colliery is in discussions with the DHSWS regarding the WUL amendment and has submitted a WUL for the unlicensed activities (in June 2020).
- **Internal ISO 14001:2015 audit**: According to the internal Environmental Management Systems Audit conducted in July 2019, one observation and 15 minor non-conformances were observed with no major non-conformances recorded. The minor non-conformances observed were for partially not adhering to legislation or procedures in some areas on the colliery. While the internal auditing team has indicated that these minor non-conformances can be improved upon or rectified, there are two areas which would need to be addressed as soon as possible;
- The audit mentioned that the storage of waste tyres on the colliery is in non-compliance to the waste tyre regulations of 2017 published under the NEW:WA (Act No 59 of 2008). If not already rectified, the mine would need to address this issue as a matter of urgency; and
- Part of an EMS system involves management review. Several aspects of the management review requirement are not being undertaken. It is suggested that this receive attention as management review is a big driver for improvement of the EMS which in turn will promote good environmental stewardship.



srk consulting	**ISIBONELO COLLIERY CPR** Monitoring Locations	Project No. 566627

Figure 14-1: Monitoring Locations for Isibonelo Colliery

External Audits

A summary of the main findings from each type of external audit conducted for Isibonelo are summarised below:

- **WUL audit**: The external WUL audit was conducted by Shangoni Management Services and Mervyn Taback Incorporated for the assessment period February 2018 to February 2019. The audit was only conducted on WUL 06/B11D/FBCGIJ/9121 and audits on WUL 04/B11D/CI2227 were not observed as part of the review. Based on the audits, the general conclusion was that the colliery is generally compliant with the conditions of the IWUL and that the colliery has prepared an action plan to address the non-compliances noted during the audit SRK has not had sight of the action plan and cannot comment if this plan or any of the proposed actions within this plan have been executed;
- **Environmental performance audits/legal compliance audits**: The latest Environmental Audit Report (Regulation 34 of the EIA Regulations) and the Performance Assessment Report (Regulation 55 of the

MPRDA) was conducted by Shangoni Management Services (Pty) Ltd (Shangoni, 2019b) for the audit review period 1 February 2018 to 31 January 2019. The audit was conducted on all the approved EMPrs and EAs for the mine. The mine was found to demonstrate a high level of compliance against the various management commitments; however, there were several areas of non-compliance relating to commitments which are not practical to implement and/or no longer applicable as several activities were not previously licenced. The colliery submitted a Draft EMPr amendment for public comment in October 2019 to license the unlicensed activities and amended the EMPr to make it more practical for the current mining operations. It is unclear is if the EMPr has been approved. SRK has reviewed the draft document as part of this ITR process;

- **External ISO 14001:2015 audit**: The external ISO audit carried out by Bureau Veritas in September 2019 indicated that only two minor non-conformances were noted. The one non-conformance pertained to incorrect storage of empty oil drums and containers within the engineering workshops. The second non-conformance was for having proof of management review in the form of minutes of meetings to confirm that leadership and compliance obligations had been discussed as part of the management review process. The auditors recommended that the mine receive Certification to ISO 14001:2015 as long as a Corrective Action Plan with immediate correction and root cause analysis with proposed corrective actions was submitted by 12 November 2019. SRK has not seen proof that this was submitted to Bureau Veritas; and
- **GNR704 water audit:** The latest available GN704 audit (at the time of writing this report) was conducted by Green Output in January 2019. The mine was found to be non-compliant with Regulation 6(c) (water arising within any dirty area) and Regulation 7(g) (any water system must be kept free from any matter at all times). These were the only two conditions from 53 conditions that the mine did not comply with and that the auditor stated that corrective actions had been instituted by Isibonelo. SRK has not seen documentary proof of these corrective actions as part of the ITR review.

14.2.5. Environmental Risks

[12.10(h)(x)] [SR5.7(i)] [ESG4.9]

The following risks were identified:

- Non-conformance to air quality standards in terms of the NEM:AQA for $PM_{2.5}$ and PM_{10} as well as the National Dust Control Regulations can result in directives been issued to the colliery. According to the air quality monitoring reports reviewed for 2020, the colliery has had several exceedances in PM_{10} in various months, which has resulted in non-compliances. While this is a risk, if managed correctly, the significance of this risk can be reduced and is not considered material;
- The colliery has recorded several exceedances in the recommended maximum for ground vibrations and blasts. This can result in stakeholder grievances being issued against the colliery. While this is a risk, if managed correctly, the significance of this risk can be reduced and is not considered material;
- Non-conformance to water quality standards can result in directives being issued to the colliery. While this is a risk, if managed correctly, the significance of this risk can be reduced and is not considered material;
- Non-compliance to the conditions contained in the colliery's approved EMPrs, EAs and WULs can result in directives being issued. Although several internal and external audits conducted at Isibonelo Colliery indicate areas of non-compliance, the colliery has, according to the various auditors, either partially rectified the non-conformances or compiled action plans to address these areas of non-compliance. If the action plans are managed, these non-compliances can be proactively addressed, making associated risks non-material; and
- Conducting activities which have not been authorised and can result in loss of its legal license to operate: The colliery was conducting several activities which had not been authorised in terms of NEMA as well as the NWA. To rectify this situation, the colliery submitted a Draft EMPr amendment for public comment in October 2019 to licence the unlicensed activities and amended the EMPr to make it more practical for the current mining operations since several of the approval conditions were either no longer relevant or

not practical to implement. This EMPr has not been approved. A WUL was submitted in June 2020 for Section 21 water use activities currently been undertaken at the colliery without a licence.

14.3. Social Aspects

[SR4.3(v), SR5.5(iv)(v)] [ESG4.1, ESG4.5, ESG4.8]

Based on the information presented in the SEP (AAC, 2019w), host communities include: Tweedraai; Holfontein; Charl Cilliers; Bethal; Embalenhle; Emzinoni; Evander; Ga-Nala; Kinross; Leandra; Lebohang; Leslie; Secunda; Trichardt; and farm dwellers from surrounding farms. There are no traditional authorities or tribal land in the area, as land is owned by private individuals including: Mr Swart; Mr Dunn; Mr Mahlangu; and Mr De Wet.

Isibonelo draws 47% of its management from HDSAs, whereas women make up 19.7% of the employees (AAC, 2019b).

14.3.1. Stakeholder Relations and Supplier Management

[SR7.1]

Isibonelo's Social Performance team services five disciplines to ensure the implementation of the Company's SEAT. The SEAT process has been designed to understand the positive and negative impacts of the operations on host communities. The SEAT aims to facilitate more structured dialogue with stakeholders through the implementation of management responses. Isibonelo's Social Performance function also implements the AASW. AASW audits take place on an annual basis to measure progress against the SEAT. Outputs are incorporated into Isibonelo's Community Engagement Plans which is updated on an annual basis. Based on the 2019 Social Performance Organogram, the Social Performance team reports to the General Manager via the Human Resource (**HR**) manager. The HR manager is supported respectively by a Social Performance Specialist and a Social Performance Officer.

Isibonelo has a Grievance and Social Incidents Management Procedure, Social Management Plan (**SMP**) and SEP that provides guidance in terms of stakeholder engagement. Stakeholder engagement also takes place as part of the local municipality's Integrated Development and LED forums and with other government departments. Isibonelo has a complaints and grievance procedure which clearly outlines where and how complaints can be lodged and the process of handling such. All matters arising are categorised, investigated and dealt with according to the Enablon system.

Based on the review of Isibonelo's SEP (AAC, 2019w), the main stakeholder concerns relate to expectations to benefit from LED as a result of the mine's presence. This includes expectations for job and business opportunities as well as social investment benefits and improved living conditions. It was indicated during the site visit on Wednesday, 27 November 2019, that local Small, Medium and Micro Enterprises (**SMME**s) and businesses are expecting that 30% of a contract value be allocated to local suppliers or contractors. This percentage has become an acceptable standard for government LED enterprise development projects. According to the SEP (AAC, 2019w) Isibonelo has not acceded to these demands, only providing 15% to local SMMEs and has followed a principle of transparency as mitigation measure. Having had sight of minutes of the monthly Tweedraai and Holfontein Community meeting, SRK understands that community meetings take place on a regular basis and focus mainly on enterprise development and LED opportunities from Isibonelo.

Isibonelo has a recognition agreement with NUM and has been meeting on a regular basis, with minutes from March and June 2019 having been reviewed.

The AASW audit (AAC, 2019u) confirmed that Isibonelo has several engagement forums that address a range of social issues; however, according to the audit results, Isibonelo may need to re-evaluate the effectiveness of the engagement forums for the Ga-Nala community. The AASW audit reports that Isibonelo has not communicated the SEAT to the Ga-Nala community (an identified impacted community). This is as a result of internal conflict amongst leaders and the subsequent breakdown of communication in the engagement platform. The AASW audit (AAC, 2019u) highlighted this unplanned engagement as a key gap.

The AASW audit (AAC, 2019u) confirmed that Isibonelo has an effective Grievance and Incident process in place. The Incident and Grievance Management Procedure allows for a range of methods for reporting of incidents and grievances. The site captures and loads all incidents on Enablon, with improved ability to enforce self-reporting.

The site has loaded six social incidents in 2019, compared to two in 2018 and zero in 2017. The 2019 incidents were largely related to jobs and procurement, graves enquiries (visiting graves on site), blasting, and dust fallout (AAC, 2019c). The site uses a range of mechanisms to communicate the grievance procedure, through the Daily Safety Bulletin, and induction. A condensed flow diagram is the main source of information, also being used during community engagements. Timeframes for the acknowledgement of incidents has been set (within five days) with incident close out and responses set (30 days, unless communicated otherwise). The AASW analysis of 2019 indicates that seven grievances have been addressed within 30 days, with one still pending (AAC, 2019c). In light of the grievances being received, and the turn-around time by Isibonelo, it appears as though the Social Performance team has sufficient capacity to address current concerns.

Isibonelo has an inclusive procurement and skills development programme with an implementation plan. The Company aligns their procurement processes to the following focus areas:

- Mining Charter related aspects;
- Ringfencing procurement opportunities; and
- Alignment of internal departmental spend and contractor management.

According to the Company's inclusive procurement policy preference will be given to BEE, host community BEE and HDSA suppliers that meet the required safety, quality, cost and delivery requirements. Isibonelo further complies with the Company's Supply Chain Policy (AAC, 2018d) which emphasises its drive towards preferential procurement and supplier development.

In terms of enterprise development, Isibonelo has onboarded a local supplier that is now appointed to provide services to the mine (AAC, 2019c). Isibonelo also implements the learner incubation programme through an external service provider. This programme was completed in 2019 but will remain active as part of the SLP (2020-2024) (AAC, 2020b). Based on a review of contractor meeting minutes, regular meetings are being held with contractors. Discussions centre on the Company's contractor management system, supply chain policies, local recruitment and procurement, amongst others.

Whilst milestones have been developed for the inclusive procurement programme, the AASW audit (AAC, 2019u) found that it may require revision to ensure that the projects (within the programme) have a clear set of activities and milestones.

The AASW audit (AAC, 2019u) further questioned the usability and accessibility of Isibonelo's stakeholder engagement processes. It also found that, even though Isibonelo has an inclusive procurement and skills development programme, the implementation plan may require restructuring to ensure full implementation and clear monitoring.

14.3.2. Social Transition towards Mine Closure

Social Obligations

Isibonelo has committed to four major community development projects (Table 14-4), including the mathematics and science learner incubator programme, the Lebogang Sewer Network and the construction of a mini solid waste management transfer station (AAC, 2020b). Although it appears as though a Memorandum of Agreement (**MOA**) for the Lebogang Sewer Network has been entered into between the Govan Mbeki Local Municipality and Isibonelo, the MOA has not been signed or dated. Regular implementation progress meetings are, however, being undertaken between the Govan Mbeki Local Municipality and Isibonelo, with minutes spanning from October 2018 to September 2019 being noted.

Table 14-4: Current Social Obligations as Part of the 2020 to 2024 SLP

Project (SLP)	Budget (ZARm)	YTD Actual (ZARm)[1]	Due Date
Mathematics and science learner incubator programme	14.7	2.5	2024
Lebogang Sewer Network Project Phase 2	-7.5	7.5	2020
Human capital development	2.7	0.57	2024
Mini solid waste management transfer station	4	0	2022
Total	**25.4**	**10.57**	

Housing

[ESG4.6]

As indicated in the SLP (2020 to 2024) (AAC, 2020b), the Company's vision for housing is long-term home ownership and is in the process of moving away from housing provision. The aim is for employees to be accommodated in their own formal accommodation located within the municipal context of its operations.

The Company's plan to transition from housing provision at its operations to full home ownership relies on the following factors, namely:

- The adjustment of housing allowances in line with market conditions to encourage employees to relocate to sustainable residential settlements in established areas;
- Supporting bulk infrastructure development within the local municipal spatial framework with funding and technical expertise to fast-track the delivery of housing and contain house prices within acceptable levels;
- Source and support housing delivery within metropolitan urban areas that will be sustainable in the longer term; and
- Facilitate and market home ownership to employees.
- According to the SLP (2020 to 2024) (AAC, 2020b) Isibonelo, however, faces certain challenges with regard to housing. These challenges include:
    - A lack of affordable housing within the region;
    - The high cost of bulk infrastructure, which has added to the cost of housing and increased selling prices; and
    - Chronic housing backlogs and limited municipal resources, particularly funding and capacity to provide infrastructure and services for residential developments.

As reported in the SLP (2020 – 2024) (AAC, 2020b) the Company provides housing allowances to its employees based on employee grades. It also provides training and development to employees about the responsibilities of buying, owning and managing their own homes.

Future Forum

[ESG4.6]

Isibonelo has established a future forum in 2017, which includes employer and employee representatives (AAC, 2018d). This forum meets as part of the monthly Management / Union meeting. The purpose of these discussions is to

- Identify challenges affecting the mine and find suitable solutions;
- Implement solutions agreed upon by both employer and employee representatives;

- Effectively consult, communicate, discuss and develop strategies on matters that affect and/or are of interest to stakeholders;
- Facilitate sustainable socio-economic development of communities around the Company's operations;
- Enhance the promotion of harmonious relations and unity between Isibonelo and all its stakeholders; and
- Create communication channels and partnerships between the mine and the communities as well as with other stakeholders (locally, nationally and internationally) in order to build meaningful engagements and trust.

Although the future forum was established in July 2017, however, based on a review of minutes made available, it has only met in September 2017 and September 2018.

As reported in the SLP Annual Report for 2018 (AAC, 2019v), Isibonelo did not retrench any employees during 2018. It was verbally confirmed that no Section 189 of the Labour Relations Act (Act 66 of 1995) (**LRA**) processes were followed by Isibonelo during 2019.

Mechanisms to Avoid Job Losses and a Decline in Employment

[ESG4.6]

According to the SLP (2020 to 2024) (AAC, 2020b), should prevailing economic conditions cause the profit-revenue ratio of any operation to be less than an average of six percent for a continuous period of 12 months, the Company and Isibonelo would initiate a consultation process, including the implementation of Section 189 of the LRA. The Minerals and Mining Development Board will also be informed.

Should Isibonelo's operations be downscaled or cease with the possible effect of job losses, a consultation process will be implemented, including specifications of the LRA (AAC, 2020b.

Where retrenchments or closure of the operation is imminent, Isibonelo would put in place the following process to ameliorate the social and economic impact on individuals, regions and economies (AAC, 2020b:

- Assessment and counselling services for affected employees;
- Comprehensive self-employment training programmes;
- Comprehensive training (non-mining skills) and re-employment programmes;
- Creation of jobs for local economies;
- Regeneration of local economies; and
- Accessing the Social Plan Fund.

Anglo Zimele

According to AAC (2003), Anglo Zimele was launched as a small business hub at some of its operations to stimulate the development of small enterprises in the communities that surround its operations. The initiative aims to create sustainable businesses towards sustainable social transition after mine closure. The Zimele hubs facilitate loans through the Anglo Zimele Small Business Start-up Fund and provide entrepreneurs with free hands-on advice on the day-to-day running of their businesses. It was verbally confirmed during the site visit that Isibonelo does not have access to the Anglo Zimele hub programme. This places Isibonelo at risk of not effectively managing enterprise and supplier development, especially at a time when they are close to closure.

Illegal Mining and Vandalism

During the site visit to Isibonelo on Wednesday, 27 November 2019, the Environmental Coordinator for the site confirmed that cases of vandalism and theft has been reported on adjacent properties. Based on verbal confirmation of the Social Performance Specialist, no illegal mining is currently taking place on or adjacent to the site.

14.3.3. Social Risks

[12.10(h)(x)] [SR5.7(i)] [ESG4.9]

- There are high expectations from local communities to benefit from LED and enterprise development projects. Due to unrealistic expectations from the community, this aspect may become contentious and a challenge for Isibonelo to manage. If unmanaged, there is a risk of work stoppages, property damage and loss of productivity, which could result in financial loss, reputational damage and community discontent;
- Other than the SLP (2020 – 2024) LED social obligations, Isibonelo does not effectively track its constructive obligations, which may result in delays in social transition towards mine closure;
- Isibonelo does not have access to the Anglo Zimele hub programme, which would have assisted in addressing some of the social transition requirements for the site. The lack of support and guidance relating to enterprise and supplier development may create an ongoing dependency on Isibonelo, which could otherwise have been avoided;
- One land claim was registered by Rose Masilela on behalf of Mthimunye on several portions of the farm Aangewys 81 IS in October 2016, but has since been dismissed (AAC, 2020). There were two other claims on the farm Overwatch 70 IS, however, this land was disposed of by the Company (AAC, 2020). There is one claim by SS Mtshweni on the farm Vlaklaagte 83 S that has not been resolved and may affect the Company's surface rights on the remainder portion of Portions 1 and 3 (AAC, 2020). Although the Company attends the Joint Land Claims Working Committee meetings, no reference was made to this claim during the latest meeting on 25 September 2019 (AAC, 2019t). Even though the Company attends the Joint Land Claims Working Committee meetings, the outcome of this land claim is not clear. Should this issue remain unresolved, it could lead to a loss in surface right access; There is a tendency to allow lease agreements between the Company and landowners to lapse before they are renewed. Potential consequences could include unfavourable relationships with the landowners; and
- Although Isibonelo is currently managing incidents of vandalism and theft, this poses a risk for post-closure rehabilitation of the site.

14.4. Sustainability

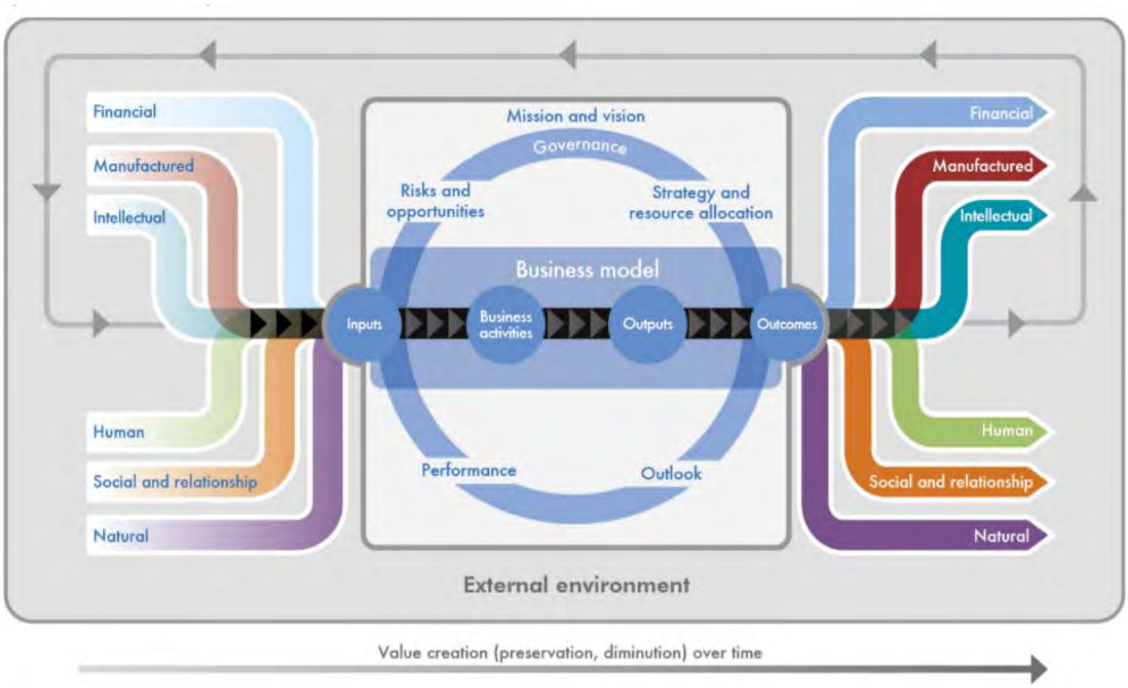
14.4.1. Introduction

This section reviews the sustainability of the Company according to the six-capital model of sustainable development and correlates it to the SAMESG Guideline (2017) and other reporting tools recommended by the SAMESG Guideline. The six-capital model is used by the International Integrated Reporting Framework (**IIRF**) (IIRF, 2013) to view the value created by business activities based on all aspects that contributes to a sustainable business, not only on financial value. The model recognises that in order to be sustainable and create present and future value, each of the foundational capitals must be considered and be in balance throughout the life of the operation. Figure 14-2 provides an overview of the IIRF sustainability reporting framework.

As evident in Figure 14-2, using the IIRF value creation framework, careful consideration is given to how business activities strengthen (creates value) in each capital area. This framework provides a standardized and internationally recognized manner in which to view the sustainability of operations. The six capitals and a short definition of each are provided below:

- **Financial capital** – refers to the pool of funds available to an organization either through making profits or through debt financing, equity, grants or investments;
- **Manufactured capital** – refers to the physical assets that are available to an organisation for conducting business. These include both physical objects like buildings and equipment and infrastructure such as roads, ports, bridges, water services and electricity;
- **Intellectual capital** – refers to knowledge-based intangibles such as intellectual property and organizational capital imbedded in systems, procedures and protocols;

- **Human capital** – refers to people's competencies, capabilities and experience and the organisation's ability to create a healthy, safe and growth-oriented work environment;
- **Social and relational capital** – refers to organizations' focus on building strong relationships with various stakeholder groups to obtain and maintain social licence to operate as well as to create shared value with host communities; and
- **Natural capital** refers to all renewable and non-renewable environmental resources that supports the current and future viability of operations. These include air, water, land, minerals, biodiversity.



srk consulting	**ISIBONELO COLLIERY CPR** Value Creation Framework using the Six-Capital Model of Sustainable Development (*IIRF, 2013*)	Project No. 566627

Figure 14-2: Value Creation Framework using the Six-Capital Model of Sustainable Development

Within this broad framework of sustainable development and based on the SAMESG Guidelines (2017), an assessment of the sustainability of The Company is done within three areas:

- External factors impacting sustainability (socio-political);
- Sustainability reporting practices; and
- Internal factors impacting sustainability (according to the six-capital model).

The sources of information used to compile this section includes:

- Information provided by Anglo Coal corporate regarding overarching sustainability matters (referenced);
- Information gathered from social media (regarding stakeholder sentiment), reputable news agencies and analyst reviews; and
- The results reported in each of the competent persons' sections completed by other specialists (referenced).

In addition to the documentation review, the following interviews also informed the results presented in this section:

- Interview with Stephen Ross, Business Improvement Manager, Anglo Coal; and
- Interview with Nicki Fisher, Coal Stewardship and Carbon Footprint Manager, Anglo Coal.

14.4.2. External Factors Potentially Impacting Thermal Coal Mining Sustainability

[ESG 3.5 and 3.7]

Several external factors could potentially impact the sustainability of thermal coal mining in South Africa. These range from macro-economic, global factors to pressure from coal mining labour unions to keep unskilled workers employed in the sector. A short description of some of these factors are provided below.

COVID-19 and Global Macro-Economic Environment

The global COVID-19 pandemic and the resulting macro- and micro economic volatility across markets influence the both the current demand for thermal coal and the market price for coal due to Rand/Dollar value fluctuations. This volatility creates general uncertainty in world markets and have temporarily delayed calls to transition from coal to more environmentally friendly energy production methods. Most recently, a movement towards building back economies with renewable energy sources and more sustainable ways of doing business have emerged. In the short term, the thermal coal industry in South Africa was able to continue production during the COVID-19 lockdown period which helped absorb the economic impact of the pandemic. The long-term implications of these macro-economic factors for collieries in South Africa are still uncertain but could contribute to higher expectations and pressure from local mining stakeholder groups as local economies struggle as well as a larger thrust to discontinue the use of coal as countries globally rebuild themselves post-COVID 19.

Impact of Climate Change on Coal Production

Both the extraction of coal and the downstream uses of coal contribute to greenhouse gas emissions in South Africa. In turn, increased greenhouse gas emissions are a causative factor for climate change and the resulting extreme weather events. Eskom (South Africa's state-owned electricity utility) and Sasol (South Africa's largest coal to-to-chemical producer) together account for more than 50% of South Africa's greenhouse gas emissions and 85% of the coal used in the local market by volume. Over the last decade, increased understanding of the impact of fossil fuels on the global environment, and more specifically air quality, climate change and extreme weather events led to more pressure for countries to transition to renewable energy sources. South Africa has an ageing fleet of thermal coal power stations that have to be decommissioned over the next 20 years. If these power stations are replaced with renewable energy power sources, the demand for coal in the domestic market will be lowered. South Africa's electricity roadmap to 2030 was recently ratified (The Integrated Resource Plan (**IRP, 2019**)). This plan commits the country to a decarbonation pathway depending strongly on the decommissioning of coal-fired power stations and accompanying deployment of renewable energy infrastructure. The implementation of this plan is wrought with challenges such as how to replace the livelihoods of approximately 82 000 coal miners in Mpumalanga.

A 'Just Transition' for Coal Mining

The conundrum of a 'just transition' for vulnerable workers and communities from coal-fired energy to renewable energy is compounded by pre-existing socio-economic factors such as low skills levels in mining areas, unemployment, inequality and poverty. Coal mining employment numbers in South Africa peaked in 1981 and has been in decline ever since. In addition, the skill levels of coal miners have been on the rise as more mechanised mining methods are increasingly used. Currently, approximately half of coal workers are unskilled. Within the larger South African mining context, there is already an employment crisis that requires intervention from various parties to resolve. Against this backdrop, implementing a 'just transition' in coal mining in South Africa might prove to be very challenging. Several scenarios for the transition from coal-fired power to renewable energy have been proposed (Burton, Caetano and McCall, 2018). The conclusion of these studies, evidence from coal transitioning in other countries and recent coal mining trends in South Africa show that South Africa is already facing a coal transition, and that specific coal regions will need support with provincial economic diversification to help lessen the impact of transitioning to a low carbon economy. Currently, instead of focus on wider spread economic diversification, the coal workers trade unions are placing increased pressure on the regulators to delay the eventual demise of the coal industry in South Africa through regulatory measures.

Social Transitioning during Closure and/or Care and Maintenance

In recent years industry bodies such as the International Council of Minerals and Metals (ICMM) have been issuing integrated mine closure good practice guidelines with sections on the importance of assisting employees and host communities of mines to transition during mine closure to other types of livelihoods (ICMM, 2019). Communities in mining footprints, like in Mpumalanga province, are often overly reliant on direct and indirect income from the mines. This leads to overdependence and a devastated local economy when the mine closes or goes onto care and maintenance. The recent restriction on mining during the COVID-19 lockdown is a good example of how deep socio-economic turmoil is felt in mining communities during care and maintenance. Within the South African mining closure regulatory framework, some mines prolong a care and maintenance status quo in order to avoid immediate decision making regarding permanent closure. Care and maintenance and the resulting job losses and decrease in secondary spend in mining communities can have the same devastating effect as closure, without the legal provisioning associated with closure.

Social and Labour Legacy Issues during Mergers and Acquisitions

In recent years, the coal industry in South Africa has been characterized by increased mergers, acquisitions and restructuring activities. The corporate turmoil and uncertainty often accompanying mergers, acquisitions and restructuring can contribute to labour and community unrest (Botchway, 2010). This destabilizing factor is compounded in the current South African context with pre-existing legacy challenges in the coal industry and the economic consequences of the global COVID-19 pandemic. Ernst & Young's (EY) top two risks for the mining industry in 2020 is social license to operate and the future of the workforce whereas reducing carbon footprint is new to the top ten risks at number four (EY, 2020). This analysis indicates that mines whose social license to operate and workforce is threatened and who are unable to reduce their carbon footprint is at increased risk and management plans should be formulated to address these risks in a systematic manner.

This list of external factors that could influence the sustainability of a colliery in South Africa is not exhaustive, but rather indicative of the current context in which coal mining in South Africa is conducted.

14.4.3. Sustainability Reporting Practices

A high-level review of the Company's sustainability reporting practices was undertaken. Corporate sustainability reporting practices give stakeholders the assurance that the reporting entity reports its ESG practices against international good practice standards. This review is significant in the current report as it indicates what level of corporate support Isibonelo receives from the Company. The data underlying these corporate sustainability reporting practices are collected on site level through environmental, social, human resources, health and safety management systems and the compilation and interpretation of the data is managed at corporate level. A summary of the review is presented in Table 14-5 and indicates which sustainability reporting initiatives the Company partakes in and if the information disclosed is aggregated for all the Company's operations or if standalone information for Isibonelo is available.

Table 14-5: The Company's Corporate Sustainability Reporting Practices

Reporting Standard	Does the Company participate?	Aggregated/ Standalone	Reference
Carbon Disclosure Project (CDP) – Climate Change	No	Not applicable	www.cdp.com
CDP – Water Stewardship	No	Not applicable	www.cdp.com
Sustainability reporting in line with Global Reporting Initiative Requirements	Yes	Aggregated	https://www.angloamerican.com/~/media/Files/A/Anglo-American-Group/PLC/investors/annual-reporting/2020/aa-sustainability-report-2019-v1.pdf
Extractive Industries Transparency Initiative (EITI)	Yes	Aggregated	https://eiti.org/supporter/anglo-american
Public policies and governance	Yes	Aggregated	https://www.angloamerican.com/sustainability/approach-and-policies
Alignment with the Sustainable Development Goals	Yes	Aggregated	https://www.angloamerican.com/sustainability/approach-and-policies
United Nations Global Compact	Yes	Aggregated	https://www.angloamerican.com/sustainability/approach-and-policies
Voluntary Principles on Security and Human Rights	Yes	Aggregated	https://www.angloamerican.com/sustainability/approach-and-policies
UN Guiding Principles on Business and Human Rights	Yes	Aggregated	https://www.angloamerican.com/sustainability/approach-and-policies
UK Modern Slavery Act Statement	Yes	Aggregated	https://www.angloamerican.com/sustainability/approach-and-policies

As evident from Table 14-5, the Anglo American Group aggregates the Company's sustainability reporting practices into the reports of the larger group. This practice has two implications for Isibonelo as a standalone entity – the on-site staff do not have the skills and capacity to perform the tasks associated with public sustainability reporting and there might be a disconnect between public reporting and governance standards and practices at individual operations.

14.4.4. Internal Factors Impacting Sustainability at Isibonelo Colliery

The results of the sustainability review indicate that the following indicative sustainability risks are present:

- High risks are present in manufactured and social and relational capitals;
- Moderate risks are present in natural capital, external sustainability risks and sustainability reporting practices;
- Minor risks are present in human capital; and
- Insignificant risks are present in intellectual capital.

The issues identified that could potentially affect the sustainability of Isibonelo are presented in Table 14-6.

Table 14-6: Identified Sustainability Risks

Factors	Sustainability Area	Identified Sustainability Risks
Internal	Financial Capital	See Section 18 for economic valuation and risks
	Manufactured Capital	Well established access and water for operations and routes for marketing
		Infrastructure provisioning for closure may not be sufficient
		Unreliable bulk power supply due to load shedding and load curtailment
		Illegal mining, vandalism and theft reported on adjacent properties, but not at Isibonelo to date
	Intellectual Capital	Efficient environmental and social on-site management systems, policies, procedures and protocols in place
		Sufficient corporate human rights, climate change, sustainability, water stewardship and employment equity policies in place as guidance for sites
		Lack of on-site knowledge of sustainability reporting and strategy; should Isibonelo Colliery become a standalone entity, senior staff with additional skills will have to be recruited
	Human Capital	Employment equity targets met
		Lack of local employment opportunities is one of the topics identified in grievances
		Employee home ownership challenging due to lack of affordable housing and municipal infrastructure
	Social and Relational Capital	Unresolved land claims on Vlaklaagte 83 JS and Rietfontein101 IS R/E Ptn 1
		Lack of prior planning for social transitioning during mine closure a concern considering the remaining LoM is approximately seven years (LoM = 2027)
		Lack of engagement with Ga-Nala community due to legacy issues, stakeholder forums might need restructuring
		High expectations from communities to benefit from enterprise and supplier development and local procurement initiatives
	Natural Capital	Water – dirty water discharge from mine due to net excess water within mine, adjacent surface water fair to poor quality
		Biodiversity in sensitive areas impacted negatively due to cumulative impacts of mining and agricultural activities
		Unclear if draft EMPr amendment to include unlicensed activities has been approved
		Some non-compliances noted during audits, but plans instituted for corrective action
		Post closure water treatment planning not sufficient
External	Other Sustainability Considerations	Reliance of host communities on income from colliery a risk considering current LoM
		Governance systems well developed and in place on corporate level, but will require on-site specialist skills should Isibonelo Colliery be a standalone operation
		Social licence to operate and labour legacy challenges might resurface and/or intensify during mergers and acquisitions
	Sustainability Reporting Practices	No CDP reporting found on public platform
		No Water Stewardship (CDP) reporting found on public platform
		No human rights due diligence information supplied by site or corporate
		Public sustainability reporting aggregated into the Company's corporate reporting
		Confirmation of materiality workshops with local stakeholders at site level not found

14.5. Mine Closure, Planning and Financial Provision

[SR1.7, SR5.2(ii)]

14.5.1. Data Review

A site visit was undertaken on 27 November 2019 at Isibonelo Colliery. The purpose of the visit was to understand the layout of the colliery as well as to visit the different operational aspects to gain an understanding of the nature of the likely closure activities required to manage operational impacts and closure risks. During the visit SRK also engaged with Mr Marthinus van Wyk (Environmental Coordinator) to understand the current operational activities and potential environmental impacts associated with Isibonelo. SRK also had engagements with Mr J Human (the Company's Land Management Superintendent) to broadly understand the Company's approach to closure planning, liability estimates and how the Company is dealing with legislative uncertainties at the operations. SRK also used this opportunity to request specific information relating to closure cost estimates. The information reviewed was the following:

- Closure Planning Reports for Isibonelo Colliery, as Aligned to the NEMA Financial Provisioning Regulations, (Golder Associates, 2018);
- Update of Isibonelo Unscheduled Closure Costs Using DMRE Master Rates, as at December, (Golder Associates, 2018) – as well as the accompanying costing model; and
- Update of Isibonelo Colliery Unscheduled and Scheduled Closure Costs, as at December, (Golder Associates, 2018) – as well as the accompanying costing model.

14.5.2. Regulatory Environment

[SR1.5(v), SR1.7(i)]

Prior to November 2015, the determination of the expected closure liability and the provisioning of funds for closure was regulated by the MPRDA. On 20 November 2015, regulations under NEMA, Financial Provisioning Regulations, 2015 GNR.1147 (GN1147) were promulgated and replaced certain sections of the MPRDA. The intent of the GN1147 was to require mining operations to adopt a strategic approach to closure planning and financial provisioning. The intention is to require operations to undertake focussed closure planning and then actively implement rehabilitation measures during operations to reduce the liability at the end of the life of the mine. When GN1147 was promulgated, compliance with GN1147 was required by February 2017. However, as there are several technical issues with the regulations, various proposed amendment to the regulations have been published for comment, although no substantial amendments have yet been promulgated. Because of the technical issues related to GN1147, and extension of the Transitional Arrangements to June 2021 (as promulgated in GN24) is in effect. Although various amendments have been published for comment, there is no definition as to the final version of the regulations and how they will differ from GN1147.

Although compliance to GN1147 is not required until June 2021, mines are still required to make provision for the liability and assess the quantum of the liability under Regulations 53 and 54 of Regulation 527 under the MPRDA.

14.5.3. Closure Cost Estimates

[SR1.7(i), SR5.6(ix] [ESG4.1]

Isibonelo assesses liability using the approach contained in the then DMR guideline (2005 Department of Minerals and Energy (now DMRE) Guideline Document for the Evaluation of the Quantum of Closure Related Financial Provision Provided by a Mine) as well as that advocated in the NEMA Financial Provision Regulations. It is SRK's opinion the costs associated with the NEMA approach are generally more accurate and therefore provide operations with a more reliable cost than the DMRE approach would. The differences in the approaches will be presented further on in this section.

The current position relating to closure is documented in Table 14-7 and is based on the closure liability assessment undertaken during the last quarter of 2019.

During 2019, Isibonelo estimated the planned closure liability for the operation at ZAR373.4 million, using commercial rates. This is based on an assessment of the expected decommissioning, rehabilitation and closure activities likely to be required at the end of life of operation, with these costs based on rates relating to activity costs in 2019. The figure does not include closure and post closure water treatment costs. Although post closure water treatment costs are not included in the either the DMRE or Financial Provision estimate, the Company does estimate treatment liability, but does not report this to the DMRE. Currently, the Company envisages that a passive treatment option will be sufficient to manage the post-closure decant from Isibonelo. The Company has estimated that the Capex for the passive treatment is ZAR99.2 million for planned closure and Opex is ZAR4.6 million per annum. The Company is in the process of better understanding the accuracy of their water treatment cost by undertaking a geohydrological study. Once these costs are accurately understood, Isibonelo intends to include these water treatment liability costs in their financial provisioning. As far as SRK is aware, the water treatment approach has not been finalised or engineered for Isibonelo.

An immediate or unplanned closure cost for the complex has been calculated for 2019 to be ZAR248.6 million, based on an assessment using the approach documented in the DMR 2005 Guideline Document for the Evaluation of Closure Related Financial Provision Provided by a Mine.

Isibonelo indicates that as of the 31 December 2019, a provision of ZAR553 million has been made for closure, consisting of ZAR79.8 million in Trust and ZAR473.4 million in the form of Bank Guarantees. As this provision exceeds Isibonelo estimate of liability of ZAR248.6 million, SRK is of the opinion that the colliery is compliant with the requirements of the DMRE.

SRK understands that while Isibonelo is operational, the feasibility of a passive water treatment system will be explored in an attempt to plan a way forward in regard to water treatment options determined. As mentioned in the hydrology section of this report (Section 15), there is the potential that contact water may be generated post-closure, with this potentially decanting into the environment. The Company is of the opinion that this risk could be managed by constructing a water treatment facility with a capacity of approximately 4 Ml/d, although the technology has not yet been defined.

SRK is of the opinion that the estimate of R373.4 million (adjusted to ZAR387.9 million at end December 2020) is the correct order of magnitude for the planned liability (excluding water treatment) as this is based on commercial rates for closure. Based on SRK's review of the estimate, SRK has not been able to identify any material omissions from the estimate. SRK is of the opinion that the estimate of R248.6 million calculated using the DMRE methodology does not accurately reflect liability. However, SRK understands that this is the value reported to the DMRE and is the quantum against which a provision is raised. Although, the ZAR248.6 million under-reports liability, SRK is of the opinion that reporting this quantum to the DMRE still satisfies the Company's legal obligation until new regulations are promulgated and enforced.

Table 14-7: Financial Closure Provision

Item	Related Financial Closure Provision (ZARm)	
	As at Dec 2019	**Adjusted to December 2020**
DMRE Assessment:		
Unscheduled	248	257.9
NEMA Assessment:		
Planned (excluding VAT)	373	387.9
Unplanned (excluding VAT)	738	767.5
Provision to the DMRE:		
Guarantee	473	Not applicable to adjust
Trust	79	Not applicable to adjust
Total Provision	**552**	
Surplus/difference between provision and DMRE assessment	*304*	
Additional Liability arising from Risk Items:		
Theft/criminal activity related to post closure equipment	Cannot quantify	Cannot quantify
Water Treatment (Capex)	– 99.2	– 103.2
Water Treatment (OPEX ZAR/annum)	4.6	4.8

Although SRK is of the opinion that the ZAR373 million (adjusted to ZAR387.9 million) is the correct order of magnitude for planned closure, excluding post closure water management, SRK is of the opinion that detailed planning for closure is required as the colliery is within five years of closure. This is in line with good international practice as well as the requirement in the Company's internal Mine Closure Toolbox. Once the detailed design is undertaken, including the detailed quantification of post closure water risks, the Company will be in a better position to quantify the actual closure liability.

SRK understands that the Company is currently undertaking updates to the closure cost estimates in order to reflect liability as at December 2020. Once the 2020 assessments are complete and have received the necessary internal approvals, these figures will be reported to the DMRE and changes to the closure provision will be made where necessary. SRK has not interrogated the 2020 figures and has instead escalated the 2019 figures to represent a liability at the end of Dec 2020.

14.5.4. Risks and Opportunities

[12.10(h)(x)] [SR5.7(i)] [ESG4.9]

Underestimation of the Liability

Risk Description

Isibonelo has calculated the immediate or unplanned closure liability for the colliery using the methodology specified in the 2005 Guideline Document for the Evaluation of Closure Related Financial Provision Provided by a Mine. The immediate or unplanned liability calculated using the DMRE methodology is ZAR248.6 million, with this being the figure reported to the DMRE as the liability and the figure against which provision is raised for the DMRE in compliance with the existing legislation. SRK is satisfied that the application of the methodology required in the guideline has been appropriately undertaken; however, SRK's experience is that the guideline underestimates the immediate or unplanned liability. SRK is of the opinion that this underestimate is due to the guideline being generic and does not include costing of the actual actions required to close pits and does not reflect the true cost of closure and post-closure water management. By using the DMR guideline, Isibonelo Colliery is in SRK's opinion compliant with the legal requirements.

Cost related to residual risk included the long-term care and maintenance for the flood attenuation dam, as well as the Steenkoolspruit flood protection levee and the run-off diversion trench have been provided for in the NEMA but not in the DMRE calculation. As there is a new draft of the NEMA regulations pending and should these be promulgated, operations such as Isibonelo would be required to understand their closure obligations and impacts with greater accuracy. As a result, more detailed studies will be required and the outcomes of these and the mitigation measures applied or planned would need to be appropriately provided for within the operation's financial provisions.

SRK understands that an area, referred to as the Isibonelo Area of Responsibility (IAR), which is not within the current Mining Right, was previously mined by the Company as this area was included in the MR prior to the MR being amended. The area has largely been rehabilitated although a final void and spoils along the levee of the river remain. The IAR is included in the current EMPr, which states that the related spoils are to be disposed of within the final void. The Company has assessed the costs to comply with current EMPr obligations, which requires that the spoils be hauled to and placed in the final void. The costs to comply are regarded by the Company as being prohibitive, and therefore the Company reports that it is currently amending the EMPr and WUL to obtain authorisation to rehabilitate the spoils in situ, by levelling, topsoiling and vegetating the spoils. As the amendment is reportedly in progress, the Company includes an estimate in the premature liability assessment for the amended closure activities. Should the amendment not be authorised, and the Company is required to adhere to existing obligations, an additional cost of ZAR30.3 million may be incurred for the rehabilitation of the IAR.

Consequences

As indicated in Table 14-7, SRK is of the opinion that the planned liability of ZAR373.4 million is a more appropriate estimate with a potential ZAR99.2 million required for Capex for water treatment. When the new legislation is enforced, this could be the quantum of the provision the Company is required to make to the DMRE.

Current Identified Management Solutions

As SRK understands, Isibonelo is investigating the feasibility of a passive water treatment system in order to understand current water treatment issued as well as to provide solutions going forward. As it is understood in the industry that the DMRE approach underestimates liability, Isibonelo has utilized actual industry rates for the estimate of planned liability at the end of the LoM. This estimate is premised on the assumption that rehabilitation activities will be undertaken during operations, which will reduce the liability at the end of life. Thus, although the current premature liability is under-estimated, Isibonelo does have an appropriate estimate of the end of life cost, within the limitations described above.

Isibonelo has undertaken closure liability assessments derived via the DMRE method as well as a commercial costing approach. SRK is of the opinion that the commercial costing is more accurate and therefore, SRK believes the operation understands its liability as much as is currently possible in the absence of further studies being undertaken. Isibonelo has also completed various other NEMA required reports which SRK believes will remain a requirement of the draft regulation when promulgated. Therefore, the operation is well placed to comply with the pending regulations, once these studies are refined as needed.

Requirements to Increase Statutory Provisions

Risk Description

Isibonelo Colliery has undertaken and completed various NEMA closure planning reporting requirements, although the latest draft of the regulation have not been promulgated. The reporting that is required in order to gain NEMA compliance are the following:

- Final Rehabilitation, Decommissioning and Mine Closure Plan (Appendix 2 of the Financial Provisioning Regulations, 2019);
- Environmental Risk Assessment (Appendix 3 of the Financial Provisioning Regulations, 2019); and
- Annual Rehabilitation Plan (Appendix 1 of the Financial Provisioning Regulations, 2019).

The above mentioned reposts have been compiled based on the most relevant information available at the time (December 2019). It is acknowledged that additional investigations are required to holistically understand the residual risks and to provide adequate costing for provisioning purposes.

Consequences

In the event the pending legislation is promulgated, Isibonelo will be required to accurately understand the current knowledge gaps and take measures to close these gaps and then determine the effect on the closure quantum. This will result in increased financial provisions and could ultimately sterilise capital at the time.

Current Identified Management Solutions

Through compiling these various closure planning reports, Isibonelo has begun to identify and understand the knowledge gaps that they may have. SRK believes that by updating the closure planning reposts annually, the limited understanding of particular risks will be improved over time and can be appropriately addressed. Continuing to provide input into the regulatory development and actively engaging with authorities could also assist operations such as Isibonelo not to be adversely and unreasonably affected by the requirement to allocate significant fund to meet compliance requirements.

15. Water Management

[12.10(h)viii] [SR3.1(i), SR4.3(ii), SR5.2(viii)]

15.1. Surface Water Management

[12.10(h)viii] [SR3.1(i), SR5.2(ii)]

15.1.1. Site Layout

The current operations are centred on the North and South Pits, the tip/crushing area, the overland conveyor and the main offices and workshops area.

The mine operations comprise:

- Open Pits:
- North Pit; and
- South Pit;
- Tipping and Crushing area;
- Overland conveyor, approximately 13 km long;
- Bunker area;
- Main offices and workshops;
- Coal recovery plant, which incorporates the overland conveyor and the bunker;
- Pollution Control Dam (**PCD**);
- Haul and access roads;
- Diversion Dam; and
- Emergency stockpile.

15.1.2. Make-up Water

Potable water is supplied by Sasol under the old CSA, known as the "Syferfontein Agreement". Clause 12.2.1 of the agreement states that the Company shall be entitled to utilize up to 15 Ml of potable water per month from the water pipeline and shall further procure, at its cost, the installation of two water use meters to record the use of water at the respective operations. SRK has assumed that this agreement still stands until such time that an amendment to the agreement is done, whereby the parties need to cater for the provision of electricity and water as indicated by the Company.

The make-up water is the potable water from Sasol. However, since there is an excess of water on site, the water from Vaskop Dam is recycled in the process plant. Potable water is used primarily for domestic use; however, some is used in the workshops and wash bays. It is currently not possible to use recycled water for the workshop and wash bay, as the nearest dam (the Barber Dam) is dedicated for use as fire water for Sasol.

15.1.3. Stormwater Management Systems and Controls

[ESG4.2, ESG4.4]

The stormwater management systems and controls layout are indicated in Figure 15-1. The infrastructure to separate clean and dirty water in the vicinity of Isibonelo Colliery pits comprises:

- A diversion berm along the Steenkoolspruit on the north-east side of the pits, which ensures that the river does not flood the mining area;
- A flood attenuation dam directly upstream of the Steenkoolspruit berm, to attenuate potential flooding of the unnamed tributary which joins the Steenkoolspruit. The dam was designed to attenuate the Regional Maximum Flood (**RMF**) (IWWMP, 2019). This prevents spillage from the altered watercourse into the mining area;

- A diversion berm where the De Beerspruit joins the unnamed tributary that confluences with the Steenkoolspruit. The tributary passes through culverts in the berm, before joining the Steenkoolspruit;
- Vaskop Dam, which is a PCD, into which dirty water from the pit is pumped. The tipping and stockpiling area near the Green Room is compacted and graded to ensure that it drains freely into the pit, from where it is pumped into the Vaskop Dam. This water is used for dust suppression, fire water and plant process water. Clean runoff from upstream of the PCD area is diverted around the PCD through a series of canals and berms (sized to prevent spillages during floods up to the 1:100-year flood) into the Steenkoolspruit, west of the mining area. Vaskop Dam has a Tactical Action and Response Plan (**TARP**) in place to prevent it from spilling. Should the Vaskop Dam spill over its spillway, the northern pits of the mine will be flooded. The TARP includes pumping the dam out into bowsers or into a nearby clean water dam (in emergencies only);
- A diversion canal located to the west of the South Pit. The canal runs in a south-east direction into Montedi Dam, which overflows into Farm Dam, which pumps water into the Phase 2 canal in a west-east direction, and discharges into the De Beerspruit; and
- Diversion Dam, which was constructed to contain the RMF of the unnamed tributary that flows in a north-easterly direction toward the South Pit. If the dam spills, it spills into a clean water canal that discharges into the De Beerspruit.

The rehabilitated pit (Central Pit) is free-draining and drains into the catchment through the waterways that were formed during rehabilitation of the mined out Central Pit.

The emergency stockpile has limited stormwater control infrastructure (further discussed in the section below). The main offices at Isibonelo have oil traps that remove oils from workshop and wash bay run off. The oil residue recovered is sent to Holfontein for disposal.

srk consulting	**ISIBONELO COLLIERY CPR** Stormwater Infrastructure Layout	Project No. 566627

Figure 15-1: Stormwater Infrastructure Layout at Isibonelo Colliery

15.1.4. Compliance with Legislation

[SR7.1]

When the mine was built, a section of the Steenkoolspruit needed to be diverted around the most favourable box cut position to allow mining within the floodplain of the river. An unnamed tributary of the Steenkoolspruit also needed to be diverted above the strip-mining area into the De Beerspruit. The original floodlines have been modified due to the construction of the various stormwater management infrastructure, including the Attenuation Dam, Diversion Dam, berms, and canals. Some infrastructure encroaches into the original 1:100-year floodline; however, this was constructed before the issuance of the WUL. Isibonelo Colliery submitted a WUL Application for these activities, in June 2020.

The emergency stockpile does not have a liner to protect the groundwater in the immediate area. A silt trap/sump was constructed in the stockpile area to collect runoff from the area and allow silt to settle before the water is pumped to Sasol Evaporation Dam 2; however, the silt trap is not lined. There is no formal stormwater management plan at the emergency stockpile area and bunker area (there is a single drawing, but no accompanying report, and the layout on site does not match the drawing).

The mine monitors and keeps records of all the water pumped from the mine pits and the water from the Vaskop Dam. The information is recorded monthly and reported quarterly, in compliance with the conditions of the WUL.

15.1.5. Water Re-cycling

Dirty water from the pit is pumped into the Vaskop Dam. This water is recycled for use as dust suppression water, fire water and plant process water. Clean runoff from upstream of the PCD area is diverted around the PCD through a series of canals and berms (sized to prevent spillages during floods up to the 1:100-year flood) into the Steenkoolspruit, west of the mining area. Vaskop Dam has a TARP in place to prevent it from spilling. Should the Vaskop Dam spill over its spillway, the northern pits of the mine will be flooded. The TARP includes pumping the dam out into bowsers or into a nearby clean water dam (in emergencies only).

15.1.6. Water Quality Monitoring Plan

[ESG4.1]

The following information is summarised from the IWWMP (E-Science Associates, 2020):

S5-Vaskop Dam, S6-Black Dam and S7-Ernie's Dam are characterized by relatively high TDS waters, with sulphate concentrations exceeding 1 000 mg/l. These 3 dams are PCDs. The EC for all the dam monitoring sites ranges from 87 to 272 mS/m with circum-neutral to slightly alkaline pH values, suggesting no net acid generation potential within the Isibonelo workings.

Time series plots of EC values and sulphate concentrations since 2006 for each of the stations S5, S6 and S7, show consistent trends of increasing EC values and sulphate concentrations over time up to 2016. The increased sulphate loading may be directly attributable to sulphide oxidation and sulphate mobilization in the mine footprint. Over the last few years, a slight decrease in sulphate and EC levels are seen at S5-Vaskop Dam and S7-Ernies Dam.

The median concentrations for the surface water monitoring sites were compared to the instream water quality objectives detailed in the water quality reserve for the area. The majority of 'natural' surface waters show low EC (<90 mS/m) and circum-neutral pH values. Time series plots of EC values and sulphate concentrations since 2006 show:

- Station S11 (Steenkoolspruit), adjacent to the Kriel Pit 4, shows sporadic increases (but generally increasing) in sulphate concentrations and EC values, which corresponds more recently to the sporadic increases in sulphate concentrations and EC values observed in the S14 (Steenkoolspruit) adjacent to the Isibonelo North Pit.
- Sporadic increases in sulphate concentrations and EC values are also observed at the down-stream sample point S15 and are possibly related to releases from the adjacent Kriel Pit 4.

15.1.7. Water Balance

A water balance was compiled by Golder in 2013 and was updated by iLanda Africa Consulting Engineers (Pty) Ltd (iLanda) in 2018. The 2013 Golder water balance predicts a net excess of dirty water on the mine. Golder recommended, in 2013, that a Water Treatment Plant (WTP) with a capacity of 4 Ml/d should be installed as soon as possible to get the mine water system into balance. The 2018 water balance update models the mine's storage capacity for 2018 only, with all excess water being allocated to a "change in storage" in Vaskop Dam. The water balance therefore still shows a net excess of water at Isibonelo, and although storage capacity is available in the spoils (subject to mining plan) and the Vaskop Dam, this storage capacity might not be available in future, and therefore there is a potential risk of discharge from Vaskop Dam. The Vaskop Dam is able to store water from a 1:70-year three- month event, without spillage to the environment (Jones & Wagener, 2020).

The mine monitors and keeps records of all the water pumped from the mine pits and the water from the Vaskop Dam, which is utilized in the plant processes. Risk assessments of dam capacities and the risk of decant/pollution have not been undertaken for all dirty water dams at Isibonelo (only undertaken for the Vaskop Dam).

A Water Conservation/Water Demand Management Plan has not been undertaken for Isibonelo.

No evidence could be provided that the mine is cooperating with other water users in the catchment to determine the mass water balance for the water resource reserve compliance point (Shangoni, 2020), but they do calculate their salt load.

15.1.8. Key Issues and Risks

[12.10(h)(x)] [SR5.7(i)] [ESG4.9]

There is an excess of dirty water at Isibonelo, which may result in dirty water discharging from the mine, both during operation, and post closure. This presents an environmental and reputational risk to the mine. Golder (2013) recommends the construction of a 4 Ml/d water treatment plant to bring the system into balance. The plant will contribute to the mitigation of discharge risk. There is a feasibility study currently underway for a water treatment plant, to be located near the Vaskop Dam. The water treatment facility presents a significant financial liability during operation and post-closure. The financial provision calculations for this plant will be completed towards the end of 2020.

15.2. Groundwater Management

[12.10(h)(viii)] [SR5.2(viii)]

15.2.1. Aquifer Characteristics

The groundwater table is shallow, with an average depth to groundwater at 5 m. The natural hydrostratigraphy of the area is characterised by two key aquifer systems:

- A shallow primary aquifer within the highly weathered Karoo material exists across the entire mining area. The aquifer is largely unconfined, but partially semi-confined where overlying clay lenses exist. Some perched aquifers occur above these clay lenses, with springs occurring where groundwater flow is impeded by poorly hydraulic conductive rocks. The shallow aquifer receives recharge directly from rainfall, making it vulnerable to pollution from surface activities. Groundwater recharge to the weathered aquifer is estimated at a range of between 2% and 5% of mean annual precipitation; and
- A deeper secondary aquifer exists within the fractured Karoo rocks (shale, sandstone, siltstone and coal). The geological structures, faults, dyke contracts, jointing and bedding, provide preferential pathways for groundwater flow. Groundwater recharge to the weathered aquifer is estimated at a range of between 1.5% and 3% of mean annual precipitation.

15.2.2. Baseline Hydrogeological Setting

The current open pits and rehabilitated areas are characterised by higher recharge rates than the undisturbed areas due to the greater pore spaces, large seepage pathways and ponding of rainwater.

The groundwater is of fairly good quality, with the main concern being the elevated concentrations of heavy metals in several boreholes within the monitoring network. Occasional spikes in nitrate (NO_3) levels in some boreholes indicate sporadic influences from agricultural activities. Iron and manganese concentration levels are, at times, higher than expected, which could have been caused by leaching out of naturally occurring of iron and manganese from the host geological material.

The following facilities are potential sources of contamination into the groundwater:

- Groundwater seepage from the rehabilitated pits;
- Seepage from coal handling areas, primarily temporary stockpiles, more especially at the Bunker areas;
- Seepage from Vaskop Dam, even though this will most likely drain to the workings; and
- The neighbouring rehabilitated Kriel Pit 4, discard dumps and ponds to the north.

Isibonelo was granted a WUL (2484884) in April 2011 for discharging waste or water containing waste into a water resource through a pipe, canal, sewer, sea outfall or other conduit Section 21 (f) of the Water Act.

Isibonelo was also awarded a WUL (04/B11D/C1/2227) in October 2013 for the following water uses:

- Section 21(c) of the Water Act: Impeding or diverting flow of water in a watercourse, subject to the conditions set out in the WUL; and
- Section 21(i) of the Water Act: Altering the bed, bank course or characteristics of a water course, subject to the conditions set out in the WUL.

In November 2017, Isibonelo was granted Integrated WUL (03/A31J/ABCFGIJ/2869), which supersedes and replaces the earlier WUL 24084884.

15.2.3. Mine Inflows

Groundwater inflows to the mine pits are collected via sumps and pumped to three surface dams, namely the Vaskop, Ernie's and Black Dams. Water from the Vaskop Dam is used for dust suppression at the mine.

Table 15-1 shows the volumes abstracted daily from the mine pits, as part of the dewatering. These volumes are relatively low and within expected rates for this mining district. The values are taken as estimates as the measured flow meter rates are often incomplete, and uncertainty exists over the accuracy of pumped volumes.

Table 15-1: Dewatering Volumes from Isibonelo Colliery Pits (2019)

Mine Pit	Maximum Abstraction Rate (m^3/d)	Recipient Dam
North	2 400	Vaskop
Central (rehabilitated)	800	Vaskop
South	2 200	Ernies

15.2.4. Hydrogeological Risk Assessment

[12.10(h)(x)] [SR5.7(i)] [ESG4.9]

Risks to the groundwater systems in the area have been identified as follows:

- A numerical model developed by Delta-H indicates that around 25 years after closure decanting at rate of 3.2 Ml/d assuming fully rehabilitated backfill of spoils will occur. Assuming unrehabilitated backfill spoils decant rates is estimated at 5.3 Ml/d;
- Anticipated pollution of groundwater from pit areas, Vaskop Dam and coal handling areas;
- Depleted of groundwater resources by mine dewatering activities;

- Excessive ingress of seepage from surface dams and rivers into mine workings; and
- Generation of acid rock drainage.

The colliery has a comprehensive water monitoring programme in place where water samples are collected quarterly from boreholes within and around the mining area. The groundwater monitoring is necessary to identify and evaluate any changes to the groundwater quality within the area as a result of the mining and related processes. The monitoring network comprises of 21 boreholes installed across the mining area; boreholes are located upstream, downstream and within the mining area.

15.2.5. SRK Comments

It is SRK's opinion that the total abstraction via dewatering is under reported and requires closer monitoring to ensure that it reflects the actual abstraction volumes and any excess water released to the environment.

Negative impacts on groundwater are mostly related to the contamination of groundwater resources by seepage of contaminated water from mine infrastructure.

While water inflows into the opencast mine workings do not show a high risk of acid mine drainage due to low sulphide content of the coal and interburden being mined (typically <0.2% S), elevated mineralisation (up to several grams dissolved solids per litre) is of concern as well as the potential for acid generation towards the end of LoM and post closure. The main concern therefore relates to groundwater being the post-mining decant of contaminated water, which may need treatment and management in perpetuity.

More detailed measurements of potential ingress into the mine workings are essential to make adequate provisions for dewatering infrastructure.

16. Utilization and Marketing Overview

[SR4.3(vi), [SR5.6(i)(ii)(vi)], [SV1.14]

16.1. Introduction

[redacted]

The alternative market for any coal outside of Sasol would be supply to an Eskom Power Station by truck; at current Eskom contract prices, this material would be profitable at both the Kriel and the Matla Power Stations, where the quality would be suitable as well as the transport distances. These circumstances will only be true while both pits are operational; hence, the end date of the Mine Plan as the completion of the South Pit occurs.

16.2. Historical Coal Supply Prices

[redacted]

17. Material Contracts

[SR5.6(i)(ii)(vi)]

17.1. Introduction

The mine does not have any coal supply contracts in place except for the SSF CSA.

17.2. Coal Supply Contract

[redacted]

[redacted]

17.3. Provision of Services

Table 17-2 shows the main contracts for the provision of supplies and services to the mine and their estimated annual value. SRK has not reviewed these contracts but, from experience of previous Anglo mines, they are normally with a preferred supplier and include clauses regarding price, escalation and volume delivery as well as quality and duration.

Table 17-2: Isibonelo Colliery's Main Contracts

Contract	Estimated Annual Value (ZARm)
Hitachi Maintenance Contract	60
Diesel Supply	134
Explosives Supply	127
Topsoil removal	30
Equipment hire	15

17.4. Risk and Opportunities

[12.10(h)(x)] [SR5.7(i)]

The risks that are normally identified include but are not limited to the following:

- Under-delivery of tonnes to SSF leading to penalties to cover the cost of these tonnes being purchased by SSF on the open market;
- Costs escalating faster than inflation;
- Exchange rate impacting on costs;
- Poor calibration of explosive delivery trucks;
- Diesel logistics supply interrupted; and
- Inadequate maintenance of equipment due to insufficient availability of spares.

There is an opportunity to use contracts for localised procurement.

The opportunity also exists for Isibonelo to supply coal to Eskom.

18. Material Asset Valuation

[12.9(a)(i), [12.10(f), 12.10(h)(xii)] [SR5.6 (iii)(iv), SR5.8] [SV1.2, SV1.4, SV1.7, SV1.9, SV1.11, SV1.12, SV1.13, SV1.14, SV1.15, SV1.17, SV1.18, SV1.19]

The valuation of Isibonelo and the contained coal deposits has been prepared in accordance with the SAMVAL Code.

The TEM has been independently constructed by Ms V Snyman of Cornerstone Infrastructure Advisors. The transactions have been identified and reviewed by Mr A van Zyl of SRK who has, based on the outputs of the TEM and his interpretation of the transactions used for the Market Approach, developed an opinion on the value of the assets and signed off on the valuation.

18.1. Valuation Approaches and Methods

[(12.10(a)] [SV1.12] [SR5.6(iv)]

18.1.1. Valuation Approaches

There are three main and generally accepted analytical valuation approaches that are in common use for determining the "Fair Market Value" of mineral assets, each of which is described below, and which largely rely on the principle of substitution, using market derived data. The three accepted approaches to mineral asset valuation, as given in Section 3.3 of the SAMVAL Code are:

- Income Approach - The Income Approach relies on the 'value-in-use' principle and requires determination of the present value of future cash flows over the useful life of the Mineral Asset
- Market Approach - The Market Approach relies on the 'willing buyer, willing seller' principle and requires that the monetary value obtainable from the sale of the Mineral Asset is determined as if in an arm's-length transaction. The application of certain logic in Mineral Asset Valuation, such as 'gross in-situ value' simply determined from the product of the estimate of mineral content and commodity price(s), is considered unacceptable and inappropriate.
- Cost Approach - The Cost Approach relies on historic and/or future amounts spent on the Mineral Asset, and is a valuation approach based on the economic principle that a buyer will pay no more for an asset than the cost to obtain an asset of equal utility, whether by purchase or by construction.

The applicability of the three valuation approaches to the different property types as set out in the SAMVAL Code is shown in Table 18-1.

Table 18-1: Applicability of Valuation Approaches to Property Types

Valuation Approach	Early Stage Exploration	Advanced Stage Exploration	Development Properties	Production Properties	Dormant Properties: Economically Viable	Dormant Properties: Economically Not Viable	Defunct Properties
Income	Not generally used	Not generally used	Widely used	Widely used	Widely used	Not generally used	Not generally used
Market	Widely used	Widely used	Less widely used	Quite widely used	Quite widely used	Widely used	Widely used
Cost	Widely used	Widely used	Not generally used	Not generally used	Not generally used	Less widely used	Quite widely used

The SAMVAL Code requires that at least two valuation approaches must be applied and the results from the valuation approaches and methods must be weighed and reconciled into a concluding opinion on value. SRK has determined the Technical Value for Isibonelo utilizing the Market Approach and Income Approach.

The Market Approach or "Fair Market Value" in respect of a Mineral Asset is defined as the amount of money (or the cash equivalent of some other consideration) determined by the relevant expert for which the Mineral 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 knowledgeably, prudently and without compulsion. The "fair market value" of a mineral asset 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.

The Income Approach or "Technical Value'" in respect of a Mineral Asset is derived from the future nett economic benefit at the Valuation Date under a set of assumptions deemed most appropriate by an Expert or Specialist, excluding any premium or discount to account for factors such as market or strategic considerations. The Income Approach relies on the 'value-in-use' principle and requires determination of the present value of future cash flows over the useful life of the Mineral Asset.

The currency of valuation used in this report is South African Rand (ZAR). As this CPR will be used for both the JSE and LSE, the USD equivalent is also provided.

18.1.2. Materiality

[SV1.10]

The SAMVAL Code definition for materiality requires that a public report contains all the relevant information that investors and their professional advisors would reasonably require, and expect to find, for the purpose of making a reasoned and balanced judgement regarding the mineral asset valuation.

The determination of what may be material depends on both qualitative and quantitative factors. Something may be material in the qualitative sense because of its very nature, e.g., country risk. In the case of quantitative issues in this CPR, SRK considers that if omission or inclusion of an item could change the value or post-tax pre-finance annual operating cash flow by more than ten per cent (10%), the item is material and would have to be included.

18.1.3. Transparency

In terms of the SAMVAL Code, the reader of a Public Report (this CPR) must be provided with sufficient information, the presentation of which is clear and unambiguous, to understand the report and not be misled.

18.2. Valuation – Income Approach

[SV1.12, SV1.14] [SR5.6(iv), SR5.8(ii)(iii)(iv)]

The most widely used valuation method for pre-development, development and operating mines is the discounted cash flow (**DCF**).

This method considers the majority of factors that can influence the value of a business enterprise, including expected changes in the mineral asset or property's operating activity. Under this approach, it is necessary to utilize projections of revenues, Opex, depreciation, income taxes, Capex and working capital requirements. The present value of the resulting cash flows provides an indicated value of the operating business enterprise.

In order to eliminate the impact on value of the different long-term financing arrangements that have been or could be implemented, analysis is generally done on a debt-free basis. The Net Present Value (**NPV**) of the projected post-tax pre-finance cash flows, using either mid-year or end-year discounting, provides an indication of the value for the mineral asset or property appraised. This NPV will need to be adjusted to take into account any debt or cash at the effective date to derive the nett value of the property or asset.

SRK compiled a TEM for Isibonelo which incorporates LoM production schedules for the mine within the licence areas. The TEPs in the TEM have been compiled by SRK as outlined in this report. The TEM parameters and Modifying Factors were used to construct an independent cash flow model in constant money terms.

There is no processing or beneficiation, only sizing. The full RoM is saleable product.

Isibonelo production is dedicated to supply to SSF which is managed through a coal supply contract that was updated and revised and completed in 1 June 2019, with the contract expiring in June 2025. The TEM considered the full LoM and saleable tonnes post the expiry of the SSF contract is assumed at the SSF coal supply contract base price excluding the capital and closure cost recovery components.

18.2.1. Summary of the TEMs

[SR1.6(i)]

The key TEPs and output from the Isibonelo TEM are summarised in Table 18-2 for the period 2020 to 2026 which represents the LoM. As the project is in South Africa, the TEPs are presented in ZAR to enable the MPRDA royalty and company tax for Isibonelo to be calculated correctly.

The TEM is presented on a 100% equity basis, so that interest and debt-servicing is not considered in the cash flows.

Royalties in terms of the Royalty Act are based on the unrefined minerals formula.

For the working capital movement calculation, SRK has taken accounts receivable and accounts payable to be 30 days and 60 days, respectively. Inventories have been excluded from this calculation. The opening working capital balance as at the Effective Date is ZAR88 million (USD5.3 million).

The Company provided the following inputs as at 30 June 2020, adjusted with the forecast for July to December 2020 to estimate the balances at the Effective Date, which were used in the tax calculation:

- Tax loss of ZAR177 million (USD10.7 million);
- Unredeemed Capex of ZAR280 million (USD17.0 million); and
- Unredeemed Capex in terms of calculating the Royalty Tax of ZAR264 million (USD16.1 million).

Provision for mine closure has been made as follows:

- Estimated Scheduled Mine Closure Cost ZAR389 million (USD23.6 million) plus provision for capital for water treatment cost ZAR103 million (USD6.3 million) plus provision for rehabilitation backlog ZAR147 million (USD8.9 million) and future rehabilitation of ZAR149 million (USD9.0 million) less the balance in Trust Account as at the Effective Date ZAR79 million (USD4.8 million). This has been provided for annually over the remaining period of the SSF contract.
- The provision for mine closure does not include the potential additional cost of R30 million (USD1.7 million) in respect of the IAR as described in Section 14.5.4.
- The provision for mine closure does not include any ongoing operating cost for water maintenance.
- Separation Benefit of ZAR67 million (USD4.0 million) provided for based on 1 week's benefit for every year of service assuming an average of 15 years' service. This has been provided for equally in the last two years of operation.

SRK has reviewed the historical operating costs and production statistics to confirm that the projections in the TEM are reasonable. The summary operating costs are included in Table 18-2.

The resultant post-tax pre-finance cashflows are then converted to US Dollars according to the foreign exchange rate at the Effective Date.

Table 18-2: Summary of the TEM

	Units	LoM	2021	2022	2023	2024	2025	2026
Mining (RoM)	(Mt)	27.13	4.80	4.80	4.80	4.80	4.58	3.35
Sales								
[redacted]								
Capital Costs								
[redacted]								
Operating Cost								
[redacted]								

18.2.2. Weighted Average Cost of Capital

The weighted average cost of capital (**WACC**) for the Company has been derived according to the parameters set out in Table 18-3. As the Company intends to have its primary listing on the JSE, the WACC has been calculated according to parameters ruling in the Republic of South Africa.

Table 18-3: Derivation of the ZAR-denominated WACC for the Company

Parameter	Value	Source / Comment
Un-levered (asset) beta	1.004	Median of selected peer producers
Re-levered beta	1.314	Unlevered beta x [1+[(debt/Mkt equity value) x (1 – tax rate)]]
Equity risk premium	7.90%	SA Risk equity premium from: http://www.market-risk-premia.com/za.html and https://www.statista.com/statistics/664880/average-market-risk-premium-south-africa/
Risk free rate	9.26%	RSA 10-yr bond from: http://www.worldgovernmentbonds.com/country/south-africa/
Cost of equity	19.64%	Risk free rate + [(levered beta) x (market risk premium)]
Base rate	3.88%	3-month JIBAR from: https://www.resbank.co.za/Research/Rates/Pages/CurrentMarketRates.aspx
Credit spread	3.50%	Assumed to be less than bond spread. 10 Years vs 2 Years bond spread is 433 basis points from: http://www.worldgovernmentbonds.com/country/south-africa/
Pre-tax cost of debt	7.38%	Base rate + Credit spread
Tax rate (RSA)	28.00%	SA corporate tax rate
After tax cost of debt	5.31%	
Equity	70%	
Debt	30%	Company targeted leverage
WACC (nominal)	15.34%	
WACC (real)	**10.70%**	forecast CPI to average 4.2% for 2020, from: https://www.focus-economics.com/country-indicator/south-africa/inflation

The real WACC to apply to the ZAR-denominated cash flows for Isibonelo is therefore 10.7%.

18.2.3. Sensitivities

[SR5.8(iii)(iv) [SV1.14]

The following tables present the NPVs of the constant money post-tax pre-finance cash flows as determined from the TEM. In summary they include the following:

- The variation in constant money NPV with discount factors (Table 18-4) for total Isibonelo, the SSF contract and out-of-schedule production;
- The variation in constant money NPV at the WACC based on twin (revenue and Opex) sensitivities (Table 18-5).

Table 18-4: Variation of Constant Money NPV with Discount Rate (real)

Discount Rate (real)	Total Isibonelo		SSF Contract only		Out-of-Schedule	
	NPV (ZARm)	NPV (USDm)	NPV (ZARm)	NPV (USDm)	NPV (ZARm)	NPV (USDm)
9%	484	29.3	354	21.4	130	7.9
10%	469	28.4	346	20.9	123	7.5
10.7% (WACC)	**459**	**27.8**	**340**	**20.6**	**119**	**7.2**
11%	455	27.6	338	20.5	118	7.1
12%	442	26.8	330	20.0	112	6.8
13%	429	26.0	323	19.6	107	6.5

Note:
1 USDm = USD millions
2 ZARm = ZAR million

Table 18-5: Variation of Constant Money NPV (ZARm) at 10.7% WACC based on Twin Sensitivities (Revenue and Operating Expenditure)

		Revenue Sensitivity				
		-5.0%	-2.5%	0.0%	2.5%	5.0%
Operating Cost Sensitivity	-2.5%	313	435	553	668	781
	0.0%	213	339	459	576	691
	2.5%	87	240	364	483	599
	5.0%	(49)	125	267	389	507
	7.5%	(190)	(6)	163	293	413

The NPV, at the Company's preferred WACC, of the post-tax pre-finance cash flows provides the preferred value for Isibonelo, while the discount rate of 9% has been used in the selection of the upper value range and the increase of operating expenditure of 7.5% has been used in the selection of the lower value range. Thus, the value for Isibonelo per the Income Approach is shown to be ZAR459 million (USD27.8 million) in the range of ZAR163 million (USD9.9 million) to ZAR484 million (USD29.3 million).

The values presented here are derived from cash flows in a TEM which are of a forward-looking nature. These forward-looking statements are estimates and involve several risks and uncertainties that may cause the actual results to differ materially from those anticipated in the CPR.

18.2.4. SRK Comments

Despite the above tables, Isibonelo is primarily sensitive to penalties from failure to deliver the tonnes required under the contract. The new contract has reduced the exposure and allows the Company to source coal either from other operations or on the open market to replace the shortfall. This reduces the risk of outsize losses but a shortfall in production and the replacement of these tonnes is still considered the primary source of downside. SRK has included a 7.5% increase in Opex as a proxy for this impact as regardless of where the replacement tonnes are sourced from, there will be a penalty as fixed costs will still be incurred.

The SSF contract allows the Company to calculate the actual escalation as per an agreed list of component indices. If the actual escalation is more or less than 1% of the projected escalation per the contract, an adjusted payment shall be made by either the Company or SSF as appropriate and the Base Price shall be adjusted for the following year. The component considered in the SSF contract are Labour, Mining PPI, REM Channel, fuel, and electricity indices.

The SSF contract allows the Company to supply up to 5.1 Mtpa whereby additional tonnes could be bought in and sold to SSF which provides an opportunity to increase the incremental value of the Company.

18.3. Valuation - Market Approach

[SV1.18]

The Market Approach attempts to determine the market value of the asset in a third-party, arms-length transaction. The value is not intended to represent the value to a specific purchaser and, as such, does not consider any strategic or sentimental value nor any unique synergies.

18.3.1. Sources of Information

A list of all transactions in South Africa over the past ten years was compiled using Standard and Poors © S&P Global Market Intelligence database. This was then filtered by removing the following:

- Any transactions where the primary commodity was not coal;
- Properties where no Reserve or Resource information was available (to infer a value per Resource or Reserve tonne); and
- Transactions where no deal value is given; and
- Transactions where the price paid was not available.

Table 18-6 shows the coal company and property deals.

The price paid per tonne reflects the total purchase price per tonne of either Resource inclusive of Reserve (Coal Resources and Coal Reserves (**R&R**) or of Reserve tonnes only (**Rsv**). The percentage paid reflects the total transaction value divided by the value of the tonnes (either R&R or Rsv only) where the value of the tonnes is the price per tonne multiplied by the total tonnage. The advantage of this measure is that it automatically normalises to the price paid whereas the price paid per tonne does not directly consider the prevailing coal price.

Table 18-6: Coal Company and Property Deals

Completion Date	Target	Buyer	Seller	Percent Acquired (%)	Announced Transaction Value (USDm)	R&R Value (ZAR/t)	Price/R&R Value (%)	Rsv Value (ZAR/t)	Price/Rsv Value (%)
Coal Company Deals*									
30/06/2017	Eloff Mining Company (Pty) Ltd	Universal Coal Development IV (Pty) Ltd	Canyon Springs Investments 80 (Pty) Ltd	29.00	3.35	0.315	0.03		
20/06/2017	Keaton Energy Holdings Ltd	Wescoal Holdings Ltd	NA	100.00	67.08	1.83	0.20	7.06	0.76
01/12/2016	Exxaro Resources Ltd	Undisclosed buyers	Dreamvision Investments (Pty) Ltd	4.85	107.53				
01/12/2016	Exxaro Resources Ltd	Undisclosed buyers	Anglo American plc	9.70	216.74				
08/06/2017	Leeuw Mining & Exploration (Pty) Ltd/Amalahle Exploration (Pty) Ltd	Bayete Energy Resources (Pty) Ltd	Keaton Energy Holdings Ltd	100.00	0.02	0.027	0.003	0.481	0.05
15/02/2016	Leeuw Mining and Exploration (Pty) Ltd	Keaton Energy Holdings Ltd	JPI Leeuw and Associates (Pty) Ltd	8.00	0.90	2.02	0.26	68.75	8.74
20/08/2015	Total Coal South Africa Ltd	Exxaro Resources Ltd	Total S.A.	100.00	467.50	252.41	29.26		
30/09/2015	Leeuw Mining and Exploration (Pty) Ltd	Keaton Energy Holdings Ltd	JPI Leeuw and Associates (Pty) Ltd	18.00	2.44	1.48	0.17	6.53	0.73
Coal Property Deals*									
31/10/2018	North Block Complex	Investor group	Exxaro Resources Ltd	100.00	14.28	8.63	0.90	44.737	4.65
01/08/2018	New Largo project	Investor group	Anglo American plc	100.00	71.63	1.45	0.16		
27/11/2017	Eloff Project	Universal Coal Development IV (Pty) Ltd	Exxaro Resources Ltd	51.00	6.49	0.33	0.04		
02/11/2017	Mooiplaats Colliery	Mooiplaats Coal Holdings (Pty) Ltd	Investor group	100.00	13.29	2.10	0.23	9.135	0.99
01/03/2018	Eskom-tied coal operations	Seriti Resources (Pty) Ltd	Anglo American plc	100.00	166.52	3.94	0.43	6.475	0.70
26/06/2017	Uitkomst Colliery	Coal of Africa Ltd	Pan African Resources plc	91.00	19.62	12.49	1.35	23.10	2.49
14/04/2016	Assets of Optimum Holdings	Tegeta Exploration and Resources (Pty) Ltd	Glencore plc	67.58	141.24	3.25	0.41	11.24	1.43
27/08/2015	Rietkuil project	Anglo African Capital Ltd	Sable Mining Africa Ltd	63.50	1.28	0.16	0.02		
12/11/2015	Somkhele mine	Business Venture Investments No 1770 (RF) (Pty) Ltd	Petmin Ltd	20.00	28.07	16.56	2.11	53.21	6.77
01/04/2016	Uitkomst colliery	Pan African Resources Plc	Investor group	100.00	15.91	7.78	0.99		
30/07/2015	New Clydesdale Colliery	Universal Coal Development VIII (Pty) Ltd	Exxaro Resources Ltd	100.00	14.94	3.09	0.33	61.70	6.51
31/01/2014	Woestalleen Complex	Blue Falcon 212 Trading (Pty) Ltd	Coal of Africa Ltd	100.00	7.90	1.61	0.17	56.93	5.94
30/07/2013	Kendal property	Joe Singh Group of Companies (Pty) Ltd.	Homeland Energy Group Ltd	100.00	25.15	4.92	0.56	14.24	1.61
31/12/2011	Mpumalanga assets	Imbawula Group	Xstrata plc	100.00	43.00	0.74	0.07	13.67	1.30
					Average	**16.26**	**1.88**	**26.95**	**3.05**
					Median	**2.06**	**0.25**	**13.96**	**1.52**
					Minimum	**0.03**	**0.00**	**0.48**	**0.05**
					Maximum	**252.41**	**29.26**	**68.75**	**8.74**

Note:

1. R&R – Coal Reserves and Coal Resources inclusive
2. Rsv – Coal Reserves only
3. Sourced from Standard and Poors © S&P Global Market Intelligence

18.3.2. Market Valuation Metrics

The median prices paid (in ZAR/t and % terms) from Table 18-6 and the Coal Resources and Coal Reserves give the values presented in Table 18-7.

Table 18-7: Value Ranges from Market Assessment

	Unit	Coal Reserve	R&R
Coal Reserve	Mt	27.1	
Coal Reserves and Resources (incl.)	Mt		36.6
Coal Product Price	ZAR/t	369	
Median	ZAR/t	13.96	2.02
Median	% in situ	1.52	0.23
In Situ value	ZARm	10 000	13 494
Median based on ZAR/t	ZARm	378	74
Median based on % in situ	ZARm	152	31

Note:
Coal Reserve is the exclusive Reserve; Reserves and Resources are inclusive of Reserves.

SRK considers that the acquisitions of Leeuw Mining by Bayete Energy and Total Coal by Exxaro represent outliers in the dataset in Table 18-6 and have been excluded in the derivation of the metrics to apply to Isibonelo. Further, the Somkhele transaction has been excluded as it is an anthracite mine.

SRK has extracted from Table 18-6 the valuation metrics that it deems are applicable to the declared Coal Reserves at Isibonelo as set out in Table 18-8. The range is from ZAR 152 million to ZAR 378 million.

Table 18-8: Market Valuation Metrics for Isibonelo

Minimum	Maximum
ZAR 152 million Median based on % in situ for Reserves	ZAR 378 million Median based on ZAR/t for Reserves

18.3.3. Derivation of Market Values

The previous transactions reflect a wide range of values paid and relate to a variety of assets. Applying the range to the Coal Resources and Coal Reserves (on inclusive and exclusive basis) at Isibonelo gives a wide range . However, the transactions represent a range of coal assets, few of which can be considered similar to Isibonelo that operates on a fixed price contract and produces no export product. It is similar to Eskom-tied collieries but with a different price structure. Preference has been given to those metrics that are based on the Reserve rather than the Resource inclusive of Reserves. Isibonelo has a smaller overall resource and coal that is present has largely been converted into reserves. The median prices have been considered as these remove the impacts of outliers.

The valuation range from this approach is considered indicative but not preferred as there are limited sales, precluding statistical analysis, and no individual sale asset that is considered directly comparable.

The selected range for Isibonelo from the Market Approach is ZAR152 million to ZAR378 million.

Applying the metrics in Table 18-8 to the declared Coal Reserves of 27.1 Mt, the preferred, minimum and maximum values for Isibonelo according to the Market Approach are derived (Table 18-9).

Table 18-9: Market Valuation for Isibonelo

Units	Minimum	Maximum
Value (ZARm)	152	378
Value (USDm)	9.2	22.9

18.4. Derivation of Value

The preferred, minimum and maximum values per the Income and Market Valuation approaches are compared in Table 18-10, and shown diagrammatically in Figure 18-1.

Table 18-10: Comparison of Income and Market Valuations for Isibonelo

Valuation Approach	Units	Minimum	SRK-preferred	Maximum
Income	(ZARm)	163	459	484
Market	(ZARm)	152		378
SRK-selected	(ZARm)	163	459	484
Income	(USDm)	9.9	27.8	29.3
Market	(USDm)	9.2		22.9
SRK-selected	(USDm)	9.9	27.8	29.3

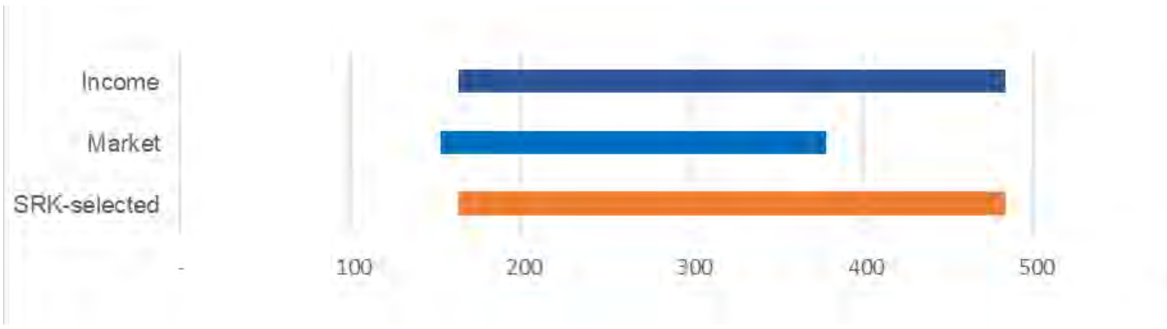


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Figure 18-1: Comparison of Income and Market Valuations (ZARm)

SRK considers the values derived from the Income approach to be more appropriate given that they are based on cash flows derived from a LoM production schedule and costs that are well understood.

The SRK-selected values in Table 18-10 still need to be adjusted for balance sheet items (e.g. inventories, debt and cash on hand) at 31 December 2020. Accounts receivable and accounts payable at 31 December 2020 were taken into account in modelling the working capital movements in the TEM.

18.5. Previous Valuations

[SV1.11]

SRK is not aware of any valuations for Isibonelo that have been published in the public domain during the previous two years.

18.6. Summary Valuation for Isibonelo Colliery

[12.10(h)(xii)] [SR5.8(i)] [SV1.12, SV1.14, SV1.15]

The summary valuation for Isibonelo at the Effective Date is set out in Table 18-11. The values for Isibonelo were derived on a 100% basis and reflect SRK's preferred value derived from the Income and Market valuation approaches. The effect of debt/loans and debt servicing was excluded in the compilation of the TEM used in the Income Approach valuation method, with the necessary adjustments reflected in Table 18-11.

Adjustments have been made in Table 18-11 for balance sheet items, which include cash on hand, medium and long-term borrowings (debt) and finished product inventories . The Company confirmed to SRK that there are no hedge or derivative contracts in force.

Entries in Table 18-11 were derived in ZAR terms and converted to USD terms at the ZAR:USD exchange rate ruling at the Effective Date.

Table 18-11: Isibonelo Colliery Summary Valuation (as at 31 December 2020)

	Selected Value		The Company's Interest (%)	Fair Value to the Company	
Contract	**ZARm**	**USDm**		**ZARm**	**USDm**
Isibonelo Colliery					
SSF Contract	340	20.6	100%	340	20.6
Out of schedule production[1]	119	7.2	100%	119	7.2
Income Approach	459	27.8		459	27.8
Adjustments					
Cash on hand				0	0
Medium and long-term borrowings[2]				0	0
Finished product inventories[3]				5	0.3
Exploration budget costs				Included in cash flows	
Hedge contracts – mark to market				None in force	
Environmental liabilities				Included in cash flows	
Net Isibonelo Value				**464**	**28.1**

Note:

1. Out-of-Schedule refers to the production after completion of the SSF supply agreement in June 2025 through to end of LoM
2. Medium- and long-term borrowings are intra-company amounts, which are not external debt and will be either converted into equity or waived and will have no cash impact on the Company.
3. Finished product inventories are valued by the Company at the lower of cost or net realisable value. The holding value of consumables and spares inventories has been excluded.

SRK repeated the construction of Table 18-11 using the selected minimum and maximum values derived from the Income and Market valuation approaches.

Under the assumption that the Out-of-Schedule production post June 2025 can be sold at the same base price as the SSF tonnes, SRK considers that the fair value for Isibonelo is ZAR464 million (USD28.1 million), in the range of ZAR168 million (USD10.2 million) to ZAR489 million (USD29.6 million).

18.7. Risks and Opportunities

[12.10(h)(x)] [SR5.7(i)]

The risks are discussed in greater detail in the risk review section. The nature of the Isibonelo contract with SSF is such that there is minimal price risk as the price has been pre-determined and an inflation component is incorporated for price adjustments. There is no exchange rate risk in the price.

The SSF contract was amended in June 2019 which reduced the prior risk of failure to deliver the product tonnes within specification to SSF, where the contract allowed SSF to purchase any shortfall in the open market with the cost to be covered by Isibonelo. The current contract provides a more equitable arrangement that in the event of a failure by Isibonelo to supply the required tonnage within any given quarter, there is a mechanism which allows the Company to make up the supply within a given time period. If the Company has not extinguished the supply shortfall within a seven-month period, SSF has the right to purchase any remaining shortfall in coal supplied from the lowest priced offer of three regular contracted coal suppliers of SSF (a Supply-or-Pay Payment). Although the risk has been greatly reduced, there may still be instances where AAC may not be able to cover the shortfall with tonnage from other mines as the ability to mitigate is limited by the absence of any processing at Isibonelo. Any quality variances cannot be readily accommodated.

The SSF contract allows the Company to supply up to 5.1 Mtpa whereby additional tonnes could be bought in and sold to SSF which provides an opportunity to increase the incremental value of the Company.

The provision for mine closure does not include the potential additional cost of ZAR30.3 million (USD1.7 million) in respect of the IAR as described in Section 14.5.4.

18.8. Conclusions

[SV1.15]

The trend towards decarbonisation is relatively recent and it remains unclear how this will impact on the value of the coal assets. SRK considers the valuation to be aligned with the SAMREC and SAMVAL Codes and to represent a reasonable interpretation of value and the associated risks. Current sentiment towards coal assets is not adequately reflected in the transactional analysis. The possible gap between the price that can be realised and the valuation is exacerbated by the recent increase in the coal price.

The valuation range from the Income Approach is ZAR163 million (USD9.9 million) to ZAR484 million (USD29.3 million) (exclusive of adjustment for balance sheet items). The lower value is derived from the base value with an equivalent to 7.5% higher Opex, also simulating the potential cost of under-delivery of tonnes and the impact of the associated penalties. The upper end is given by the base NPV at a 9% discount rate.

The valuation range from the Market Approach is ZAR152 million (USD9.2 million) to ZAR378 million USD22.9 million). The lower bound is given by the implied valuation from the median percentage paid as a percentage of in situ value of Resources (inclusive) and the upper bound is given by the implied value from the median percentage of in situ value for Reserves.

SRK considers that the fair value for Isibonelo is ZAR464 million (USD28.1 million), in the range of ZAR168 million (USD10.2 million) to ZAR489 million (USD29.6 million) (inclusive of adjustment for balance sheet items).

19. Risk Assessment

[12.10(h)(x)] [SR5.7(i)] [ESG4.9]

19.1. Introduction

An iterative, integrated and collaborative risk assessment was carried out as part of the study to identify existing and potential vulnerabilities that could affect the project, using inputs from each of the project disciplines.

The risk assessment was highly participative, with inputs from various technical team members, identified in Table 19-1.

The various technical team members populated the risk register electronically, prior to the risk workshop. The risk workshop served to confirm and evaluate the various items from the risk register.

19.2. Approach

The risk framework used in the CPR of a related Company asset was used, in order to maintain consistency in approach, terminology and rating values[8]. The approach is summarised as follows:

- Description
    - The risk, the cause of the risk and the consequence/s that are associated if the risk is realised, were described;
    - The probability of occurrence was rated, using the standard terminology shown in Table 19-1; and
    - The consequence was rated, using the standard terminology shown in Table 19-2.
- Inherent Rating
    - Based on the likelihood of occurrence and consequence if realised, the inherent rating of each risk was determined using the standardised risk matrix shown in Table 19-3.
- Mitigation and residual rating
    - Mitigatory measures were identified for the risks and described; and
    - Based on the interpretation that the actions for mitigation will be incorporated into the risk management of the project, and the perceived efficacy of the implementation (as shown in Table 19-4), the residual risk ratings were determined using the risk matrix in Table 19-3.
- The risk assessment concluded with the theme of *Risk Resilience*[8] – which is understanding the Residual Risk following the implementation of mitigation. Using this concept, the residual risks can be classified into four types:
    - **Resilient** – where the reduction in risk is zero or very small, and the residual risk is essentially the same as the initial risk;
    - **Robust** - where the reduction in risk is limited, and although the risk has been mitigated to some degree, the residual risks remain of concern and further mitigation is necessary;
    - **Temperate** - where the reduction in risk is moderate, and although the risk has been mitigated to a larger degree, some further mitigation may be necessary; and
    - **Weak** - where the reduction in risk is considerable,

[8] The risk framework used in the AOPL CPR was used in order to maintain consistency in approach, terminology and rating values, namely: Anglo American Coal (AAC). (2019k). Competent Persons Report (CPR) Reserves and Resources for the period ending 31st December 2018. Greenside Colliery. page 145-147.

Table 19-1: Descriptors for Probability of Occurrence

Description	Probability	Informal Guidance
Rare	<3% likelihood of occurring	Occurs only in **exceptional** circumstances
Unlikely	3% to 10% likelihood of occurring	May occur in uncommon circumstances
Possible	>10% to 30% likelihood of occurring	Might occur at some time
Likely	>30% to 90% likelihood of occurring	Will probably occur in most cases
Almost certain	>90% likelihood of occurring	Is expected to occur in most circumstances

Table 19-2: Descriptors for Consequence

Description	Financial/ Economic	Operational/ Business Interruption	Health and Safety	Skills	Natural Environment	Social	Corporate Image/Reputation	Legal
Insignificant	<5% change in value	2.5% of project schedule overrun	Medical treatment case, dressing station, no impairment	<5% unavailability of critical skills	Natural processes are affected but with impacts being reversible immediately.	Issue of no political and community concern.	Issue of no public concern.	Low-level legal issue.
Minor	5% to 10% change in value	5% of project schedule overrun	Reversible impairment or Lost Time Injury	Up to 10% unavailability of critical skills	Natural processes are affected but continued in a modified way with impacts being reversible within lifetime of operation.	Local concern consisting of repeated complaints.	Local press interest and Local political concerns.	Non-compliance and breach of regulations.
Moderate	10% to 25% change in value	10% of project schedule overrun	Lost Time Injury - Reportable	Up to 25% unavailability of critical skills	Natural processes are notably altered but continued in a modified way with impacts being reversible within lifetime of operation.	Declared Provincial Concerns and serious inflow of community complaints.	Limited damage to reputation, extended local press interest/ Provincial press interest.	Breach of regulations; investigation or report to authority with prosecution and/or moderate fine possible.
High	25% to 80% change in value	20% of project schedule overrun	Single fatality, multiple injuries or permanent disability	Up to 80% unavailability of critical skills	Natural processes are disrupted for the duration of the activity but resume functioning after the operation has been terminated.	Loss of credibility and confidence. Criticism by National Government.	National press coverage. Independent External Enquiry.	Breach of regulation, severe litigation.
Major	>80% change in value	>30% of project schedule overrun	Multiple fatalities or health impact of similar nature affecting multiple persons	>80% unavailability of critical skills	Natural processes are permanently disrupted to the extent that these processes could permanently cease.	Widespread social riots & work blockages, Declared National Political Concerns and Investigations.	Declared National political concerns, International and Local Media Coverage.	Prosecution and fines, litigation including class actions.

Table 19-3: Risk Matrix[9]

		Consequence				
		Insignificant	Minor	Moderate	High	Major
Probability	Almost Certain	Medium	High	High	Extreme	Extreme
	Likely	Medium	Medium	High	Extreme	Extreme
	Possible	Low	Medium	High	High	Extreme
	Unlikely	Low	Low	Medium	High	High
	Rare	Low	Low	Medium	Medium	High

Table 19-4: Descriptors for Effectiveness of Mitigation

Description	Effectiveness	Outcome Following Mitigation
No mitigation	No mitigation is carried out therefore the risk remains the same	The residual risk remains the same as the inherent risk; mitigation must be considered for intolerable risks
Damaging	The mitigation applied increases the risk instead of reducing the risk	The residual risk remains of concern; further and/or alternative mitigation is necessary to address the increased risk and/or intolerable risks
Deficient	The mitigation applied has very little effect on reducing the risk	The residual risk is essentially the same as the inherent risk; further mitigation is necessary
Marginal	The mitigation applied has reduced the risk to some degree	The residual risk remains of concern and further mitigation is necessary
Qualified	The mitigation applied has reduced the risk to a larger degree	Although the residual risk has largely been mitigated, further mitigation may be necessary
Effective	The mitigation applied has reduced the risk considerably	Further mitigation is probably not necessary
Excessive	The mitigation that has been applied is more than necessary to reduce the risk. There may be over-control	

19.3. Overview of Results

The full risk register and assessment are shown in Table B-1 in Appendix 2. A total of 62 risks were evaluated across the disciplines, of those:

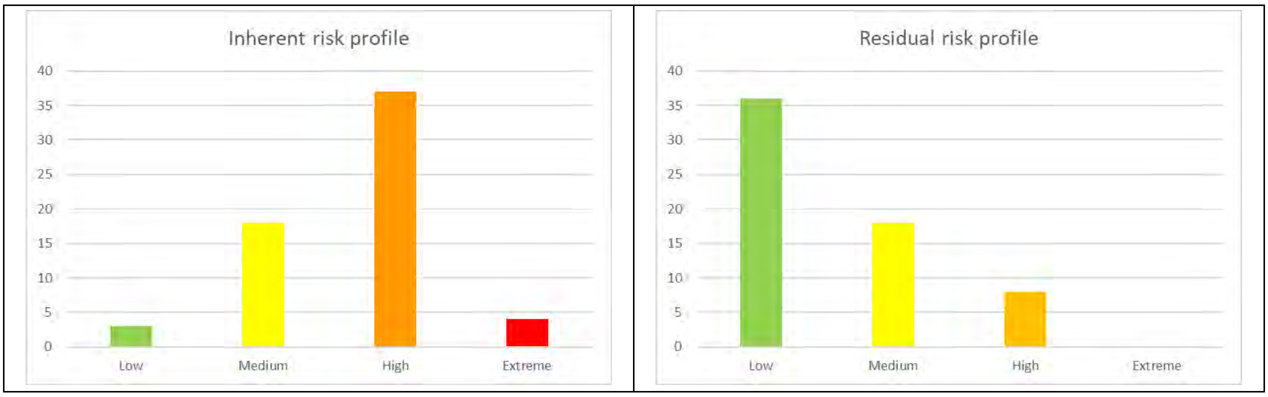
- 36 have a **low** residual rating;
- 18 have a **medium** residual rating;
- 8 have a **high** residual risk rating and
- Zero have an **extreme** residual risk rating.

Subsequently, the risk resilience is as follows:

- 9 residual risks are considered to be **resilient;**
- 36 residual risks are considered to be **robust;**
- 4 residual risks are considered to be **temperate;** and
- 13 residual risks are considered to be **weak.**

[9] The risk framework used in the AOPL CPR was used in order to maintain consistency in approach, terminology and rating values, namely: Anglo American Coal (AAC). (2019k). Competent Persons Report (CPR) Reserves and Resources for the period ending 31st December 2018. Greenside Colliery. page 145-147.

Figure 19-1 shows the comparison of risk profiles, whereas the heat map plots in Figure 19-2 (inherent risk rating) and Figure 19-3 (residual risk rating) contrast the elements of the risk profile – and highlight the importance of effective mitigation and control measures.



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Comparison of Risk Profiles Pre- and Post-Mitigation

Project No. 566627

Figure 19-1: Comparison of Risk Profiles Pre- and Post-Mitigation

Table 19-5: Comparison of Risk Rank Elements using the Company's Framework[10]

			Consequence				
			Insignificant	**Minor**	**Moderate**	**High**	**Major**
			1	**2**	**3**	**4**	**5**
Probability	**Almost Certain**	**5**	Medium 0 / 0	High 0 / 0	High 0 / 0	Extreme 0 / 0	Extreme 1 / 0
	Likely	**4**	Medium 0 / 0	Medium 1 / 0	High 4 / 0	Extreme 2 / 1	Extreme 0 / 0
	Possible	**3**	Low 0 / 1	Medium 9 / 3	High 14 / 4	High 15 / 2	Extreme 1 / 0
	Unlikely	**2**	Low 0 / 10	Low 2 / 2	Medium 5 / 14	High 1 / 1	High 1 / 0
	Rare	**1**	Low 0 / 8	Low 1 / 15	Medium 1 / 1	Medium 2 / 0	High 2 / 0

[10] The risk framework used in the AOPL CPR was used in order to maintain consistency in approach, terminology and rating values, namely: Anglo American Coal (AAC). (2019k). Greenside Colliery Competent Persons Report (CPR) Reserves and Resources for the period ending 31st December 2018. page 145-147.

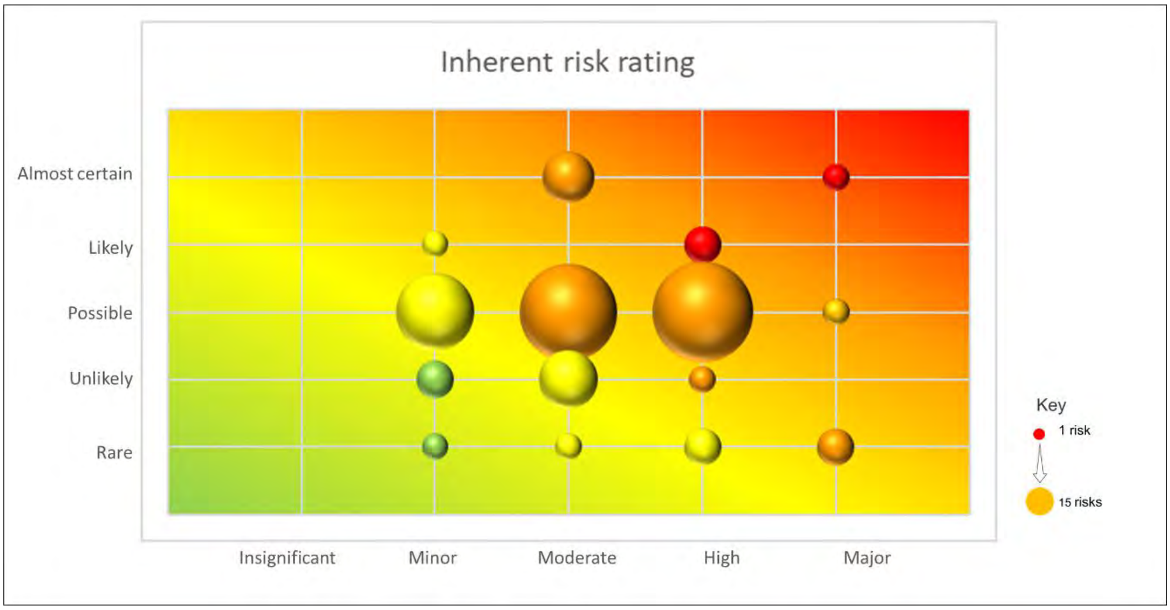

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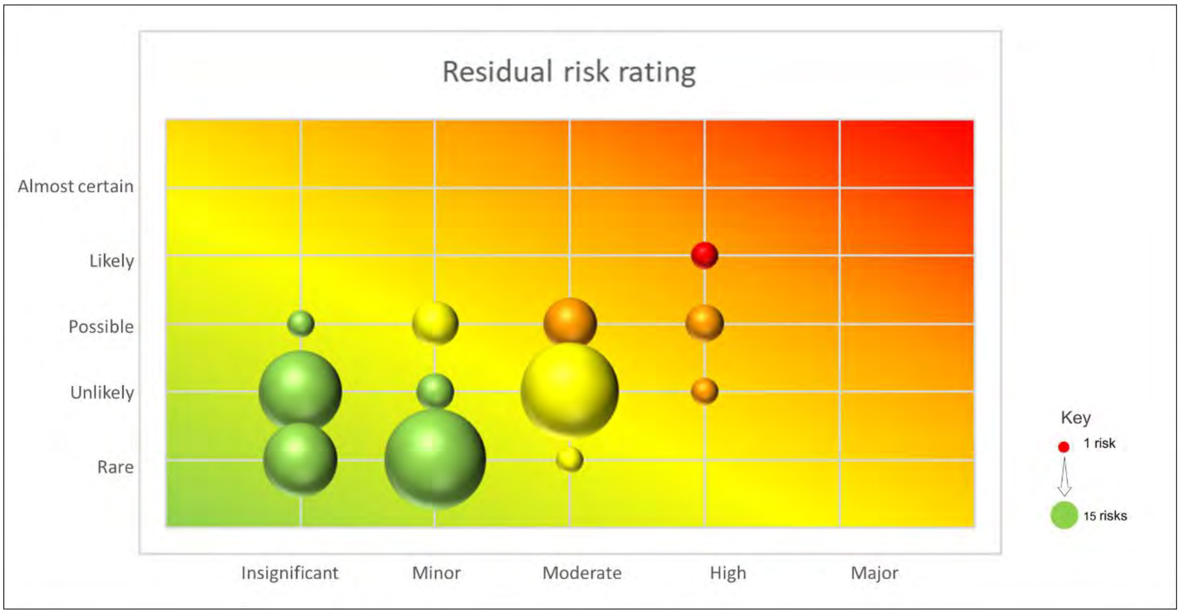
Figure 19-2: Distribution of Risk Rank Elements (Pre-Mitigation)[11]



srk consulting	**ISIBONELO COLLIERY CPR** Distribution of Risk Rank Elements (Post-Mitigation)	Project No. 566627

Figure 19-3: Distribution of Risk Rank Elements (Post-Mitigation) [11]

[11] In reading the color-coded heatmaps of Figure 19-2 and Figure 19-3 - red shows the higher risk rating and green shows the lower risk rating. Furthermore, the size of the bubble corresponds with the number of risks i.e. smaller bubbles indicate a *fewer* number of risks and large bubbles indicate a *greater* number of risks at the particular probability and consequence combination.

The detailed results from each of the disciplines of the risk assessment are presented in Table B-1 in Appendix 2.

19.4. Risks per Discipline

Table 19-6 consolidates the key risks identified for Isibonelo, arranged per discipline

Table 19-6: Key Risks

Discipline	Risk Description	Probability	Consequence	Inherent Risk Rating	Residual Risk Rating
Closure	Requirements to increase statutory provisions	Possible	Moderate	High	High
Electrical Infrastructure	Unreliable bulk power supply	Almost certain	Major	Extreme	High
Water Management	Dirty water discharge from mine	Possible	High	High	High
Water Management	Dam failure occurs	Possible	Major	Extreme	High
Social	Delays in social transitioning post closure	Likely	High	Extreme	High
Social	Unresolved land claims	Possible	High	High	High
TEM	Higher than planned SIB expenditure	Possible	Moderate	High	High
TEM	Compensation for Sasol purchasing tonnage	Possible	Moderate	High	High

19.5. Opportunities per Discipline

Table 19-7 consolidates the key opportunities identified for Isibonelo, arranged per discipline.

Table 19-7: Opportunities

Discipline	Risk Description	Opportunity Description
Closure	Requirements to Increased Statutory Provisions	Continuing to provide input into the regulatory development and actively engaging with authorities could assist operations such as Isibonelo not to be adversely and unreasonably affected by the requirement to allocate significant fund to meet compliance requirements and changes therein.
Electrical Infrastructure	Unreliable bulk power supply	There may be an opportunity to implement energy efficiency programmes to try and offset the high power costs. However, recommendations from energy efficiency audits carried out in December 2019 did not justify any viable impact on the operations.
Material contracts	Though not as a direct result of a risk - an opportunity exists in respect of the provision of supplies and services to the mine (for example topsoil removal and equipment hire)	There is an opportunity to use contracts for localised procurement
Material contracts	Though not as a direct result of a risk - an opportunity exists	There is an opportunity for Isibonelo to supply coal to Eskom.
Security	Equipment theft along the overland conveyor corridor	There may be a cost saving opportunity to shut down the plant, should it be idle for more than 20 minutes, to try and conserve energy. However, this will need further consideration as it may inadvertently allow for copper theft when the equipment is down - especially the overland conveyor. It is therefore recommended that, in addition to the further consideration, the mine should install cameras (that are monitored from the control room) to have visual monitoring of all activities happening around the plant, especially the overland conveyor.

20. Conclusions and Recommendations

[SV1.2] [SR5.7(i)] [SR7.1(ii)] [ESG4.9]

20.1. Regulatory Environment and Tenure

Isibonelo has sufficient Mining Rights in place to cover the area of mining. The necessary surface rights to support the operations are in place, or in the instance of land currently owned by Mr CJ Greyling and Eskom, negotiations to procure the surface rights are underway.

Two land claims are currently unresolved; the Company has fulfilled its obligations in this regard and any further action that may be required is the responsibility of the Restitution Management Support Office.

20.1.1. Sufficiency of the Rights

SRK has had sight of copies of the Isibonelo Mining Right documents and has used the co-ordinate information therein to construct Figure 3-1. The Isibonelo Mining Right, along with the two successful Section 102 applications to include the Zimele and Block F Triangle areas, incorporates the full area planned for mining.

The surface rights are mainly owned by the Company (AOPL and AAIC). However, some of the surface rights are owned by other entities. Constraints to the existing mine plan are the Zimele surface area owned by Eskom Holding SOC Ltd (**Eskom**). Negotiations with Eskom will be engaged to finalise permissions from Eskom to mine the affected areas. Negotiations with CJ Greyling for ground in the vicinity of the North Pit have recently been concluded (pers. Comm. Harding, C., 2020).

The WULs appear to adequately cover the mining area, although SRK has not been given sight of the original WUL.

20.2. Geology, Exploration, Drilling, Sampling Techniques and Data

The deposit geology is well understood. The mining areas have been extensively drilled, with around 120 infill holes drilled annually ahead of mining. The infill drilling is done to increase the geological confidence in those areas still classified as Indicated Coal Resources, as well as for grade control purposes. The sampling and analysis of the drill holes allows for tight control on the quality of the RoM coal sent to SSF.

The exploration and data management are all carried out to a high standard. The internal company guideline documents, as well as the multiple levels of checks and verifications employed, ensure that the final data included in the geological model accurately reflects the original data.

The geological model has been built with sound geological principles. The modeller has a good understanding of the coal in the ground and is able to produce a model reflective of this. SRK conducted a multi-faceted interrogation of the model, and found it to be a well built, managed and robust model.

20.3. Coal Resource Estimates

The Isibonelo Opencast Coal Resource on an air-dried Mineable Tonnes In Situ air-dried basis for No 4 Seam amounts to 36.57 Mt for the North and South Pits combined. This estimate is made up of 27.45 Mt of Measured Coal Resources (75%) and 9.12 Mt of Indicated Coal Resources (25%). The average inherent moisture content is 5.6%.

The Coal Resources for Isibonelo on a total basis[12] (100% attributable to Isibonelo) at 31 December 2020 are summarised in Table 20-1 and the raw coal qualities (adb) are shown in Table 20-2.

The Coal Resources have been subdivided into those inside and outside the Life of Mine Plan, which has been determined using the specified mine design parameters within the economic footprint (SANS 10320:2020, clauses 3.2.5, 8.1.1.1, 8.1.2.3 and Table F1).

Coal Resources inside the Mine Plan are reported inclusive of the Coal Reserves.

It should be noted that Coal Resources are only declared for the No 4 Seam as SRK is of the opinion that the

[12] Note that “total basis” refers to 100% of the Coal Resources and/or Coal Reserves within the Isibonelo Mining Right and is not necessarily the percentage attributable to the holder of the Mining Right.

No 5 Seam does not have reasonable prospects for eventual economic extraction.

Table 20-1: Isibonelo No 4 Seam MTIS Coal Resource Statement as at 31 December 2020 (adb)

Block	Resource Classification Category	Mining Method	Seam	Area (ha)	Seam Thick-ness (m)	Raw ARD	Geo. Loss (%)	MTIS (Mt)
INSIDE THE MINE PLAN								
North Pit	Measured	OP	No 4	136.70	5.78	1.57	5	11.75
	Indicated	OP	No 4	67.01	5.75	1.57	5	5.73
	Subtotal	**OP**	**No 4**	**203.71**	**5.77**	**1.57**	**5**	**17.48**
South Pit	Measured	OP	No 4	143.82	5.55	1.57	5	11.94
	Indicated	OP	No 4	-	-	-	-	-
	Subtotal	**OP**	**No 4**	**143.82**	**5.6**	**1.57**	**5**	**11.94**
Total Inside the Mine Plan		**OP**	**No 4**	**300.10**	**5.56**	**1.57**	**5**	**29.42**
OUTSIDE THE MINE PLAN								
North Pit	Measured	OP	No 4	46.72	5.35	1.58	5	3.76
	Indicated	OP	No 4	40.10	5.67	1.57	5	3.39
	Subtotal	**OP**	**No 4**	**86.81**	**5.50**	**1.58**	**5**	**7.14**
Total Outside the Mine Plan		**OP**	**No**	**86.81**	**5.50**	**1.58**	**5**	**7.14**
GRAND TOTAL (Inside + Outside the Mine Plan)		**OP**	**No 4**	**434.35**	**5.65**	**1.57**	**5**	**36.57**

Note:
1. Note that “total basis” refers to 100% of the Coal Resources and/or Coal Reserves within the Isibonelo Mining Right and is not necessarily the percentage attributable to the holder of the Mining Right.
2. Minimum seam thickness cut-off of 0.5 m.
3. Ash Content >50% cut-off applied.
4. daf >24% limit applied.
5. Weighted average qualities estimated on MTIS. All seam thicknesses used are true thicknesses.
6. CV[1] - Calorific Value, VM – Volatile Matter Content, FC - Fixed Carbon, TS - Total Sulphur, IM - Inherent Moisture, DAFV – Dry Ash Free Volatile Matter Content, ARD – Apparent Relative Density.
7. Coal Resources quoted in decreasing order of geological confidence.
8. Fresh coal only, and coal within Mining Right boundary.
9. OP = Open Pit.
10. adb = air dried basis.

Table 20-2: Isibonelo No 4 Seam Raw Coal Qualities (adb) as at 31 December 2020

Block	Resource Classification Category	Seam	Average Raw Coal Resource Qualities (adb)						
			Ash (%)	CV[1] (MJ/kg)	DAFV (%)	FC (%)	IM (%)	TS (%)	VM (%)
INSIDE THE MINE PLAN									
North Pit	Measured	No 4	26.5	20.61	32.8	45.8	5.5	0.74	22.2
	Indicated	No 4	26.4	20.67	32.2	46.3	5.6	0.74	21.7
	Subtotal	No 4	**26.5**	**20.63**	**32.6**	**46.0**	**5.5**	**0.74**	**22.1**
South Pit	Measured	No 4	27.0	20.44	32.7	45.5	5.6	0.78	21.9
	Subtotal	No 4	**27.0**	**20.44**	**32.7**	**45.5**	**5.6**	**0.78**	**21.9**
Average Inside the Mine Plan		**No 4**	**26.7**	**20.55**	**32.6**	**45.8**	**5.6**	**0.76**	**22.0**
OUTSIDE THE MINE PLAN									
North Pit	Measured	No 4	27.6	20.17	32.3	45.4	5.6	0.86	21.5
	Indicated	No 4	27.1	20.45	32.3	45.7	5.7	0.71	21.5
	Subtotal	No 4	**27.3**	**20.30**	**32.3**	**45.5**	**5.6**	**0.79**	**21.5**
Average Outside the Mine Plan		**No 4**	**27.3**	**20.30**	**32.3**	**45.5**	**5.6**	**0.79**	**21.5**
AVERAGE (Inside + Outside the Mine Plan)		**No 4**	**26.8**	**20.50**	**32.6**	**45.7**	**5.6**	**0.76**	**21.9**

Note:
1. Minimum seam thickness cut-off of 0.5 m.
2. Ash < 50% cut-off applied.
3. DAF > 24% limit applied.
4. Weighted average qualities estimated on MTIS. All seam thicknesses used are true thicknesses.
5. CV[1] - Calorific Value, VM – Volatile Matter Content, FC - Fixed Carbon, TS - Total Sulphur, IM - Inherent Moisture, DAFV – Dry Ash Free Volatile Matter Content, RD – Relative Density.
6. Coal Resources quoted in decreasing order of geological confidence.
7. Fresh coal only, and coal within Mining Right boundary.
8. OP = Open Pit.
9. adb = air dried basis.

20.3.1. Reconciliation to Historical Coal Resource Estimates

[SR1.4(iii), SR4.2(v), SR4.5(vi), SR6.1(iii)]

The reconciliation between SRK's estimate as of 31 December 2020 and that of the Company's estimate as of 31 December 2019 was done. The difference in the estimates is a result of:

- The mine plan has been updated since 31 December 2019;
- The inclusion of Zimele Block by SRK;
- The exclusion of No 5 Seam resources by SRK as they do not pass the RPEEE test; and
- Mining that occurred between December 2019 and December 2020.

Although the differences between the Coal Resource estimates for coal inside the mine plan are material (7.38 Mt, some 20%), this is balanced by the inclusion by SRK of the resources outside the mine plan (7.15 Mt, some 19.5%). SRK believes that the differences are not material due to the reasons stated above.

20.4. Rock Engineering

The site geotechnical function is well performed, with good support from the regional Central Services Office, resulting in the following aspects being considered adequate for successful management of the identified geotechnical risks. These aspects are aligned with industry best practice:

- Slope design analysis;
- Coal strip designs and reconciliations;
- Operational procedures, including geotechnical inspections and reporting;
- Dragline pad inspections and stability analysis;
- Geotechnical soft overburden stripping design and planning;
- Spoils design and operational reconciliations; and
- Slope stability monitoring.

The following aspects would benefit from additional focus, but are not misaligned with the coal industry:

- Geotechnical data acquisition from drilling and face mapping;
- Structural data collection, including joint surveys for rock mass fabric determinations;
- Follow-up and close out on operational recommendations;
- Operational geotechnical input to soft overburden stripping and scheduling;
- Geotechnical input to limit blasting design and reconciliation; and
- Management of surface water run-off and groundwater infiltration into the mine workings.

The overall geotechnical risk for Isibonelo is considered to be within manageable limits, with all necessary and reasonable geotechnical risk management implemented, regularly audited by the Principal Rock Engineer and reported to senior and executive leadership.

20.5. Mining

The mine is an opencast dragline mine mining with the assistance of a pre-strip operation in the North Pit. The main seam being exposed is the No 4 Seam which is deep and the only other well-developed seam in the geological sequence, the No 5 Seam, is discarded. The mine is a sole supply to SSF and targets a minimum of 4.5 Mt per annum of coal sales for the next five years as is prescribed in the supply contract. To achieve this and allow options to supply an additional year of coal the mine is scheduled to finish both the mine opencast pits simultaneously and maximise the reserve recovery.

20.6. Coal Reserve Estimates

The Coal Reserve estimate has been independently estimated by and signed off by Mr N McGeorge on behalf of SRK, based on the mining model supplied by the Company and verified by SRK. The Coal Reserve estimate is declared as at 31 December 2020.

The Coal Reserves for Isibonelo on a total basis[13] (100% attributable to Isibonelo) at 31 December 2020 are summarised in Table 20-3. As the coal is sold on unbeneficiated basis, the Isibonelo Opencast Coal Reserve on a Saleable basis amounts to the same figures (Table 9-2). This estimate is made up of 21.9 Mt of Proved Coal Reserves (81%) and 5.2 Mt of Probable Coal Reserves (19%). The Coal Reserves are split between the North Pit (15.4 Mt) and the South Pit (11.7 Mt). The Proved Coal Reserves are derived from the Measured Coal Resources within the Mine Plan and the Probable Coal Reserves are derived from the Indicated Coal Resources within the Mine Plan.

It should be noted that Coal Reserves are only declared for the No 4 Seam as SRK is of the opinion that the No 5 Seam does not have reasonable prospects for eventual economic extraction.

[13] Note that "total basis" refers to 100% of the Coal Resources and/or Coal Reserves within the Isibonelo Mining Right and is not necessarily the percentage attributable to the holder of the Mining Right.

Table 20-3: Isibonelo Coal Reserve Statement at 31 December 2020

Reserve Category Classification	RoM Coal Reserves			Saleable Coal Reserves			
	RoM (Mt)	Total Moisture (%)	CV^1_{ar} (kcal/kg)	Sales (Mt)	Practical Yield (%)	Total Moisture (%)	CV^1_{ar} (kcal/kg)
NORTH PIT:							
Proved	10.2	8	4637	10.2	100	8	4637
Probable	5.2	8	4696	5.2	100	8	4696
Subtotal North Pit	**15.4**	**8**	**4657**	**15.4**	**100**	**8**	**4657**
SOUTH PIT:							
Proved	11.7	8	4682	11.7	100	8	4682
Probable	0.0	8	4720	0.0		8	4720
Subtotal South Pit	**11.7**	**8**	**4682**	**11.7**	**100**	**8**	**4682**
Total Proved	*21.9*	*8*	*4661*	*21.9*	*100*	*8*	*4661*
Total Probable	*5.2*	*8*	*4696*	*5.2*	*100*	*8*	*4696*
Grand Total	**27.1**	**8**	**4668**	**27.1**	**100**	**8**	**4668**

Note:
1. Note that “total basis” refers to 100% of the Coal Resources and/or Coal Reserves within the Isibonelo Mining Right and is not necessarily the percentage attributable to the holder of the Mining Right.
2. Assumes Sasol supply until September 2026.
3. Contract under agreed price to June 2025, 5.93 Mt extension option still subject to agreement.
4. RoM = Run of Mine.
5. CV^1_{ar} = Calorific Value as received.

20.7. Coal Processing

The plant is not used to upgrade the coal using a washing plant, so the coal quality relies on the mine plan and the adherence to the plan. The plant is sufficient for the task required of it. Product quality sampling and tracking is controlled by procedures agreed between the mine and the customer and are robust. Understandably, the quality tends to be slightly higher than required by the contract.

20.8. Infrastructure and Engineering

The mine’s infrastructure is robust and sufficient to provide for the LoM requirements. The agreed NMD is also enough to supply the power requirements of the mine. Forecast capital is in the right ballpark; however, operating costs can be highly influenced by year on year tariff increases that are way above inflation. The electrical infrastructure inspected during the site visit appeared to be well looked after and well maintained. The June and August electricity bills indicate that there were some charges imposed by Sasol regarding reactive energy. This was due to poor power factor because of one dragline that was on shutdown at the time. The two draglines perform power factor correction when operational. The dragline that was on shutdown at the time has since been brought back into operation.

The maintenance management system appeared to be well run and effective.

20.9. Logistics

All the RoM coal is supplied to SSF as per the CSA between the Company and SSF. Coal from the pits is transported to the RoM tip by truck, from where it goes through the crushing and screening plant before being transported to SSF via a series of conveyors. Reference should be made to the coal processing section of this report for more information on the coal handling.

20.10. Occupational Health and Safety

20.10.1. Occupational Health

The Company complies with the Occupational Hygiene and Medical Surveillance legal requirements.

Airborne Pollutants

Coal dust is the main airborne pollutant in coal mines and the cause of the occupational diseases, Coal Workers Pneumoconiosis and Chronic Obstructive Airway Disease. All dust measurements from 2017 to 2020 were below the OEL, a commendable achievement.

In terms of the medical surveillance reports for 2017 to 2020, there were no newly diagnosed occupational diseases. The reports for 2018 and 2019 were not made available by the hospital at the time of compiling this report. However, with occupational diseases having long lagging periods before there are any symptoms of a disease, the diagnosed cases can fluctuate from year to year. However, with dust levels well controlled, there should be a downward trend in the number of diagnosed cases. Compared with gold mine dust, the silica content in coal dust can be classified as a low health risk (no silicosis cases recorded).

Noise Induced Hearing Loss

The Company has a good NIHL Management Programme in place. The zero diagnosed NIHL cases from 2017 to 2019. However, in 2020, there were four diagnosed cases. This can be ascribed to NIHL having a long lagging period before there are any symptoms hearing loss.

20.10.2. Safety

The Company has excellent risk management and risk control procedures in place which are actively followed by all levels of management. The systems and procedures are commendable, with prompt investigation of LTIs and necessary remedial actions being implemented.

There were no fatalities from 2017 to 2020. The LTIFR increased from 0.67 in 2018 (one lost time injury) to 2.68 in 2019 (four lost time injuries).

In the quest towards zero harm, the comprehensive safety improvement plans for 2020 should further reduce the number of injuries at the operations. This improvement plan can only be effective if the safety initiatives are consistently applied by all, from the management leadership teams, and supervisors down to employee level on the working faces. Zero lost time injuries in one year is achievable, as proven by Greenside Colliery in 2015.

20.11. Environmental and Social Compliance

Isibonelo complies with the South African legislation and the commitments undertaken in the EMPr. Regular internal and external audits are conducted to assess performance and progress against the EMPr, environmental authorisations and relevant corporate policies.

Isibonelo uses the EMS system to collect, validate and manage the environmental information. Environmental risks and opportunities are captured in the EMS register whereby they are rated and assigned and followed up to ensure the effectiveness of the risk mitigation. SRK recommends that this should be an ongoing process, as risks can be properly managed and mitigated using the system. The mine is committed to continual improvement of environmental management.

The colliery was conducting several activities that had not been authorised in terms of NEMA and the NWA. This can result in the mine losing its legal license to operate: Although the colliery submitted a Draft EMPr amendment for public comment in October 2019 to licence the unlicensed activities and amended the EMPr to make it more practical for the current mining operations, the EMPr has not been approved. The Colliery has also submitted a WUL to licence activities currently being undertaken without a licence however this WUL is also still not approved.

Isibonelo complies with the requirements of the MPRDA in terms of its SLP and MCIII obligations. The long-term goal of the Company is to meet the Mining Charter’s requirements that all employees live in sustainable human settlements. SRK is of the opinion that the Company is moving in the right direction to achieve this in that it promotes home ownership amongst its employees.

20.12. Sustainability

The sustainability review considered external factors, internal factors and sustainability reporting practices. Systematic analysis of the available information indicated that external factors such as the macro-economic environment, the impact of climate change and sustainability reporting practices pose a moderate sustainability risk to the operation. Mitigation measures for sustainability reporting practices can be implemented through brining the necessary skillsets on board on a site level. Internal factors which pose a high sustainability risk include – power supply (manufactured capital) and social license to operate (social and relational capital). Factors such as unresolved land claims, a draft EMPr amendment with an unknown approval status and insufficient post-closure water planning (natural capital) are considered to pose a moderate sustainability risk to the operations. These high and moderate risks could be mitigated through careful management plans and should not be left unattended.

20.13. Mine Closure and Liabilities

Isibonelo has undertaken closure liability assessments using the DMRE method as well as a commercial costing approach. SRK believes that the commercial costing is more accurate and therefore believes Isibonelo has a true reflection of closure liability than is derived from the DMRE assessment. Isibonelo has commenced with preparation of the reports required under the NEMA Financial Provision Regulations and SRK believes this will remain a requirement of the Regulations, when promulgated. Therefore, the operation is well placed to comply with the pending regulations, once these studies, in particular, but not limited to the water treatment aspect, are understood and costing provided for accurately.

SRK understands that the Company is currently undertaking updates to the closure cost estimates in order to reflect liability as at December 2020. Once the 2020 assessments are complete and have received the necessary internal approvals, these figures will be reported to the DMRE and changes to the closure provision will be made where necessary. SRK has not interrogated the 2020 figures and has instead escalated the 2019 figures to represent a liability at the end of Dec 2020.

20.14. Water Management

Surface Water Management

There is an excess of dirty water at Isibonelo, which may result in dirty water discharging from the mine, both during operation and post-closure. This presents an environmental and reputational risk to the mine. This risk can be mitigated by constructing a water treatment facility with a capacity of approximately 4 Ml/d, which presents a significant financial liability during operation and post-closure (into perpetuity).

Annual risk assessments of dam capacities and the risk of decant/pollution are not being undertaken for Vaskop Dam, Diversion Dam and Attenuation Dam. The latest DSI reports (2019) mention several dam-related risks for Isibonelo Colliery, which should be addressed urgently.

Groundwater Management

The total abstraction via dewatering is under reported and requires closer monitoring to ensure that it reflects the actual abstraction volumes and any excess water released to the environment.

While water inflows into the opencast mine workings do not show a high risk of acid mine drainage due to low sulphide content of the coal and interburden being mined (typically <0.2% S), elevated mineralisation (up to several grams dissolved solids per litre) is of concern as well as the potential for acid generation towards the end of LoM and post closure. The main concern therefore relates to groundwater being the post-mining decant of contaminated water, which may need treatment and management into perpetuity.

More detailed measurements of potential ingress into the mine workings are essential to make adequate provisions for dewatering infrastructure.

20.15. Material Contracts

The mine is an opencast mine using draglines to be a self-sufficient operation within the portfolio of the Company's mines. The mine does not have any coal supply contracts in place except for the SSF CSA. The main contract for the supply of coal to SSF was revised on 1 June 2019 and expires on 30 June 2025. The current version is an update to the original 2003 contract that required the delivery of 100 Mt of coal at certain agreed conditions. The targeted supply is 4.8 Mtpa evenly distributed over a 12-month period, with a minimum contracted supply of 4.5 Mtpa.

20.16. Material Asset Valuation

[SV1.15]

Under the assumption that the Out-of-Schedule production post June 2025 can be sold at the same base price as the SSF tonnes, SRK considers that the fair value for Isibonelo is ZAR464 million (USD28.1 million), in the range of ZAR168 million (USD10.2 million) to ZAR489 million (USD29.6 million). This is summarised in Table 20-4.

Table 20-4: Summary Valuation Table (as at 31 December 2020)

	Selected Value		The Company's Interest (%)	Fair Value to the Company	
Contract	**ZARm**	**USDm**		**ZARm**	**USDm**
Isibonelo Colliery					
SSF Contract	340	20.6	100%	340	20.6
Out of schedule production[1]	119	7.2	100%	119	7.2
Income Approach	459	27.8		459	27.8
Adjustments					
Cash on hand				0	0
Medium and long-term borrowings[2]				0	0
Finished product inventories[3]				5	0.3
Exploration budget costs				Included in cash flows	
Hedge contracts – mark to market				None in force	
Environmental liabilities				Included in cash flows	
Net Isibonelo Value				**464**	**28.1**

Note:

1. Out-of-Schedule refers to the production after completion of the SSF supply agreement in June 2025 through to end of LoM
2. Medium- and long-term borrowings are intra-company amounts, which are not external debt and will be either converted into equity or waived and will have no cash impact on the Company.
3. Finished product inventories are valued by the Company at the lower of cost or net realisable value. The holding value of consumables and spares inventories has been excluded.

The trend towards decarbonisation is relatively recent and it remains unclear how this will impact on the value of the coal assets. SRK considers the valuation to be aligned with the SAMREC and SAMVAL Codes and to represent a reasonable interpretation of value and the associated risks. Current sentiment towards coal assets is not adequately reflected in the transactional analysis. The possible gap between the price that can be realised and the valuation is exacerbated by the recent increase in the coal price.

20.17. Material Change

[12.10(b)] [SR4.1(iv), SR4.3(viii), SR5.5(iii)] [SV1.13]

Based on the information provided by the Company, no material changes are expected in the Coal Resource and Reserve statements. Changes resulting from the national lockdown are not expected to be material regarding the overall Resource and Reserve or the remaining LoM.

20.18. Risks and Opportunities

An iterative, integrated and collaborative risk assessment was carried out using inputs from each of the project disciplines. A total of 62 risks were evaluated across the disciplines, spanning from low to high residual risk ratings – that are weak to resilient, respectively. Mitigation measures have been identified, as far as possible, and are considered essential in successfully managing the risk profile. A small number of risks are; however, external and limited control can be applied to these (the regulatory uncertainty around provisions for Closure, for example).

Opportunities have been identified various aspects of the Isibonelo mining operation. With regard to various NEMA closure planning requirements (where it is noted that the latest draft of the regulation have not been promulgated, based on the relevant information available at December 2019) that require increased statutory provisions - continued input into the regulatory development and actively engaging with authorities may assist the mine not to be adversely and unreasonably affected by the requirement to allocate significant funds to meet compliance requirements.

Opportunities related to material contracts include the use of contracts for localised procurement and the potential for Isibonelo to supply coal to Eskom. Furthermore, there are opportunities that will require additional consideration to confirm the extent of their benefit. A cost saving opportunity exists through energy conservation (by shutting down the plant when it is idle for more than 20 minutes), however, the exercise may inadvertently allow for copper theft when the equipment is down, especially the overland conveyor.

21. Date and Signature Page

[12.10 (f)] [SR9.1(i)(ii)]

This CPR documents the Coal Resource and Coal Reserve statements on Isibonelo Colliery located in Mpumalanga Province of the Republic of South Africa, as requested by the Company, and is effective as at 31 December 2020. The Coal Resource and Coal Reserve Statements were prepared by SRK.

The Competent Persons (Table 21-1) take responsibility for these statements as required by the JSE Listing Rules in terms of the SAMREC Code (2016) and the LSE Listing Rules in terms of Clause 133 and Appendices I and II of the ESMA update of the CESR recommendations (2011).

The Competent Valuator has completed a valuation section in this report and takes responsibility for the valuation as required by the JSE Listing Rules in terms of the SAMVAL Code and LSE Listing Rules in terms of Paragraphs 131 to 133 and Appendices I and II of the ESMA update of the CESR recommendations (2011).

Table 21-1: List of CPs

Author	Role	Qualifications and Affiliations	Date Signed	Signature
Lesley Jeffrey	Principal Geologist CP (Coal Resources, Lead CP)	Pr.Sci.Nat, BSc (Geology), MSc (Mining), FGSSA	01/04/2021	SRK Consulting - Certified Electronic Signature srk consulting 566627/44278/Report 9034-4622-2388-JEFF-25/03/2021 This signature has been printed digitally. The Author has given permission for its use for this document. The details are stored in the SRK Signature Database
Norman McGeorge	Principal Mining Engineer CP (Coal Reserves)	PrEng, BSc (Mining), MSc (Mining), MSAIMM	01/04/2021	SRK Consulting - Certified Electronic Signature srk consulting 566627/44278/Report 550-2525-6461-MCGN-25/03/2021 This signature has been printed digitally. The Author has given permission for its use for this document. The details are stored in the SRK Signature Database
Andrew van Zyl	Partner and Principal Consultant CV² (Asset Valuation)	BEng, MCom, FSAIMM, MIoD, MIMVAL	01/04/2021	SRK Consulting - Certified Electronic Signature srk consulting 566627/44278/Report 2908-4858-9558-VANZ-25/03/2021 This signature has been printed digitally. The Author has given permission for its use for this document. The details are stored in the SRK Signature Database

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Marcin Wertz PrEng, BSc (Eng), FSAIMM, MMCC

Partner & Principal Mining Engineer

Report Date: 25 March 2021

Effective Date: **31 December 2020**

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Appendices

Appendix 1: Data and Model Validation Results

Table A-1: Drill Hole Collar Co-ordinates and Collar Elevations

Drill Hole	Collar Co-ordinates (m)										Collar Elevation (mamsl)					End of Hole Depth (m)					Comments
	Easting					Northing															
	Original	GDB	Original - GDB	Model	GDB - Model	Original	GDB	Original - GDB	Model	GDB - Model	Original	GDB	Original - GDB	Model	GDB - Model	Original	GDB	Original - GDB	Model	GDB - Model	
KRL0250	-	-24549.00	-	-24549.00	0.00	-	2912637.00	-	2912637.00	0.00	-	1592.00	-	1591.68	0.32	-	106.68	-	106.68	0.00	No original log
KRL0327	-29492.00	-29492.00	0.00	-29492.00	0.00	2914007.00	2914007.00	0.00	2914007.00	0.00	1556.00	1553.93	2.07	1554.74	-0.81	46.33	46.33	0.00	46.33	0.00	Original depths in feet - converted to metres (SRK)
KRL1415	-29650.00	-29628.00	-22.00	-29628.00	0.00	2914720.00	2914705.00	15.00	2914705.00	0.00	1562.50	1553.00	9.50	1554.56	-1.56	41.00	41.00	0.00	41.00	0.00	1978 hole - scaled off plan, not surveyed
KRL3157	-	-24124.00	-	-24124.00	0.00	-	2910601.00	-	2910601.00	0.00	-	1560.80	-	1560.80	0.00	-	44.65	-	44.65	0.00	No original log
KRL3165	-	-24336.00	-	-24336.00	0.00	-	2910813.00	-	2910813.00	0.00	-	1562.40	-	1562.40	0.00	-	48.65	-	48.65	0.00	No original log
KRL3184	-	-24368.00	-	-24368.00	0.00	-	2910635.00	-	2910635.00	0.00	-	1558.90	-	1558.90	0.00	-	48.86	-	48.86	0.00	No original log
KRL3307	-	-24600.00	-	-24600.00	0.00	-	2910500.00	-	2910500.00	0.00	-	1554.80	-	1554.80	0.00	-	41.84	-	41.84	0.00	No original log
KRL3371	-	-24154.00	-	-24154.00	0.00	-	2910725.00	-	2910725.00	0.00	-	1565.15	-	1565.15	0.00	-	50.40	-	50.40	0.00	No original log
KRL3532	-	-23800.00	-	-23800.00	0.00	-	2911050.00	-	2911050.00	0.00	-	1570.30	-	1570.30	0.00	-	52.05	-	52.05	0.00	No original log
KRL3535	-	-23650.00	-	-23650.00	0.00	-	2911310.00	-	2911310.00	0.00	-	1567.10	-	1567.10	0.00	-	52.10	-	52.10	0.00	No original log
KRL3536	-	-23851.00	-	-23851.00	0.00	-	2911459.00	-	2911459.00	0.00	-	1574.00	-	1574.00	0.00	-	60.75	-	60.75	0.00	No original log
KRL3537	-	-24060.00	-	-24060.00	0.00	-	2911610.00	-	2911610.00	0.00	-	1576.40	-	1576.85	-0.45	-	59.60	-	59.60	0.00	No original log
KRL4935	-	-23707.00	-	-23707.00	0.00	-	2911534.00	-	2911534.00	0.00	-	1570.82	-	1570.82	0.00	-	58.31	-	58.31	0.00	No original log
KRL4936	-	-23892.00	-	-23892.00	0.00	-	2910823.00	-	2910823.00	0.00	-	1570.53	-	1570.53	0.00	-	80.42	-	80.42	0.00	No original log
KRL5028	-	-24980.00	-	-24980.00	0.00	-	2912900.00	-	2912900.00	0.00	-	1592.00	-	1592.00	0.00	-	79.96	-	79.96	0.00	No original log
KRL5055	-29290.00	-29290.00	0.00	-29290.00	0.00	2915410.00	2915410.00	0.00	2915410.00	0.00	1567.50	1567.50	0.00	1568.79	-1.29	55.37	55.37	0.00	55.37	0.00	
KRL5058	-29466.00	-29466.00	0.00	-29466.00	0.00	2913059.00	2913059.00	0.00	2913059.00	0.00	1548.00	1548.00	0.00	1548.00	0.00	30.49	30.49	0.00	30.49	0.00	
KRL5067	-	-23985.00	-	-23985.00	0.00	-	2911960.00	-	2911960.00	0.00	-	1577.50	-	1578.77	-1.27	-	60.44	-	60.44	0.00	No original log
KRL5093	-	-24360.00	-	-24360.00	0.00	-	2913190.00	-	2913190.00	0.00	-	1585.20	-	1585.20	0.00	-	73.33	-	73.33	0.00	No original log
KRL5476	-	-23508.00	-	-23508.00	0.00	-	2912199.00	-	2912199.00	0.00	-	1565.68	-	1565.68	0.00	-	115.95	-	115.95	0.00	No original log
KRL5478	-	-24010.00	-	-24010.00	0.00	-	2912487.00	-	2912487.00	0.00	-	1580.90	-	1581.31	-0.41	-	150.60	-	150.60	0.00	No original log
KRL5569	-	-29040.00	-	-29040.00	0.00	-	2915508.00	-	2915508.00	0.00	-	1571.80	-	1572.25	-0.45	-	61.26	-	61.26	0.00	No original log
KRL5628	-	-29276.00	-	-29276.69	0.69	-	2914645.00	-	2914645.00	0.00	-	1566.38	-	1567.08	-0.70	-	131.30	-	131.30	0.00	No original log
KRL5630	-	-24667.00	-	-24667.97	0.97	-	2910986.00	-	2910986.00	0.00	-	1562.51	-	1563.42	-0.91	-	47.01	-	47.01	0.00	No original log
KRL5657	-	-29221.00	-	-29221.53	0.53	-	2913798.00	-	2913798.00	0.00	-	1560.65	-	1561.05	-0.40	-	47.26	-	47.26	0.00	No original log
KRL5659	-	-28956.00	-	-28956.87	0.87	-	2913323.00	-	2913323.00	0.00	-	1548.75	-	1549.12	-0.37	-	38.33	-	38.33	0.00	No original log
KRL5668	-	-29438.00	-	-29438.96	0.96	-	2913576.00	-	2913576.00	0.00	-	1552.55	-	1552.91	-0.36	-	41.02	-	41.02	0.00	No original log
KRL5673	-	-29604.00	-	-29604.27	0.27	-	2914220.00	-	2914220.00	0.00	-	1550.14	-	1550.30	-0.16	-	38.81	-	38.81	0.00	No original log
KRL5674	-	-29601.00	-	-29601.71	0.71	-	2915051.00	-	2915051.00	0.00	-	1554.99	-	1555.44	-0.45	-	49.20	-	49.20	0.00	No original log
KRL5692	-	-28565.00	-	-28565.32	0.32	-	2913442.00	-	2913442.00	0.00	-	1547.41	-	1548.06	-0.65	-	35.32	-	35.32	0.00	No original log
KRL5768	-	-28334.00	-	-28334.00	0.00	-	2913393.00	-	2913393.00	0.00	-	1555.11	-	1555.00	0.11	-	42.18	-	42.18	0.00	No original log
KRL5886	-	-28468.00	-	-28468.00	0.00	-	2913259.00	-	2913259.00	0.00	-	1547.14	-	1547.10	0.04	-	33.10	-	33.10	0.00	No original log
KRL6123	-	-28296.00	-	-28296.00	0.00	-	2913211.00	-	2913211.00	0.00	-	1553.23	-	1553.26	-0.03	-	41.91	-	41.91	0.00	No original log
KRL6209	-	-28652.00	-	-28652.00	0.00	-	2913222.00	-	2913222.00	0.00	-	1547.20	-	1547.10	0.10	-	32.50	-	32.50	0.00	No original log
KRL6920Z	-24219.00	-24219.00	0.00	-24219.00	0.00	2910997.00	2910997.00	0.00	2910997.00	0.00	1568.10	1568.10	0.00	1568.10	0.00	49.97	49.97	0.00	49.97	0.00	
KRL7017	-28515.76	-28516.00	0.24	-28516.00	0.00	2913567.95	2913568.00	-0.05	2913568.00	0.00	1552.98	1552.98	0.00	1552.98	0.00	41.19	41.19	0.00	41.19	0.00	
KRL7020	-28896.48	-28811.00	-85.48	-28811.00	0.00	2913489.60	2913503.00	-13.40	2913503.00	0.00	1554.20	1551.00	3.20	1551.00	0.00	40.00	40.00	0.00	40.00	0.00	**Surveyed; cannot explain differences**
KRL7072	-28714.67	-28715.00	0.33	-28715.00	0.00	2913618.94	2913619.00	-0.06	2913619.00	0.00	1551.50	1551.50	0.00	1551.50	0.00	40.32	40.32	0.00	40.32	0.00	
KRL7075	-29014.81	-29015.00	0.19	-29015.00	0.00	2913565.46	2913565.00	0.46	2913565.00	0.00	1553.50	1553.50	0.00	1553.50	0.00	41.18	41.18	0.00	41.18	0.00	
KRL7121	-28350.17	-28350.00	-0.17	-28350.00	0.00	2913764.03	2913764.00	0.03	2913764.00	0.00	1560.79	1560.79	0.00	1560.79	0.00	48.53	48.53	0.00	48.53	0.00	
KRL7176	-28547.31	-28547.00	-0.31	-28547.00	0.00	2913846.78	2913847.00	-0.22	2913847.00	0.00	1559.50	1559.50	0.00	1559.50	0.00	49.02	49.02	0.00	49.02	0.00	
KRL7180	-28952.81	-28952.00	-0.81	-28952.00	0.00	2913791.45	2913791.00	0.45	2913791.00	0.00	1560.40	1560.40	0.00	1560.40	0.00	50.21	50.21	0.00	50.21	0.00	
KRL7284	-28871.82	-28782.00	-89.82	-28782.00	0.00	2914010.36	2914010.00	0.36	2914010.00	0.00	1563.80	1563.80	0.00	1563.80	0.00	55.20	55.20	0.00	55.20	0.00	**Surveyed; cannot explain differences**
KRL7288	-29167.20	-29167.00	-0.20	-29167.00	0.00	2913955.48	2913955.00	0.48	2913955.00	0.00	1563.80	1563.80	0.00	1563.80	0.00	53.16	53.16	0.00	53.16	0.00	
KRL7307	-28436.58	-28437.00	0.42	-28437.00	0.00	2914116.19	2914116.00	0.19	2914116.00	0.00	1564.64	1564.64	0.00	1564.64	0.00	53.39	53.39	0.00	53.39	0.00	
KRL7338	-28888.00	-28889.00	1.00	-28889.00	0.00	2914098.22	2914098.00	0.22	2914098.00	0.00	1565.71	1565.71	0.00	1565.71	0.00	55.23	55.23	0.00	55.23	0.00	
KRL7388	-28609.58	-28609.00	-0.58	-28609.00	0.00	2914240.43	2914240.00	0.43	2914240.00	0.00	1566.00	1566.00	0.00	1566.00	0.00	56.44	56.44	0.00	56.44	0.00	
KRL7394	-29200.51	-29201.00	0.49	-29201.00	0.00	2914151.68	2914152.00	-0.32	2914152.00	0.00	1565.80	1565.80	0.00	1565.80	0.00	56.32	56.32	0.00	56.32	0.00	
KRL7418	-28957.80	-28958.00	0.20	-28958.00	0.00	2914242.08	2914242.00	0.08	2914242.00	0.00	1566.80	1566.80	0.00	1566.80	0.00	59.05	59.05	0.00	59.05	0.00	
KRL7439	-28424.44	-28424.44	0.00	-28424.00	-0.44	2914371.00	2914371.00	0.00	2914371.00	0.00	1567.33	1567.33	0.00	1567.33	0.00	59.40	59.40	0.00	59.40	0.00	
KRL7520	-28693.65	-28694.00	0.35	-28694.00	0.00	2914482.42	2914482.00	0.42	2914482.00	0.00	1566.40	1566.40	0.00	1566.40	0.00	56.37	56.37	0.00	56.37	0.00	
KRL7550	-29146.84	-29147.00	0.16	-29147.00	0.00	2914463.18	2914463.00	0.18	2914463.00	0.00	1567.50	1567.50	0.00	1567.50	0.00	59.03	59.03	0.00	59.03	0.00	
KRL7574	-	-29105.00	-	-29105.00	0.00	-	2914520.00	-	2914520.00	0.00	-	1567.60	-	1567.60	0.00	-	60.85	-	60.85	0.00	No original log
KRL7595	-28770.11	-28770.00	-0.11	-28770.00	0.00	2914622.29	2914622.00	0.29	2914622.00	0.00	1566.30	1566.30	0.00	1566.30	0.00	56.26	56.26	0.00	56.26	0.00	

Drill Hole	Collar Co-ordinates (m)										Collar Elevation (mamsl)					End of Hole Depth (m)					Comments
	Easting					Northing															
	Original	GDB	GDB - Original	Model	Model - GDB	Original	GDB	GDB - Original	Model	Model - GDB	Original	GDB	GDB - Original	Model	Model - GDB	Original	GDB	GDB - Original	Model	Model - GDB	
KRL7598	-	-29063.00	-	-29063.00	0.00	-	2914577.00	-	2914577.00	0.00	-	1567.50	-	1567.50	0.00	-	62.20	-	62.20	0.00	No original log
KRL7644	-29077.55	-29078.00	0.45	-29078.00	0.00	2914676.11	2914676.00	0.11	2914676.00	0.00	1567.60	1567.60	0.00	1567.60	0.00	59.16	59.16	0.00	59.16	0.00	
KRL7681	-28499.47	-28499.00	-0.47	-28499.00	0.00	2914865.17	2914865.00	0.17	2914865.00	0.00	1570.13	1570.13	0.00	1570.13	0.00	59.39	59.39	0.00	59.39	0.00	
KRL7704	-28849.50	-28850.00	0.50	-28850.00	0.00	2914861.92	2914862.00	-0.08	2914862.00	0.00	1566.70	1566.70	0.00	1566.70	0.00	57.25	57.25	0.00	57.25	0.00	
KRL7708	-29248.65	-29249.00	0.35	-29249.00	0.00	2914801.92	2914802.00	-0.08	2914802.00	0.00	1566.70	1566.70	0.00	1566.70	0.00	59.32	59.32	0.00	59.32	0.00	
KRL7740	-28670.52	-28671.00	0.48	-28671.00	0.00	2914990.88	2914991.00	-0.12	2914991.00	0.00	1569.45	1569.45	0.00	1569.45	0.00	59.39	59.39	0.00	59.39	0.00	
KRL7743	-28973.00	-28973.00	0.00	-28973.00	0.00	2914947.53	2914948.00	-0.47	2914948.00	0.00	1567.70	1567.70	0.00	1567.70	0.00	59.04	59.04	0.00	59.04	0.00	
KRL7802	-29235.64	-29236.00	0.36	-29236.00	0.00	2915059.08	2915059.00	0.08	2915059.00	0.00	1568.70	1568.70	0.00	1568.70	0.00	59.30	59.30	0.00	59.30	0.00	
KRL7813	-28502.70	-28503.00	0.30	-28503.00	0.00	2915219.14	2915219.00	0.14	2915219.00	0.00	1571.39	1571.39	0.00	1571.39	0.00	59.34	59.34	0.00	59.34	0.00	
KRL7818	-28993.78	-28994.00	0.22	-28994.00	0.00	2915145.19	2915145.00	0.19	2915145.00	0.00	1568.90	1568.90	0.00	1568.90	0.00	59.08	59.08	0.00	59.08	0.00	
KRL7853	-28724.18	-28724.00	-0.18	-28724.00	0.00	2915287.10	2915287.00	0.10	2915287.00	0.00	1571.90	1571.90	0.00	1571.90	0.00	61.35	61.35	0.00	61.35	0.00	
KRL7878	-29265.83	-29266.00	0.17	-29266.00	0.00	2915252.29	2915252.00	0.29	2915252.00	0.00	1568.80	1568.80	0.00	1568.80	0.00	59.08	59.08	0.00	59.08	0.00	
KRL7894	-29040.54	-29041.00	0.46	-29041.00	0.00	2915334.76	2915335.00	-0.24	2915335.00	0.00	1569.60	1569.60	0.00	1569.60	0.00	59.23	59.23	0.00	59.23	0.00	
KRL7928	-28646.70	-28647.00	0.30	-28647.00	0.00	2915500.44	2915500.00	0.44	2915500.00	0.00	1575.02	1575.02	0.00	1575.02	0.00	65.00	65.00	0.00	65.00	0.00	
KRL7930	-28842.50	-28843.00	0.50	-28843.00	0.00	2915471.21	2915471.00	0.21	2915471.00	0.00	1573.90	1573.90	0.00	1573.90	0.00	63.85	63.85	0.00	63.85	0.00	
KRL8255	-24634.00	-24636.00	2.00	-24636.00	0.00	2910771.00	2910771.00	0.00	2910771.00	0.00	999.00	1558.66	-559.66	1558.66	0.00	41.23	41.23	0.00	41.23	0.00	Handheld GPS
KRL8267	-25727.23	-25727.00	-0.23	-25727.00	0.00	2911891.28	2911891.00	0.28	2911891.00	0.00	1568.97	1568.97	0.00	1568.97	0.00	53.40	53.40	0.00	53.40	0.00	
KRL8311	-25892.08	-25892.00	-0.08	-25892.00	0.00	2912137.75	2912138.00	-0.25	2912138.00	0.00	1570.23	1570.23	0.00	1570.23	0.00	56.39	56.39	0.00	56.39	0.00	
KRL8318	-25375.83	-25376.00	0.17	-25376.00	0.00	2911660.21	2911660.00	0.21	2911660.00	0.00	1566.51	1566.51	0.00	1566.51	0.00	56.08	56.08	0.00	56.08	0.00	
KRL8321	-25175.09	-25175.00	-0.09	-25175.00	0.00	2911448.38	2911448.00	0.38	2911448.00	0.00	1564.70	1564.70	0.00	1564.70	0.00	52.18	52.18	0.00	52.18	0.00	
KRL8332	-26042.31	-26042.00	-0.31	-26042.00	0.00	2912342.90	2912343.00	-0.10	2912343.00	0.00	1570.24	1570.24	0.00	1570.24	0.00	53.36	53.36	0.00	53.36	0.00	
KRL8348	-24866.31	-24866.00	-0.31	-24866.00	0.00	2911257.83	2911258.00	-0.17	2911258.00	0.00	1565.56	1565.56	0.00	1565.56	0.00	57.38	57.38	0.00	57.38	0.00	
KRL8411	-25315.98	-25316.00	0.02	-25316.00	0.00	2911877.19	2911877.00	0.19	2911877.00	0.00	1570.80	1570.80	0.00	1570.80	0.00	59.23	59.23	0.00	59.23	0.00	
KRL8416	-24963.20	-24963.00	-0.20	-24963.00	0.00	2911548.28	2911548.00	0.28	2911548.00	0.00	1566.90	1566.90	0.00	1566.90	0.00	53.22	53.22	0.00	53.22	0.00	
KRL8420	-24655.30	-24655.00	-0.30	-24655.00	0.00	2911266.00	2911266.00	0.00	2911266.00	0.00	1569.40	1569.40	0.00	1569.40	0.00	53.44	53.44	0.00	53.44	0.00	
KRL8451	-25685.91	-25686.00	0.09	-25686.00	0.00	2912360.02	2912360.00	0.02	2912360.00	0.00	1574.90	1574.90	0.00	1574.90	0.00	59.20	59.20	0.00	59.20	0.00	
KRL8455	-25394.89	-25395.00	0.11	-25395.00	0.00	2912086.73	2912087.00	-0.27	2912087.00	0.00	1574.20	1574.20	0.00	1574.20	0.00	59.31	59.31	0.00	59.31	0.00	
KRL8480	-25177.55	-25178.00	0.45	-25178.00	0.00	2911954.74	2911955.00	-0.26	2911955.00	0.00	1574.10	1574.10	0.00	1574.10	0.00	65.10	65.10	0.00	65.10	0.00	
KRL8492	-25920.90	-25921.00	0.10	-25921.00	0.00	2912714.89	2912715.00	-0.11	2912715.00	0.00	1575.30	1575.30	0.00	1575.30	0.00	59.05	59.05	0.00	59.05	0.00	
KRL8494	-25767.35	-25767.00	-0.35	-25767.00	0.00	2912566.16	2912566.00	0.16	2912566.00	0.00	1577.23	1577.23	0.00	1577.23	0.00	62.20	62.20	0.00	62.20	0.00	
KRL8498	-25477.77	-25478.00	0.23	-25478.00	0.00	2912291.23	2912291.00	0.23	2912291.00	0.00	1577.30	1577.30	0.00	1577.30	0.00	61.98	61.98	0.00	61.98	0.00	
KRL8509	-24695.47	-24696.00	0.53	-24696.00	0.00	2911542.95	2911543.00	-0.05	2911543.00	0.00	1572.70	1572.70	0.00	1572.70	0.00	53.10	53.10	0.00	53.10	0.00	
KRL8527	-24962.21	-24962.00	-0.21	-24962.00	0.00	2911888.73	2911889.00	-0.27	2911889.00	0.00	1574.60	1574.60	0.00	1574.60	0.00	68.10	68.10	0.00	68.10	0.00	
KRL8529	-24816.23	-24816.00	-0.23	-24816.00	0.00	2911756.56	2911757.00	-0.44	2911757.00	0.00	1573.70	1573.70	0.00	1573.70	0.00	62.07	62.07	0.00	62.07	0.00	
KRL8558	-24300.99	-24301.00	0.01	-24301.00	0.00	2911352.54	2911353.00	-0.46	2911353.00	0.00	1576.10	1576.10	0.00	1576.10	0.00	59.22	59.22	0.00	59.22	0.00	
KRL8561	-25407.60	-25408.00	0.40	-25408.00	0.00	2912439.69	2912440.00	-0.31	2912440.00	0.00	1580.60	1580.60	0.00	1580.60	0.00	65.32	65.32	0.00	65.32	0.00	
KRL8563	-25261.39	-25261.00	-0.39	-25261.00	0.00	2912303.76	2912304.00	-0.24	2912304.00	0.00	1580.40	1580.40	0.00	1580.40	0.00	68.32	68.32	0.00	68.32	0.00	
KRL8566	-25041.39	-25041.00	-0.39	-25041.00	0.00	2912099.94	2912100.00	-0.06	2912100.00	0.00	1578.40	1578.40	0.00	1578.40	0.00	68.32	68.32	0.00	68.32	0.00	
KRL8577	-28737.96	-28738.00	0.04	-28738.00	0.00	2914330.79	2914331.00	-0.21	2914331.00	0.00	1566.00	1566.00	0.00	1566.00	0.00	58.90	58.90	0.00	58.90	0.00	
KRL8581	-28839.81	-28840.00	0.19	-28840.00	0.00	2915115.95	2915116.00	-0.05	2915116.00	0.00	1569.50	1569.50	0.00	1569.50	0.00	59.30	59.30	0.00	59.30	0.00	
KRL8634	-25197.48	-25197.00	-0.48	-25197.00	0.00	2912519.92	2912520.00	-0.08	2912520.00	0.00	1584.90	1584.90	0.00	1584.90	0.00	68.52	68.52	0.00	68.52	0.00	
KRL8647	-	-24246.00	-	-24245.64	-0.36	-	2911636.00	-	2911636.35	-0.35	-	1579.30	-	1579.30	0.00	-	62.10	-	62.10	0.00	No original log
KRL8654	-24981.79	-24982.00	0.21	-24982.00	0.00	2912385.25	2912385.00	0.25	2912385.00	0.00	1584.50	1584.45	0.05	1584.45	0.00	71.60	71.60	0.00	71.60	0.00	
KRL8657	-	-24761.00	-	-24760.89	-0.11	-	2912181.00	-	2912181.45	-0.45	-	1582.40	-	1582.40	0.00	-	68.20	-	68.20	0.00	No original log
KRL8659	-24615.90	-24616.00	0.10	-24616.00	0.00	2912047.87	2912048.00	-0.13	2912048.00	0.00	1580.60	1580.60	0.00	1580.60	0.00	65.20	65.20	0.00	65.20	0.00	
KRL10019	-24430.56	-24431.00	0.44	-24431.00	0.00	2910992.97	2910993.00	-0.03	2910993.00	0.00	1565.70	1565.70	0.00	1565.70	0.00	49.53	49.53	0.00	49.53	0.00	
KRLA046	-	-23661.00	-	-23661.00	0.00	-	2911041.00	-	2911041.00	0.00	-	1568.21	-	1568.21	0.00	-	76.65	-	76.65	0.00	No original log
KRLB041	-24295.78	-24296.00	0.22	-24296.00	0.00	2911137.07	2911137.00	0.07	2911137.00	0.00	1570.30	1570.30	0.00	1570.30	0.00	59.10	59.10	0.00	59.10	0.00	
KRLB044	-24077.00	-24077.00	0.00	-24077.00	0.00	2910928.40	2910928.00	0.40	2910928.00	0.00	1571.20	1571.20	0.00	1571.20	0.00	57.63	57.63	0.00	57.63	0.00	
KRLB067	-24081.79	-24082.00	0.21	-24082.00	0.00	2911145.37	2911145.00	0.37	2911145.00	0.00	1573.10	1573.10	0.00	1573.10	0.00	58.37	58.37	0.00	58.37	0.00	
KRLC029	-24302.33	-24302.00	-0.33	-24302.00	0.00	2912163.47	2912163.00	0.47	2912163.00	0.00	1584.10	1584.10	0.00	1584.10	0.00	68.20	68.20	0.00	68.20	0.00	
KRLC041	-24483.22	-24483.00	-0.22	-24483.00	0.00	2912334.99	2912335.00	-0.01	2912335.00	0.00	1587.90	1587.90	0.00	1587.90	0.00	71.20	71.20	0.00	71.20	0.00	
KRLC073	-24256.85	-24257.00	0.15	-24257.00	0.00	2912266.15	2912266.00	0.15	2912266.00	0.00	1585.20	1585.20	0.00	1585.20	0.00	68.18	68.18	0.00	68.18	0.00	
KRLC116	-24280.09	-24280.00	-0.09	-24280.00	0.00	2912487.11	2912487.00	0.11	2912487.00	0.00	1588.70	1588.70	0.00	1588.70	0.00	101.20	101.20	0.00	101.20	0.00	
KRLC180	-24660.50	-24661.00	0.50	-24661.00	0.00	2913169.74	2913170.00	-0.26	2913170.00	0.00	1600.20	1600.20	0.00	1600.20	0.00	92.58	92.58	0.00	92.58	0.00	
KRLC212	-24215.52	-24216.00	0.48	-24216.00	0.00	2912913.28	2912913.00	0.28	2912913.00	0.00	1588.40	1588.40	0.00	1588.40	0.00	77.20	77.20	0.00	77.20	0.00	
KRLG5S5	-25490.37	-25490.00	-0.37	-25490.00	0.00	2912629.66	2912630.00	-0.34	2912630.00	0.00	1581.9	1581.94	0.00	1582.20	-0.26	64.10	64.10	0.00	64.10	0.00	
KRLSAS01	-23702.33	-23702.00	-0.33	-23702.00	0.00	2912709.60	2912710.00	-0.40	2912710.00	0.00	1574.0	1574.00	0.00	1574.00	0.00	127.80	127.80	0.00	127.80	0.00	
Number	**112**	**112**	**112**	**112**	**112**	**112**	**112**	**112**	**112**	**112**	**112**	**112**	**112**	**112**	**112**	**112**	**112**	**112**	**112**	**112**	**35 drill holes have no original logs**

Table A-2: Seam and Sample Depths (m)

Drill Hole	Seam From Depth (m)					Seam To Depth (m)					Sample Name	Sample From Depth (m)					Sample To Depth (m)					Sample Coal Recovery (%)		Partings		Comment
	Original	GDB	Original - GDB	Model	GDB - Model	Original	GDB	Original - GDB	Model	GDB - Model		Original	GDB	Original - GDB	Model	GDB - Model	Original	GDB	Original - GDB	Model	GDB - Model	Original	GDB	Included in Sample	Parting Code (if excluded)	
KRL0250	-	71.12	-	71.12	0.00						0250E	-	71.12	-	71.12	0.00	-	72.08	-	72.08	0.00	-	100			No original log
KRL0250											0250D	-	72.08	-	72.08	0.00	-	72.99	-	72.99	0.00	-	100			No original log
KRL0250											0250C	-	72.99	-	72.99	0.00	-	75.05	-	75.05	0.00	-	100			No original log
KRL0250						-	77.09		77.09	0.00	0250B	-	75.05	-	75.05	0.00	-	77.09	-	77.09	0.00	-	100			No original log
KRL0327	36.35	36.35	0.00	36.35	0.00						0327D	36.35	36.35	0.00	36.35	0.00	37.24	37.24	0.00	37.24	0.00	100	100	Yes		
KRL0327											0327C	37.24	37.24	0.00	37.24	0.00	38.13	38.13	0.00	38.13	0.00	100	100	Yes		
KRL0327											0327B	38.13	38.13	0.00	38.13	0.00	40.48	40.48	0.00	40.48	0.00	100	100			
KRL0327						42.27	42.27	0.00	42.27	0.00	0327A	40.48	40.48	0.00	40.48	0.00	42.27	42.27	0.00	42.27	0.00	100	100			
KRL1415	34.00	34.00	0.00	34.00	0.00						1415F	34.00	34.00	0.00		-	34.98	34.57	0.41		-	100	100		6	Only 2 samples in original log - SS excluded. Seam NOT composited as 1415F missing in GDB, so not in quality model. But 1415F data identical to 1415E (parting code 6) when comparing original and GDB data, so could include in model; outside mine plan
KRL1415											1415E		34.57		34.57	0.00		34.70		34.70	0.00	100	100		6	
KRL1415											1415D		34.70		34.70	0.00		34.89		34.89	0.00	100	100		2	
KRL1415											1415C	34.98	34.89	0.41	34.89	0.00	39.59	35.00	0.00	35.00	0.00	100	100		6	
KRL1415											1415B		35.00		35.00	0.00		35.22		35.22	0.00	100	100		1	
KRL1415						39.59	39.59	0.00	39.59	0.00	1415A		35.22		35.22	0.00		39.59		39.59	0.00	100	100			
KRL3157	-	35.85	-	35.85	0.00						3157B	-	35.85	-	35.85	0.00	-	37.20	-	37.20	0.00	-	100	Yes		No original log
KRL3157						-	40.66	-	40.66	0.00	3157A	-	37.20	-	37.20	0.00	-	40.66	-	40.66	0.00	-	100	Yes		No original log
KRL3165	-	42.25	-	42.25	0.00						3165B	-	42.25	-	42.25	0.00	-	43.75	-	43.75	0.00	-	100	Yes		No original log
KRL3165						-	47.60	-	47.60	0.00	3165A	-	43.75	-	43.75	0.00	-	47.60	-	47.60	0.00	-	100	Yes		No original log
KRL3184	-	37.72	-	37.72	0.00						3184B	-	37.72	-	37.72	0.00	-	39.35	-	39.35	0.00	-	100	Yes		No original log
KRL3184						-	43.04	-	43.04	0.00	3184A	-	39.35	-	39.35	0.00	-	43.04	-	43.04	0.00	-	100	Yes		No original log
KRL3307	-	33.05	-	33.05	0.00						3307C	-	33.05	-	-	-	-	33.82	-	-	-	-	100			No original log; not in quality model
KRL3307											3307B	-	33.82	-	-	-	-	34.60	-	-	-	-	100	Yes		No original log
KRL3307						-	38.07	-	38.09	-0.02	3307A	-	34.60	-	-	-	-	38.07	-	-	-	-	100			No original log
KRL3371	-	40.83	-	40.83	0.00						3371C	-	40.83	-	40.83	0.00	-	41.72	-	41.72	0.00	-	100	Yes		No original log
KRL3371											3371B	-	41.72	-	41.72	0.00	-	42.08	-	42.08	0.00	-	100			No original log
KRL3371						-	46.04	-	46.04	0.00	3371A	-	42.08	-	42.08	0.00	-	46.04	-	46.04	0.00	-	100	Yes		No original log
KRL3532	-	46.62	-	46.62	0.00						3532C	-	46.62	-	46.62	0.00	-	46.72	-	46.72	0.00	-	100			No original log
KRL3532											3532B	-	46.72	-	46.72	0.00	-	47.78	-	47.68	0.10	-	100			No original log
KRL3532						-	51.76	-	51.76	0.00	3532A	-	47.68	-	47.68	0.00	-	51.76	-	51.76	0.00	-	100			No original log
KRL3535	-	45.67	-	45.67	0.00						3535C	-	45.67	-	45.67	0.00	-	46.00	-	46.00	0.00	-	100			No original log
KRL3535											3535B	-	46.00	-	46.00	0.00	-	46.87	-	46.87	0.00	-	100			No original log
KRL3535						-	51.07	-	51.07	0.00	3535A	-	46.87	-	46.87	0.00	-	51.07	-	51.07	0.00	-	100			No original log
KRL3536	-	53.69	-	53.69	0.00						3536C	-	53.69	-	53.69	0.00	-	54.08	-	54.08	0.00	-	100			No original log
KRL3536											3536B	-	54.08	-	54.08	0.00	-	54.91	-	54.91	0.00	-	100			No original log
KRL3536						-	59.12	-	59.12	0.00	3536A	-	54.91	-	54.91	0.00	-	59.12	-	59.12	0.00	-	100			No original log
KRL3537	-	52.89	-	52.89	0.00						3537C	-	52.89	-	52.89	0.00	-	53.11	-	53.11	0.00	-	100			No original log
KRL3537											3537B	-	53.11	-	53.11	0.00	-	53.96	-	53.96	0.00	-	100			No original log
KRL3537						-	58.25	-	58.25	0.00	3537A	-	53.96	-	53.96	0.00	-	58.25	-	58.25	0.00	-	100			No original log
KRL4935	-	50.15	-	50.15	0.00						4935C	-	50.15	-	-	-	-	51.00	-	-	-	-	100	Yes		No original log; not in quality model
KRL4935											4935B	-	51.00	-	-	-	-	51.93	-	-	-	-	100			No original log
KRL4935						-	55.90	-	55.90	0.00	4935A	-	51.93	-	-	-	-	55.90	-	-	-	-	100	Yes		No original log
KRL4936	-	46.43	-	46.43	0.00						4936E	-	46.43	-	46.43	0.00	-	47.20	-	47.20	0.00	-	100	Yes		No original log
KRL4936						-	51.97	-	51.97	0.00	4936D	-	47.20	-	47.20	0.00	-	51.97	-	51.97	0.00	-	100	Yes		No original log
KRL5028	-	73.20	-	73.20	0.00						5028B	-	73.20	-	73.20	0.00	-	75.28	-	75.28	0.00	-	100	Yes		No original log
KRL5028						-	78.64	-	78.64	0.00	5028A	-	75.28	-	75.28	0.00	-	78.64	-	78.64	0.00	-	100	Yes		No original log
KRL5055	47.96	47.96	0.00	47.96	0.00						5055B	47.96	47.96	0.00	47.96	0.00	50.28	50.28	0.00	50.28	0.00	100	100	Yes		
KRL5055						53.80	53.80	0.00	53.80	0.00	5055A	50.28	50.28	0.00	50.28	0.00	53.80	53.80	0.00	53.80	0.00	100	100	Yes		
KRL5058	24.36	24.36	0.00	24.36	0.00	-					5058D	24.36	24.36	0.00	24.36	0.00	24.74	24.74	0.00	24.74	0.00	100	100	Yes		
KRL5058						-					5058C	24.74	24.74	0.00	24.74	0.00	25.31	25.31	0.00	25.31	0.00	100	100	Yes		
KRL5058						-					5058B	25.31	25.31	0.00	25.31	0.00	26.37	26.37	0.00	26.37	0.00	100	100	Yes		
KRL5058						29.69	29.69	0.00	29.69	0.00	5058A	26.37	26.37	0.00	26.37	0.00	29.69	29.69	0.00	29.69	0.00	100	100	Yes		
KRL5067	-	53.99	-	53.99	0.00	-					5067B	-	53.99	-	53.99	0.00	-	55.35	-	55.35	0.00	-	100	Yes		No original log
KRL5067	-					-	59.34	-	59.34	0.00	5067A	-	55.35	-	55.35	0.00	-	59.34	-	59.34	0.00	-	100	Yes		No original log
KRL5093	-	67.45	-	67.45	0.00	-					5093E	-	67.45	-	67.45	0.00	-	68.25	-	68.25	0.00	-	100			No original log
KRL5093	-					-					5093C	-	68.25	-	68.25	0.00	-	69.80	-	69.80	0.00	-	100	Yes		No original log; GDB sample depths contradictory
KRL5093	-					-					5093B	-	69.80	-	69.80	0.00	-	72.94	-	72.94	0.00	-	100	Yes		No original log

Drill Hole	Seam From Depth (m)					Seam To Depth (m)					Sample Name	Sample From Depth (m)					Sample To Depth (m)					Sample Coal Recovery (%)		Partings		Comment
	Original	GDB	Original - GDB	Model	GDB - Model	Original	GDB	Original - GDB	Model	GDB - Model		Original	GDB	Original - GDB	Model	GDB - Model	Original	GDB	Original - GDB	Model	GDB - Model	Original	GDB	Included in Sample	Parting Code (if excluded)	
KRL5093						-	72.94	-	72.94	0.00	5093A	-	72.94	-	-	-	-	73.00	-	-	-	-	100			No original log; sample A is sandstone (excluded from seam)
KRL5476	-	42.09	-	42.09	0.00						5476H	-	42.09	-	42.09	0.00	-	42.55	-	42.55	0.00	-	100			No original log
KRL5476												-	42.55	-	-	-	-	42.73	-	-	-	-	100	No	1	No original log; sandstone (not sampled)
KRL5476											5476G	-	42.73	-	42.73	0.00	-	43.24	-	43.24	0.00	-	100			No original log
KRL5476											5476F	-	43.24	-	43.24	0.00	-	43.82	-	43.82	0.00	-	100			No original log
KRL5476											5476E	-	43.82	-	43.82	0.00	-	43.93	-	43.93	0.00	-	100	Yes		No original log
KRL5476											5476D	-	43.93	-	43.93	0.00	-	44.40	-	44.40	0.00	-	100			No original log
KRL5476						-	47.89	-	47.89	0.00	5476C	-	44.40	-	44.40	0.00	-	47.89	-	47.89	0.00	-	100			No original log
KRL5478	-	62.11	-	62.11	0.00						5478H	-	62.11	-	62.11	0.00	-	62.27	-	62.27	0.00	-	100			No original log
KRL5478												-	62.27	-	-	-	-	62.73	-	-	-	-	100	No	1	No original log; sandstone (not sampled)
KRL5478											5478G	-	62.73	-	62.73	0.00	-	63.22	-	63.22	0.00	-	100	Yes		No original log
KRL5478											5478F	-	63.22	-	63.22	0.00	-	63.84	-	63.84	0.00	-	100			No original log
KRL5478											5478E	-	63.84	-	63.84	0.00	-	63.94	-	63.94	0.00	-	100	Yes		No original log
KRL5478											5478D	-	63.94	-	63.94	0.00	-	64.44	-	64.44	0.00	-	100			No original log
KRL5478						-	67.77	-	67.77	0.00	5478C	-	64.44	-	64.44	0.00	-	67.77	-	67.77	0.00	-	100			No original log
KRL5569	-	52.15	-	52.15	0.00						5569E	-	52.15	-	52.15	0.00	-	52.65	-	52.65	0.00	-	100			No original log
KRL5569											5569D	-	52.65	-	52.65	0.00	-	53.58	-	53.56	0.02	-	100	Yes		No original log
KRL5569											5569C	-	53.58	-	53.56	0.02	-	53.73	-	53.73	0.00	-	100	Yes		No original log
KRL5569											5569B	-	53.73	-	53.73	0.00	-	54.23	-	54.23	0.00	-	100			No original log
KRL5569						-	57.97	-	57.97	0.00	5569A	-	54.23	-	54.23	0.00	-	57.97	-	57.97	0.00	-	100			No original log
KRL5628	-	49.24	-	49.24	0.00						5628C	-	49.24	-	49.24	0.00	-	49.74	-	49.74	0.00	-	100			No original log
KRL5628											5628B	-	49.74	-	49.74	0.00	-	51.49	-	51.49	0.00	-	100	Yes		No original log
KRL5628						-	55.14	-	55.14	0.00	5628A	-	51.49	-	51.49	0.00	-	55.14	-	55.14	0.00	-	100			No original log
KRL5630	-	38.90	-	38.90	0.00						5630C	-	38.90	-	38.90	0.00	-	39.21	-	39.21	0.00	-	100	Yes		No original log
KRL5630											5630B	-	39.21	-	39.21	0.00	-	40.15	-	40.15	0.00	-	100	Yes		No original log
KRL5630						-	43.82	-	43.82	0.00	5630A	-	40.15	-	40.15	0.00	-	43.82	-	43.82	0.00	-	100	Yes		No original log
KRL5657	-	40.26	-	40.26	0.00						5657D	-	40.26	-	40.26	0.00	-	41.20	-	41.20	0.00	-	100			No original log
KRL5657											5657C	-	41.20	-	41.20	0.00	-	41.88	-	41.88	0.00	-	100			No original log
KRL5657											5657B	-	41.88	-	41.88	0.00	-	43.88	-	43.88	0.00	-	100			No original log
KRL5657						-	45.88	-	45.88	0.00	5657A	-	43.88	-	43.88	0.00	-	45.88	-	45.88	0.00	-	100			No original log
KRL5659	-	29.48	-	29.48	0.00						5659C	-	29.48	-	29.48	0.00	-	29.91	-	29.91	0.00	-	100			No original log
KRL5659											5659B	-	29.91	-	29.91	0.00	-	31.61	-	31.61	0.00	-	100	Yes		No original log
KRL5659						-	35.21	-	35.21	0.00	5659A	-	31.61	-	31.61	0.00	-	35.21	-	35.21	0.00	-	100	Yes		No original log
KRL5668	-	34.84	-	34.84	0.00						5668C	-	34.84	-	34.84	0.00	-	35.15	-	35.15	0.00	-	100			No original log
KRL5668											5668B	-	35.15	-	35.15	0.00	-	36.37	-	36.37	0.00	-	100	Yes		No original log
KRL5668						-	40.12	-	40.12	0.00	5668A	-	36.37	-	36.37	0.00	-	40.12	-	40.12	0.00	-	100			No original log
KRL5673	-	30.92	-	30.92	0.00						5673D	-	30.92	-	30.92	0.00	-	32.07	-	32.07	0.00	-	100			No original log
KRL5673											5673C	-	32.07	-	32.07	0.00	-	32.78	-	32.78	0.00	-	100			No original log
KRL5673											5673B	-	32.78	-	32.78	0.00	-	34.78	-	34.78	0.00	-	100			No original log
KRL5673						-	36.78	-	36.78	0.00	5673A	-	34.78	-	34.78	0.00	-	36.78	-	36.78	0.00	-	100			No original log
KRL5674	-	34.83	-	34.83	0.00						5674C	-	34.83	-	34.83	0.00	-	35.33	-	35.33	0.00	-	100	Yes		No original log
KRL5674											5674B	-	35.33	-	35.33	0.00	-	36.85	-	36.85	0.00	-	100	Yes		No original log
KRL5674						-	40.44	-	40.44	0.00	5674A	-	36.85	-	36.85	0.00	-	40.44	-	40.44	0.00	-	100	Yes		No original log
KRL5692	-	27.81	-	27.81	0.00						5692C	-	27.81	-	27.81	0.00	-	28.31	-	28.31	0.00	-	100	Yes		No original log
KRL5692											5692B	-	28.31	-	28.31	0.00	-	29.38	-	29.38	0.00	-	100	Yes		No original log
KRL5692						-	33.48	-	33.48	0.00	5692A	-	29.38	-	29.38	0.00	-	33.48	-	33.48	0.00	-	100	Yes		No original log
KRL5768	-	34.95	-	34.95	0.00						5768D	-	34.95	-	34.95	0.00	-	35.48	-	35.48	0.00	-	100			No original log
KRL5768											5768C	-	35.48	-	35.48	0.00	-	36.04	-	36.04	0.00	-	100	Yes		No original log
KRL5768											5768B	-	36.04	-	36.04	0.00	-	36.70	-	36.70	0.00	-	100	Yes		No original log
KRL5768						-	40.71	-	40.71	0.00	5768A	-	36.70	-	36.70	0.00	-	40.71	-	40.71	0.00	-	100			No original log
KRL5886	-	26.54	-	26.54	0.00	-					5886D	-	26.54	-	26.54	0.00	-	27.11	-	27.11	0.00	-	100			No original log
KRL5886						-					5886C	-	27.11	-	27.11	0.00	-	27.49	-	27.49	0.00	-	100	Yes		No original log
KRL5886						-					5886B	-	27.49	-	27.49	0.00	-	28.26	-	28.26	0.00	-	100	Yes		No original log
KRL5886						-	32.10	-	32.10	0.00	5886A	-	28.26	-	28.26	0.00	-	32.10	-	32.10	0.00	-	100			No original log
KRL6123	-	34.55	-	34.55	0.00						6123D	-	34.55	-	34.55	0.00	-	35.24	-	35.24	0.00	-	100			No original log
KRL6123	-										6123C	-	35.24	-	35.24	0.00	-	35.70	-	35.70	0.00	-	100	Yes		No original log
KRL6123	-										6123B	-	35.70	-	35.70	0.00	-	36.53	-	36.53	0.00	-	100	Yes		No original log

Drill Hole	Seam From Depth (m)					Seam To Depth (m)					Sample name	Sample From Depth (m)					Sample To Depth (m)					Sample Coal Recovery (%)		Partings		Comment
	Original	GDB	Original - GDB	Model	GDB - Model	Original	GDB	Original - GDB	Model	GDB - Model		Original	GDB	Original - GDB	Model	GDB - Model	Original	GDB	Original - GDB	Model	GDB - Model	Original	GDB	Included in Sample	Parting Code (if excluded)	
KRL6123	-					-	40.57	-	40.57	0.00	6123A	-	36.53	-	36.53	0.00	-	40.57	-	40.57	0.00	-	100			No original log
KRL6209	-	25.63	-	25.63	0.00						6209D	-	25.63	-	25.63	0.00	-	26.07	-	26.07	0.00	-	100			No original log
KRL6209	-										6209C	-	26.07	-	26.07	0.00	-	26.45	-	26.46	-0.01	-	100	Yes		No original log
KRL6209	-										6209B	-	26.46	-	26.46	0.00	-	27.35	-	27.35	0.00	-	100	Yes		No original log
KRL6209	-					-	31.55	-	31.55	0.00	6209A	-	27.35	-	27.35	0.00	-	31.55	-	31.55	0.00	-	100			No original log
KRL6920Z	43.61	43.61	0.00	43.61	0.00						6920ZC	43.61	43.61	0.00	43.61	0.00	43.92	43.92	0.00	43.92	0.00	100	100			
KRL6920Z											6920ZB	43.92	43.92	0.00	43.92	0.00	45.24	45.24	0.00	45.24	0.00	98	100	Yes		
KRL6920Z						48.73	48.73	0.00	48.73	0.00	6920ZA	45.24	45.24	0.00	45.24	0.00	48.73	48.73	0.00	48.73	0.00	99	100			
KRL7017	33.53	33.53	0.00	33.53	0.00						7017D	33.53	33.53	0.00	33.53	0.00	33.84	33.84	0.00	33.84	0.00	100	100	Yes		
KRL7017											7017C	33.84	33.84	0.00	33.84	0.00	34.02	34.02	0.00	34.02	0.00	100	100	Yes		
KRL7017											7017B	34.02	34.02	0.00	34.02	0.00	35.35	35.35	0.00	35.35	0.00	100	100	Yes		
KRL7017						39.44	39.44	0.00	39.44	0.00	7017A	35.35	35.35	0.00	35.35	0.00	39.44	39.44	0.00	39.44	0.00	100	100			
KRL7020	29.29	29.29	0.00	29.29	0.00						7020C	29.29	29.29	0.00	29.29	0.00	30.10	30.10	0.00	30.10	0.00	91	100	Yes		
KRL7020											7020B	30.10	30.10	0.00	30.10	0.00	30.92	30.92	0.00	30.92	0.00	99	100	Yes		
KRL7020						34.85	34.85	0.00	34.85	0.00	7020A	30.92	30.92	0.00	30.92	0.00	34.85	34.85	0.00	34.85	0.00	102	100			
KRL7072	32.33	32.33	0.00	32.33	0.00						7072C	32.33	32.33	0.00	32.33	0.00	33.15	33.15	0.00	33.15	0.00	100	100			
KRL7072											7072B	33.15	33.15	0.00	33.15	0.00	34.14	34.14	0.00	34.14	0.00	100	100	Yes		
KRL7072						38.05	38.05	0.00	38.05	0.00	7072A	34.14	34.14	0.00	34.14	0.00	38.05	38.05	0.00	38.05	0.00	100	100			
KRL7075	33.26	33.26	0.00	33.26	0.00						7075C	33.26	33.26	0.00	33.26	0.00	34.13	34.13	0.00	34.13	0.00	100	100	Yes		
KRL7075											7075B	34.13	34.13	0.00	34.13	0.00	35.00	35.00	0.00	35.00	0.00	100	100	Yes		
KRL7075						38.93	38.93	0.00	38.93	0.00	7075A	35.00	35.00	0.00	35.00	0.00	38.93	38.93	0.00	38.93	0.00	100	100			
KRL7121	41.93	41.93	0.00	41.93	0.00						7121D	41.93	41.93	0.00	41.93	0.00	42.36	42.36	0.00	42.36	0.00	100	100			
KRL7121											7121C	42.36	42.36	0.00	42.36	0.00	42.75	42.75	0.00	42.75	0.00	100	100	Yes		
KRL7121											7121B	42.75	42.75	0.00	42.75	0.00	43.44	43.44	0.00	43.44	0.00	100	100	Yes		
KRL7121						47.76	47.76	0.00	47.76	0.00	7121A	43.44	43.44	0.00	43.44	0.00	47.76	47.76	0.00	47.76	0.00	100	100			
KRL7176	42.07	42.07	0.00	42.07	0.00						7176D	42.07	42.07	0.00	42.07	0.00	42.35	42.35	0.00	42.35	0.00	100	100			
KRL7176											7176C	42.35	42.35	0.00	42.35	0.00	43.31	43.31	0.00	43.31	0.00	100	100	Yes		
KRL7176											7176B	43.31	43.31	0.00	43.31	0.00	43.88	43.88	0.00	43.88	0.00	100	100			
KRL7176						47.87	47.87	0.00	47.87	0.00	7176A	43.88	43.88	0.00	43.88	0.00	47.87	47.87	0.00	47.87	0.00	100	100			
KRL7180	41.70	41.70	0.00	41.70	0.00						7180C	41.70	41.70	0.00	41.70	0.00	42.54	42.54	0.00	42.54	0.00	100	100			
KRL7180											7180B	42.54	42.54	0.00	42.54	0.00	43.44	43.44	0.00	43.44	0.00	100	100	Yes		
KRL7180						47.46	47.46	0.00	47.46	0.00	7180A	43.44	43.44	0.00	43.44	0.00	47.46	47.46	0.00	47.46	0.00	100	100			
KRL7284	46.73	46.73	0.00	46.73	0.00						7284C	46.73	46.73	0.00	46.73	0.00	47.60	47.60	0.00	47.60	0.00	100	100			
KRL7284											7284B	47.60	47.60	0.00	47.60	0.00	48.50	48.50	0.00	48.50	0.00	100	100			
KRL7284						52.45	52.45	0.00	52.45	0.00	7284A	48.50	48.50	0.00	48.50	0.00	52.45	52.45	0.00	52.45	0.00	100	100			
KRL7288	45.36	45.36	0.00	45.36	0.00						7288C	45.36	45.36	0.00	45.36	0.00	46.25	46.25	0.00	46.25	0.00	100	100			
KRL7288											7288B	46.25	46.25	0.00	46.25	0.00	47.16	47.16	0.00	47.16	0.00	100	100	Yes		
KRL7288						51.15	51.15	0.00	51.15	0.00	7288A	47.16	47.16	0.00	47.16	0.00	51.15	51.15	0.00	51.15	0.00	100	100			
KRL7307	47.44	47.44	0.00	47.44	0.00						7307C	47.44	47.44	0.00	47.44	0.00	48.08	48.08	0.00	48.08	0.00	100	100			
KRL7307											7307B	48.08	48.08	0.00	48.08	0.00	49.14	49.14	0.00	49.14	0.00	100	100			
KRL7307						53.26	53.26	0.00	53.26	0.00	7307A	49.14	49.14	0.00	49.14	0.00	53.26	53.26	0.00	53.26	0.00	100	100			
KRL7338	47.53	47.53	0.00	47.53	0.00						7338C	47.53	47.53	0.00	47.53	0.00	48.28	48.28	0.00	48.28	0.00	100	100			
KRL7338											7338B	48.28	48.28	0.00	48.28	0.00	49.26	49.26	0.00	49.26	0.00	100	100	Yes		
KRL7338						53.28	53.28	0.00	53.28	0.00	7338A	49.26	49.26	0.00	49.26	0.00	53.28	53.28	0.00	53.28	0.00	100	100			
KRL7388	48.85	48.85	0.00	48.85	0.00						7388C	48.85	48.85	0.00	48.85	0.00	49.83	49.83	0.00	49.83	0.00	100	100			
KRL7388											7388B	49.83	49.83	0.00	49.83	0.00	50.76	50.76	0.00	50.76	0.00	100	100	Yes		
KRL7388						54.75	54.75	0.00	54.75	0.00	7388A	50.76	50.76	0.00	50.76	0.00	54.75	54.75	0.00	54.75	0.00	100	100			
KRL7394	47.79	47.79	0.00	47.79	0.00						7394C	47.79	47.79	0.00	47.79	0.00	48.75	48.75	0.00	48.75	0.00	100	100			
KRL7394											7394B	48.75	48.75	0.00	48.75	0.00	49.69	49.69	0.00	49.69	0.00	100	100	Yes		
KRL7394						53.52	53.52	0.00	53.52	0.00	7394A	49.69	49.69	0.00	49.69	0.00	53.52	53.52	0.00	53.52	0.00	100	100			
KRL7418	50.09	50.09	0.00	50.09	0.00						7418C	50.09	50.09	0.00	50.09	0.00	50.97	50.97	0.00	50.97	0.00	100	100			
KRL7418											7418B	50.97	50.97	0.00	50.97	0.00	51.90	51.90	0.00	51.90	0.00	100	100	Yes		
KRL7418						55.86	55.86	0.00	55.86	0.00	7418A	51.90	51.90	0.00	51.90	0.00	55.86	55.86	0.00	55.86	0.00	100	100			
KRL7439	50.53	50.53	0.00	50.53	0.00						7439C	50.53	50.53	0.00	50.53	0.00	51.02	51.02	0.00	51.02	0.00	100	100			
KRL7439											7439B	51.02	51.02	0.00	51.02	0.00	52.27	52.27	0.00	52.27	0.00	100	100	Yes		
KRL7439						56.50	56.50	0.00	56.50	0.00	7439A	52.27	52.27	0.00	52.27	0.00	56.50	56.50	0.00	56.50	0.00	100	100			
KRL7520	49.78	49.78	0.00	49.78	0.00						7520C	49.78	49.78	0.00	49.78	0.00	50.58	50.58	0.00	50.58	0.00	100	100	Yes		
KRL7520											7520B	50.58	50.58	0.00	50.58	0.00	51.47	51.47	0.00	51.47	0.00	100	100	Yes		
Drill Hole	Seam From Depth (m)					Seam To Depth (m)					Sample Name	Sample From Depth (m)					Sample To Depth (m)					Sample Coal Recovery (%)		Partings		Comment

Drill Hole	Seam From Depth (m)					Seam To Depth (m)					Sample Name	Sample From Depth (m)					Sample To Depth (m)					Sample Coal Recovery (%)		Partings		Comment
	Original	GDB	Original - GDB	Model	GDB - Model	Original	GDB	Original - GDB	Model	GDB - Model		Original	GDB	Original - GDB	Model	GDB - Model	Original	GDB	Original - GDB	Model	GDB - Model	Original	GDB	Included in Sample	Parting Code (if excluded)	
KRL7520						55.67	55.67	0.00	55.67	0.00	7520A	51.47	51.47	0.00	51.47	0.00	55.67	55.67	0.00	55.67	0.00	100	100			
KRL7550	51.29	51.29	0.00	51.29	0.00						7550C	51.29	51.29	0.00	51.29	0.00	52.25	52.25	0.00	52.25	0.00	100	100	Yes		
KRL7550											7550B	52.25	52.25	0.00	52.25	0.00	53.05	53.05	0.00	53.05	0.00	100	100	Yes		
KRL7550						57.30	57.30	0.00	57.30	0.00	7550A	53.05	53.05	0.00	53.05	0.00	57.30	57.30	0.00	57.30	0.00	100	100			
KRL7574	-	51.62	-	51.62	0.00						7574C	-	51.62	-	51.62	0.00	-	52.60	-	52.60	0.00	-	100	Yes		No original log
KRL7574	-										7574B	-	52.60	-	52.60	0.00	-	53.44	-	53.44	0.00	-	100	Yes		No original log
KRL7574	-					-	57.66	-	57.66	0.00	7574A	-	53.44	-	53.44	0.00	-	57.66	-	57.66	0.00	-	100			No original log
KRL7595	49.08	49.08	0.00	49.08	0.00						7595C	49.08	49.08	0.00	49.08	0.00	50.06	50.06	0.00	50.06	0.00	100	100			
KRL7595											7595B	50.06	50.06	0.00	50.06	0.00	50.75	50.75	0.00	50.75	0.00	100	100	Yes		
KRL7595						55.06	55.06	0.00	55.06	0.00	7595A	50.75	50.75	0.00	50.75	0.00	55.06	55.06	0.00	55.06	0.00	100	100			
KRL7598	-	51.44	-	51.44	0.00						7598C	-	51.44	-	51.44	0.00	-	52.46	-	52.46	0.00	-	100	Yes		No original log
KRL7598	-										7598B	-	52.46	-	52.46	0.00	-	53.27	-	53.27	0.00	-	100	Yes		No original log
KRL7598	-					-	57.25	-	57.25	0.00	7598A	-	53.27	-	53.27	0.00	-	57.25	-	57.25	0.00	-	100			No original log
KRL7644	51.17	51.17	0.00	51.17	0.00						7644C	51.17	51.17	0.00	51.17	0.00	52.15	52.15	0.00	52.15	0.00	100	100	Yes		
KRL7644											7644B	52.15	52.15	0.00	52.15	0.00	53.02	53.02	0.00	53.02	0.00	100	100	Yes		
KRL7644						57.12	57.12	0.00	57.12	0.00	7644A	53.02	53.02	0.00	53.02	0.00	57.12	57.12	0.00	57.12	0.00	100	100			
KRL7681	50.91	50.91	0.00	50.91	0.00						7681C	50.91	50.91	0.00	50.91	0.00	51.80	51.80	0.00	51.80	0.00	100	100			
KRL7681											7681B	51.80	51.80	0.00	51.80	0.00	52.71	52.71	0.00	52.71	0.00	100	100	Yes		
KRL7681						57.10	57.10	0.00	57.10	0.00	7681A	52.71	52.71	0.00	52.71	0.00	57.10	57.10	0.00	57.10	0.00	100	100			
KRL7704	49.67	49.67	0.00	49.67	0.00						7704C	49.67	49.67	0.00	49.67	0.00	50.52	50.52	0.00	50.52	0.00	100	100			
KRL7704											7704B	50.52	50.52	0.00	50.52	0.00	51.40	51.40	0.00	51.40	0.00	100	100	Yes		
KRL7704						55.74	55.74	0.00	55.74	0.00	7704A	51.40	51.40	0.00	51.40	0.00	55.74	55.74	0.00	55.74	0.00	100	100			
KRL7708	50.00	50.00	0.00	50.00	0.00						7708C	50.00	50.00	0.00	50.00	0.00	51.16	51.16	0.00	51.16	0.00	100	100	Yes		
KRL7708											7708B	51.16	51.16	0.00	51.16	0.00	52.00	52.00	0.00	52.00	0.00	100	100	Yes		
KRL7708						55.80	55.80	0.00	55.80	0.00	7708A	52.00	52.00	0.00	52.00	0.00	55.80	55.80	0.00	55.80	0.00	100	100			
KRL7740	51.80	51.80	0.00	51.80	0.00						7740D	51.80	51.80	0.00	51.80	0.00	52.42	52.42	0.00	52.42	0.00	100	100	Yes		
KRL7740											7740C	52.42	52.42	0.00	52.42	0.00	53.40	53.40	0.00	53.40	0.00	100	100	Yes		
KRL7740											7740B	53.40	53.40	0.00	53.40	0.00	54.97	54.97	0.00	54.97	0.00	100	100	Yes		
KRL7740						57.75	57.75	0.00	57.75	0.00	7740A	54.97	54.97	0.00	54.97	0.00	57.75	57.75	0.00	57.75	0.00	100	100	Yes		
KRL7743	51.03	51.03	0.00	51.03	0.00						7743C	51.03	51.03	0.00	51.03	0.00	52.03	52.03	0.00	52.03	0.00	100	100			
KRL7743											7743B	52.03	52.03	0.00	52.03	0.00	52.84	52.84	0.00	52.84	0.00	100	100	Yes		
KRL7743						57.08	57.08	0.00	57.08	0.00	7743A	52.84	52.84	0.00	52.84	0.00	57.08	57.08	0.00	57.08	0.00	100	100			
KRL7802	50.15	50.15	0.00	50.15	0.00						7802C	50.15	50.15	0.00	50.15	0.00	51.02	51.02	0.00	51.02	0.00	100	100			
KRL7802											7802B	51.02	51.02	0.00	51.02	0.00	51.79	51.79	0.00	51.79	0.00	100	100	Yes		
KRL7802						55.67	55.67	0.00	55.67	0.00	7802A	51.79	51.79	0.00	51.79	0.00	55.67	55.67	0.00	55.67	0.00	100	100			
KRL7813	51.76	51.76	0.00	51.76	0.00						7813C	51.76	51.76	0.00	51.76	0.00	52.50	52.50	0.00	52.50	0.00	100	100			
KRL7813											7813B	52.50	52.50	0.00	52.50	0.00	53.45	53.45	0.00	53.45	0.00	100	100	Yes		
KRL7813						57.66	57.66	0.00	57.66	0.00	7813A	53.45	53.45	0.00	53.45	0.00	57.66	57.66	0.00	57.66	0.00	100	100			
KRL7818	52.83	52.83	0.00	52.83	0.00						7818C	52.83	52.83	0.00	52.83	0.00	53.60	53.60	0.00	53.60	0.00	100	100			
KRL7818											7818B	53.60	53.60	0.00	53.60	0.00	54.49	54.49	0.00	54.49	0.00	100	100	Yes		
KRL7818						58.67	58.67	0.00	58.67	0.00	7818A	54.49	54.49	0.00	54.49	0.00	58.67	58.67	0.00	58.67	0.00	100	100			
KRL7853	54.25	54.25	0.00	54.25	0.00						7853C	54.25	54.25	0.00	54.25	0.00	55.47	55.47	0.00	55.47	0.00	100	100			
KRL7853											7853B	55.47	55.47	0.00	55.47	0.00	56.02	56.02	0.00	56.02	0.00	100	100	Yes		
KRL7853						60.37	60.37	0.00	60.37	0.00	7853A	56.02	56.02	0.00	56.02	0.00	60.37	60.37	0.00	60.37	0.00	100	100			
KRL7878	48.58	48.58	0.00	48.58	0.00						7878C	48.58	48.58	0.00	48.58	0.00	49.64	49.64	0.00	49.64	0.00	100	100			
KRL7878											7878B	49.64	49.64	0.00	49.64	0.00	50.23	50.23	0.00	50.23	0.00	100	100	Yes		
KRL7878						54.30	54.30	0.00	54.30	0.00	7878A	50.23	50.23	0.00	50.23	0.00	54.30	54.30	0.00	54.30	0.00	100	100			
KRL7894	51.93	51.93	0.00	51.93	0.00						7894C	51.93	51.93	0.00	51.93	0.00	52.58	52.58	0.00	52.58	0.00	100	100			
KRL7894											7894B	52.58	52.58	0.00	52.58	0.00	53.50	53.50	0.00	53.50	0.00	100	100	Yes		
KRL7894						57.80	57.80	0.00	57.80	0.00	7894A	53.50	53.50	0.00	53.50	0.00	57.80	57.80	0.00	57.80	0.00	100	100			
KRL7928	57.07	57.07	0.00	57.07	0.00						7928C	57.07	57.07	0.00	57.07	0.00	58.06	58.06	0.00	58.06	0.00	100	100			
KRL7928											7928B	58.06	58.06	0.00	58.06	0.00	58.62	58.62	0.00	58.62	0.00	100	100	Yes		
KRL7928						62.87	62.87	0.00	62.87	0.00	7928A	58.62	58.62	0.00	58.62	0.00	62.87	62.87	0.00	62.87	0.00	101	100			
KRL7930	56.73	56.73	0.00	56.73	0.00						7930C	56.73	56.73	0.00	56.73	0.00	57.49	57.49	0.00	57.49	0.00	100	100			
KRL7930											7930B	57.49	57.49	0.00	57.49	0.00	58.38	58.38	0.00	58.38	0.00	100	100	Yes		
KRL7930						62.58	62.58	0.00	62.58	0.00	7930A	58.38	58.38	0.00	58.38	0.00	62.58	62.58	0.00	62.58	0.00	100	100			
KRL8255	34.38	34.38	0.00	34.38	0.00						8255D	34.38	34.38	0.00	34.38	0.00	34.75	34.75	0.00	34.75	0.00	100	100			
KRL8255											8255C	34.75	34.75	0.00	34.75	0.00	36.14	36.14	0.00	36.14	0.00	100	100	Yes		

Drill Hole	Seam From Depth (m)					Seam To Depth (m)					Sample Name	Sample From Depth (m)					Sample To Depth (m)					Sample Coal Recovery (%)		Partings		Comment
	Original	GDB	Original - GDB	Model	GDB - Model	Original	GDB	Original - GDB	Model	GDB - Model		Original	GDB	Original - GDB	Model	GDB - Model	Original	GDB	Original - GDB	Model	GDB - Model	Original	GDB	Included in Sample	Parting Code (if excluded)	
KRL8255											8255B	36.14	36.14	0.00	36.14	0.00	38.56	38.56	0.00	38.56	0.00	100	100			
KRL8255						39.58	39.58	0.00	39.58	0.00	8255A	38.56	38.56	0.00	38.56	0.00	39.58	39.58	0.00	39.58	0.00	100	100			
KRL8267	46.73	46.73	0.00	46.73	0.00						8267C	46.73	46.73	0.00	46.73	0.00	47.24	47.24	0.00	47.24	0.00	100	100			
KRL8267											8267B	47.24	47.24	0.00	47.24	0.00	47.64	47.64	0.00	47.64	0.00	100	100	Yes		
KRL8267						52.09	52.09	0.00	52.09	0.00	8267A	47.64	47.64	0.00	47.64	0.00	52.09	52.09	0.00	52.09	0.00	100	100	Yes		
KRL8311	48.70	48.70	0.00	48.70	0.00						8311C	48.70	48.70	0.00	48.70	0.00	49.37	49.37	0.00	49.37	0.00	100	100	Yes		
KRL8311											8311B	49.37	49.37	0.00	49.37	0.00	50.39	50.39	0.00	50.39	0.00	100	100	Yes		
KRL8311						54.08	54.08	0.00	54.08	0.00	8311A	50.39	50.39	0.00	50.39	0.00	54.08	54.08	0.00	54.08	0.00	100	100			
KRL8318	47.92	47.98	-0.06	47.98	0.00						8318C	47.92	47.98	-0.06	-	-	48.91	48.91	0.00	-	-	100	100	Yes		Not in quality model
KRL8318											8318B	48.91	48.91	0.00	-	-	50.18	50.18	0.00	-	-	100	100	Yes		
KRL8318						53.98	53.98	0.00	53.98	0.00	8318A	50.18	50.18	0.00	-	-	53.98	53.98	0.00	-	-	100	100			
KRL8321	42.91	42.91	0.00	42.91	0.00						8321C	42.91	42.91	0.00	42.91	0.00	43.33	43.33	0.00	43.33	0.00	100	100			
KRL8321											8321B	43.33	43.33	0.00	43.33	0.00	44.00	44.00	0.00	44.00	0.00	100	100	Yes		
KRL8321						48.81	48.81	0.00	48.81	0.00	8321A	44.00	44.00	0.00	44.00	0.00	48.81	48.81	0.00	48.81	0.00	100	100	Yes		
KRL8332	46.04	46.04	0.00	46.04	0.00						8332C	46.04	46.04	0.00	46.04	0.00	46.48	46.48	0.00	46.48	0.00	100	100	Yes		
KRL8332											8332B	46.48	46.48	0.00	46.48	0.00	47.26	47.26	0.00	47.26	0.00	100	100	Yes		
KRL8332						51.89	51.89	0.00	51.89	0.00	8332A	47.26	47.26	0.00	47.26	0.00	51.89	51.89	0.00	51.89	0.00	100	100			
KRL8348	50.37	50.37	0.00	50.37	0.00						8348D	50.37	50.37	0.00	50.37	0.00	50.79	50.79	0.00	50.79	0.00	100	100			
KRL8348											8348C	50.79	50.79	0.00	50.79	0.00	51.99	51.99	0.00	51.99	0.00	100	100	Yes		
KRL8348											8348B	51.99	51.99	0.00	51.99	0.00	53.84	53.84	0.00	53.84	0.00	100	100	Yes		
KRL8348						56.10	56.10	0.00	56.10	0.00	8348A	53.84	53.84	0.00	53.84	0.00	56.10	56.10	0.00	56.10	0.00	100	100			
KRL8411	51.73	51.73	0.00	51.73	0.00						8411C	51.73	51.73	0.00	51.73	0.00	52.13	52.13	0.00	52.13	0.00	99	100			
KRL8411											8411B	52.13	52.13	0.00	52.13	0.00	53.47	53.47	0.00	53.47	0.00	99	100	Yes		
KRL8411						57.31	57.31	0.00	57.31	0.00	8411A	53.47	53.47	0.00	53.47	0.00	57.31	57.31	0.00	57.31	0.00	100	100			
KRL8416	45.77	45.77	0.00	45.77	0.00						8416C	45.77	45.77	0.00	45.77	0.00	46.15	46.15	0.00	46.15	0.00	100	100	Yes		
KRL8416											8416B	46.15	46.15	0.00	46.15	0.00	46.73	46.73	0.00	46.73	0.00	100	100	Yes		
KRL8416						51.31	51.31	0.00	51.31	0.00	8416A	46.73	46.73	0.00	46.73	0.00	51.31	51.31	0.00	51.31	0.00	100	100	Yes		
KRL8420	47.44	47.44	0.00	47.44	0.00						8420C	47.44	47.44	0.00	47.44	0.00	47.87	47.87	0.00	47.87	0.00	100	100			
KRL8420											8420B	47.87	47.87	0.00	47.87	0.00	49.14	49.14	0.00	49.14	0.00	100	100	Yes		
KRL8420						52.72	52.72	0.00	52.72	0.00	8420A	49.14	49.14	0.00	49.14	0.00	52.72	52.72	0.00	52.72	0.00	100	100			
KRL8451	51.98	51.98	0.00	51.98	0.00						8451C	51.98	51.98	0.00	51.98	0.00	52.68	52.68	0.00	52.68	0.00	100	100	Yes		
KRL8451											8451B	52.68	52.68	0.00	52.68	0.00	53.64	53.64	0.00	53.64	0.00	100	100	Yes		
KRL8451						57.45	57.45	0.00	57.45	0.00	8451A	53.64	53.64	0.00	53.64	0.00	57.45	57.45	0.00	57.45	0.00	100	100	Yes		
KRL8455	53.54	53.54	0.00	53.54	0.00						8455D	53.54	53.54	0.00	53.54	0.00	54.04	54.04	0.00	54.04	0.00	100	100			
KRL8455											8455C	54.04	54.04	0.00	54.04	0.00	55.32	55.32	0.00	55.32	0.00	98	100	Yes		
KRL8455											8455B	55.32	55.32	0.00	55.32	0.00	56.33	56.33	0.00	56.33	0.00	99	100			
KRL8455						59.18	59.18	0.00	59.18	0.00	8455A	56.33	56.33	0.00	56.33	0.00	59.18	59.18	0.00	59.18	0.00	100	100			
KRL8480	57.30	57.30	0.00	57.30	0.00						8480C	57.30	57.30	0.00	57.30	0.00	58.04	58.04	0.00	58.04	0.00	100	100	Yes		
KRL8480											8480B	58.04	58.04	0.00	58.04	0.00	59.33	59.33	0.00	59.33	0.00	100	100	Yes		
KRL8480						63.28	63.28	0.00	63.28	0.00	8480A	59.33	59.33	0.00	59.33	0.00	63.28	63.28	0.00	63.28	0.00	100	100			
KRL8492	51.81	51.81	0.00	51.81	0.00						8492C	51.81	51.81	0.00	51.81	0.00	52.49	52.49	0.00	52.49	0.00	100	100	Yes		
KRL8492											8492B	52.49	52.49	0.00	52.49	0.00	53.73	53.73	0.00	53.73	0.00	100	100	Yes		
KRL8492						57.78	57.78	0.00	57.78	0.00	8492A	53.73	53.73	0.00	53.73	0.00	57.78	57.78	0.00	57.78	0.00	100	100			
KRL8494	54.95	54.95	0.00	54.95	0.00						8494C	54.95	54.95	0.00	54.95	0.00	55.41	55.41	0.00	55.41	0.00	100	100			
KRL8494											8494B	55.41	55.41	0.00	55.41	0.00	56.66	56.66	0.00	56.66	0.00	100	100	Yes		
KRL8494						60.36	60.36	0.00	60.36	0.00	8494A	56.66	56.66	0.00	56.66	0.00	60.36	60.36	0.00	60.36	0.00	100	100			
KRL8498	54.86	54.86	0.00	54.86	0.00						8498C	54.86	54.86	0.00	54.86	0.00	55.68	55.68	0.00	55.68	0.00	100	100			
KRL8498											8498B	55.68	55.68	0.00	55.68	0.00	56.62	56.62	0.00	56.62	0.00	100	100	Yes		
KRL8498						59.94	59.94	0.00	59.94	0.00	8498A	56.62	56.62	0.00	56.62	0.00	59.94	59.94	0.00	59.94	0.00	100	100			
KRL8509	45.51	45.51	0.00	45.51	0.00						8509C	45.51	45.51	0.00	45.51	0.00	46.23	46.23	0.00	46.23	0.00	100	100	Yes		
KRL8509											8509B	46.23	46.23	0.00	46.23	0.00	47.04	47.04	0.00	47.04	0.00	100	100	Yes		
KRL8509						50.79	50.79	0.00	50.79	0.00	8509A	47.04	47.04	0.00	47.04	0.00	50.79	50.79	0.00	50.79	0.00	100	100			
KRL8527	56.87	56.87	0.00	56.87	0.00						8527C	56.87	56.87	0.00	56.87	0.00	57.72	57.72	0.00	57.72	0.00	100	100			
KRL8527											8527B	57.72	57.72	0.00	57.72	0.00	58.77	58.77	0.00	58.77	0.00	100	100	Yes		
KRL8527						62.73	62.73	0.00	62.73	0.00	8527A	58.77	58.77	0.00	58.77	0.00	62.73	62.73	0.00	62.73	0.00	100	100			
KRL8529	53.68	53.68	0.00	53.68	0.00						8529C	53.68	53.68	0.00	53.68	0.00	54.92	54.92	0.00	54.92	0.00	100	100			
KRL8529											8529B	54.92	54.92	0.00	54.92	0.00	56.00	56.00	0.00	56.00	0.00	100	100	Yes		
KRL8529						60.10	60.10	0.00	60.10	0.00	8529A	56.00	56.00	0.00	56.00	0.00	60.10	60.10	0.00	60.10	0.00	100	100			

Drill Hole	Seam From Depth (m) Original	Seam From Depth (m) GDB	Seam From Depth (m) Original - GDB	Seam From Depth (m) Model	Seam From Depth (m) GDB - Model	Seam To Depth (m) Original	Seam To Depth (m) GDB	Seam To Depth (m) Original - GDB	Seam To Depth (m) Model	Seam To Depth (m) GDB - Model	Sample Name	Sample From Depth (m) Original	Sample From Depth (m) GDB	Sample From Depth (m) Original - GDB	Sample From Depth (m) Model	Sample From Depth (m) GDB - Model	Sample To Depth (m) Original	Sample To Depth (m) GDB	Sample To Depth (m) Original - GDB	Sample To Depth (m) Model	Sample To Depth (m) GDB - Model	Sample Coal Recovery (%) Original	Sample Coal Recovery (%) GDB	Partings Included in Sample	Partings Parting Code (if excluded)	Comment
KRL8558	52.28	52.28	0.00	52.28	0.00						8558C	52.28	52.28	0.00	52.28	0.00	53.10	53.10	0.00	53.10	0.00	100	100			
KRL8558											8558B	53.10	53.10	0.00	53.10	0.00	54.11	54.11	0.00	54.11	0.00	100	100	Yes		
KRL8558						57.66	57.66	0.00	57.66	0.00	8558A	54.11	54.11	0.00	54.11	0.00	57.66	57.66	0.00	57.66	0.00	100	100			
KRL8561	57.80	57.80	0.00	57.80	0.00						8561C	57.80	57.80	0.00	57.80	0.00	58.57	58.57	0.00	58.57	0.00	100	100	Yes		
KRL8561											8561B	58.57	58.57	0.00	58.57	0.00	59.50	59.50	0.00	59.50	0.00	100	100	Yes		
KRL8561						63.35	63.35	0.00	63.35	0.00	8561A	59.50	59.50	0.00	59.50	0.00	63.35	63.35	0.00	63.35	0.00	100	100			
KRL8563	61.00	61.00	0.00	61.00	0.00						8563C	61.00	61.00	0.00	61.00	0.00	61.90	61.90	0.00	61.90	0.00	100	100	Yes		
KRL8563											8563B	61.90	61.90	0.00	61.90	0.00	62.87	62.87	0.00	62.87	0.00	100	100	Yes		
KRL8563						66.79	66.79	0.00	65.60	1.19	8563A	62.87	62.87	0.00	62.87	0.00	66.79	66.79	0.00	66.79	0.00	100	100			**Model data incorrect**
KRL8566	60.91	60.91	0.00	60.91	0.00						8566C	60.91	60.91	0.00	60.91	0.00	61.69	61.69	0.00	61.69	0.00	100	100	Yes		
KRL8566											8566B	61.69	61.69	0.00	61.69	0.00	62.72	62.72	0.00	62.72	0.00	100	100	Yes		
KRL8566						66.83	66.83	0.00	66.83	0.00	8566A	62.72	62.72	0.00	62.72	0.00	66.83	66.83	0.00	66.83	0.00	100	100			
KRL8577	49.83	49.83	0.00	49.83	0.00						8577C	49.83	49.83	0.00	49.83	0.00	50.51	50.51	0.00	50.51	0.00	100	100	Yes		
KRL8577											8577B	50.51	50.51	0.00	50.51	0.00	51.33	51.33	0.00	51.33	0.00	100	100	Yes		
KRL8577						55.45	55.45	0.00	55.45	0.00	8577A	51.33	51.33	0.00	51.33	0.00	55.45	55.45	0.00	55.45	0.00	100	100			
KRL8581	53.12	53.12	0.00	53.12	0.00						7748C	53.12	53.12	0.00	-	-	54.13	54.13	0.00	-	-	100	100			Names correct; not in quality model
KRL8581											7748B	54.13	54.13	0.00	-	-	54.91	54.91	0.00	-	-	100	100	Yes		
KRL8581						59.10	59.10	0.00	59.10	0.00	7748A	54.91	54.91	0.00	-	-	59.10	59.10	0.00	-	-	100	100			
KRL8634	61.15	61.15	0.00	61.15	0.00						8634C	61.15	61.15	0.00	61.15	0.00	61.92	61.92	0.00	61.92	0.00	100	100			
KRL8634											8634B	61.92	61.92	0.00	61.92	0.00	62.91	62.91	0.00	62.91	0.00	100	100	Yes		
KRL8634						66.69	66.69	0.00	66.69	0.00	8634A	62.91	62.91	0.00	62.91	0.00	66.69	66.69	0.00	66.69	0.00	100	100	Yes		
KRL8647	-	53.87	-	53.87	0.00						8647C	-	53.87	-	53.87	0.00	-	54.70	-	54.70	0.00	-	100			No original log
KRL8647	-										8647B	-	54.70	-	54.70	0.00	-	55.63	-	55.63	0.00	-	100	Yes		No original log
KRL8647	-					-	59.33	-	59.33	0.00	8647A	-	55.63	-	55.63	0.00	-	59.33	-	59.33	0.00	-	100	Yes		No original log
KRL8654	63.54	63.54	0.00	63.54	0.00						8654C	63.54	63.54	0.00	63.54	0.00	64.30	64.30	0.00	64.30	0.00	100	100			
KRL8654											8654B	64.30	64.30	0.00	64.30	0.00	65.24	65.24	0.00	65.24	0.00	100	100	Yes		
KRL8654						69.21	69.21	0.00	69.21	0.00	8654A	65.24	65.24	0.00	65.24	0.00	69.21	69.21	0.00	69.21	0.00	100	100	Yes		
KRL8657	-	60.59	-	60.59	0.00						8657C	-	60.59	-	60.59	0.00	-	61.34	-	61.34	0.00	-	100	Yes		No original log
KRL8657	-										8657B	-	61.34	-	61.34	0.00	-	62.27	-	62.27	0.00	-	100	Yes		No original log
KRL8657	-					-	66.13	-	66.13	0.00	8657A	-	62.27	-	62.27	0.00	-	66.13	-	66.13	0.00	-	100			No original log
KRL8659	56.40	56.40	0.00	56.40	0.00						8659C	56.40	56.40	0.00	56.40	0.00	57.24	57.24	0.00	57.24	0.00	100	100			
KRL8659											8659B	57.24	57.24	0.00	57.24	0.00	57.90	57.90	0.00	57.90	0.00	100	100	Yes		
KRL8659						62.16	62.16	0.00	62.16	0.00	8659A	57.90	57.90	0.00	57.90	0.00	62.16	62.16	0.00	62.16	0.00	100	100	Yes		
KRL10019	42.80	42.80	0.00	42.80	0.00						10019C	42.80	42.80	0.00	42.80	0.00	43.12	43.12	0.00	43.12	0.00	100	100			
KRL10019											10019B	43.12	43.12	0.00	43.12	0.00	43.55	43.55	0.00	43.55	0.00	100	100	Yes		
KRL10019						47.89	47.89	0.00	47.89	0.00	10019A	43.55	43.55	0.00	-	-	47.89	47.89	0.00	-	-	100	100	Yes		Not in quality model
KRLA046	-	41.11	-	41.11	0.00						A046E	-	41.11	-	41.11	0.00	-	41.73	-	41.73	0.00	-	100	Yes		No original log
KRLA046	-										A046D	-	41.73	-	41.73	0.00	-	42.84	-	42.84	0.00	-	100	Yes		No original log
KRLA046	-					-	46.34	-	46.34	0.00	A046C	-	42.84	-	42.84	0.00	-	46.34	-	46.34	0.00	-	100			No original log
KRLB041	48.90	48.90	0.00	48.90	0.00						B041C	48.90	48.90	0.00	48.90	0.00	49.75	49.75	0.00	49.75	0.00	100	100	Yes		
KRLB041											B041B	49.75	49.75	0.00	49.75	0.00	50.65	50.65	0.00	50.65	0.00	100	100	Yes		
KRLB041						54.23	54.23	0.00	54.23	0.00	B041A	50.65	50.65	0.00	50.65	0.00	54.23	54.23	0.00	54.23	0.00	100	100			
KRLB044	48.90	48.90	0.00	48.90	0.00						B044C	48.90	48.90	0.00	48.90	0.00	49.68	49.68	0.00	49.68	0.00	100	100			
KRLB044											B044B	49.68	49.68	0.00	49.68	0.00	50.63	50.63	0.00	50.63	0.00	100	100	Yes		
KRLB044						54.35	54.35	0.00	54.36	-0.01	B044A	50.63	50.63	0.00	50.63	0.00	54.35	54.35	0.00	54.36	-0.01	100	100			
KRLB067	50.28	50.28	0.00	50.28	0.00						B067C	50.28	50.28	0.00	50.28	0.00	51.02	51.02	0.00	51.02	0.00	100	100	Yes		
KRLB067											B067B	51.02	51.02	0.00	51.02	0.00	52.00	52.00	0.00	52.00	0.00	100	100	Yes		
KRLB067						55.55	55.55	0.00	55.55	0.00	B067A	52.00	52.00	0.00	52.00	0.00	55.55	55.55	0.00	55.55	0.00	100	100			
KRLC029	58.12	58.12	0.00	58.12	0.00						C029C	58.12	58.12	0.00	58.12	0.00	58.95	58.95	0.00	58.95	0.00	89	100	Yes		Geophysical/core thickness different
KRLC029											C029B	58.95	58.95	0.00	58.95	0.00	59.90	59.90	0.00	59.90	0.00	97	100	Yes		Geophysical/core thickness different
KRLC029						63.66	63.66	0.00	63.66	0.00	C029A	59.90	59.90	0.00	59.90	0.00	63.66	63.66	0.00	63.66	0.00	101	100			Geophysical/core thickness different
KRLC041	62.17	62.17	0.00	62.17	0.00						C041C	62.17	62.17	0.00	62.17	0.00	63.02	63.02	0.00	63.02	0.00	100	100	Yes		
KRLC041											C041B	63.02	63.02	0.00	63.02	0.00	63.94	63.94	0.00	63.94	0.00	100	100	Yes		
KRLC041						67.63	67.63	0.00	67.63	0.00	C041A	63.94	63.94	0.00	63.94	0.00	67.63	67.63	0.00	67.63	0.00	100	100			
KRLC073	59.95	59.95	0.00	59.95	0.00						C073C	59.95	59.95	0.00	59.95	0.00	60.68	60.68	0.00	60.68	0.00	100	100			
KRLC073											C073B	60.68	60.68	0.00	60.68	0.00	61.47	61.47	0.00	61.47	0.00	100	100	Yes		
KRLC073						65.33	65.33	0.00	65.33	0.00	C073A	61.47	61.47	0.00	61.47	0.00	65.33	65.33	0.00	65.33	0.00	100	100			
KRLC116	66.58	66.58	0.00	66.58	0.00						C116E	66.58	66.58	0.00	66.58	0.00	67.23	67.23	0.00	67.23	0.00	100	100	Yes		

	Original	GDB	Original - GDB	Model	GDB - Model	Original	GDB	Original - GDB	Model	GDB - Model		Original	GDB	Original - GDB	Model	GDB - Model	Original	GDB	Original - GDB	Model	GDB - Model	Original	GDB	Included in Sample	Parting Code (if excluded)	
KRLC116											C116D	67.23	67.23	0.00	67.23	0.00	68.17	68.17	0.00	68.17	0.00	100	100	Yes		
KRLC116						72.17	72.17	0.00	72.17	0.00	C116C	68.17	68.17	0.00	68.17	0.00	72.17	72.17	0.00	72.17	0.00	100	100			
KRLC180	82.95	82.95	0.00	82.95	0.00						C180C	82.95	82.95	0.00	82.95	0.00	83.35	83.35	0.00	83.35	0.00	100	100	Yes		
KRLC180											C180B	83.35	83.35	0.00	83.35	0.00	84.33	84.33	0.00	84.33	0.00	100	100	Yes		
KRLC180						88.63	88.63	0.00	88.63	0.00	C180A	84.33	84.33	0.00	84.33	0.00	88.63	88.63	0.00	88.63	0.00	100	100			
KRLC212	67.47	67.47	0.00	67.47	0.00						C212C	67.47	67.47	0.00	67.47	0.00	68.33	68.33	0.00	68.33	0.00	100	100	Yes		
KRLC212											C212B	68.33	68.33	0.00	68.33	0.00	69.28	69.28	0.00	69.28	0.00	100	100	Yes		
KRLC212						73.30	73.30	0.00	73.30	0.00	C212A	69.28	69.28	0.00	69.28	0.00	73.30	73.30	0.00	73.30	0.00	100	100			
KRLG5S5	57.38	57.38	0.00	57.38	0.00						G5S5D	57.38	57.38	0.00	57.38	0.00	57.64	57.64	0.00	57.64	0.00	100	100			
KRLG5S5											G5S5C	57.64	57.64	0.00	57.64	0.00	57.79	57.79	0.00	57.79	0.00	100	100	Yes		
KRLG5S5											G5S5B	57.79	57.79	0.00	57.79	0.00	59.00	59.00	0.00	59.00	0.00	100	100	Yes		
KRLG5S5						62.70	62.70	0.00	62.70	0.00	G5S5A	59.00	59.00	0.00	59.00	0.00	62.70	62.70	0.00	62.70	0.00	100	100			
KRLSAS01	49.30	49.30	0.00	49.30	0.00						SAS01F	49.30	49.30	0.00	-	-	50.05	50.05	0.00	-	-	100	100	Yes		Not in quality model
KRLSAS01											SAS01E	50.05	50.05	0.00	-	-	52.59	52.59	0.00	-	-	100	100	Yes		
KRLSAS01						55.20	55.20	0.00	55.20	0.00	SAS01D	52.59	52.59	0.00	-	-	55.20	55.20	0.00	-	-	100	100			
Number	**194**	**112**	**112**	**112**	**112**	**112**	**112**	**112**	**112**	**112**	**359**	**356**	**360**	**356**	**360**	**360**	**356**	**360**	**356**	**360**	**360**	**360**	**360**	**178**	**7**	

Table A-3: Inherent Moisture (%) and Calorific Value (MJ/kg) per Sample

Drill Hole	Sample Name	Inherent Moisture (%)					Calorific Value (MJ/kg)					Comment
		Original	GDB	Original - GDB	Model	GDB - Model	Original	GDB	Original - GDB	Model	GDB - Model	
KRL0250	0250E	-	4.70	-	4.70	0.00	-	17.01	-	17.01	0.00	No original log
KRL0250	0250D	-	5.10	-	5.10	0.00	-	17.28	-	17.28	0.00	No original log
KRL0250	0250C	-	6.10	-	6.10	0.00	-	22.40	-	22.40	0.00	No original log
KRL0250	0250B	-	6.20	-	6.20	0.00	-	23.90	-	23.90	0.00	No original log
KRL0327	0327D	-	2.50	-	2.50	0.00	-	6.59	-	6.59	0.00	No qualities in original log
KRL0327	0327C	-	3.50	-	3.50	0.00	12.23	12.22	0.01	12.22	0.00	Only ash and CV[1] reported in original log; CV[1] converted from lb/lb to MJ/kg by SRK
KRL0327	0327B	-	5.10	-	5.10	0.00	22.51	22.49	0.02	22.49	0.00	Only ash and CV[1] reported in original log
KRL0327	0327A	-	5.20	-	6.00	-0.80	24.49	24.53	-0.04	24.49	0.04	Only ash and CV[1] reported in original log; model moisture value to be checked
KRL1415	1415F	-	-	-	-	-	-	-	-	-	-	Sample missing from GDB
KRL1415	1415E	4.00	4.00	0.00	3.99	0.01	16.28	16.28	0.00	16.28	0.00	
KRL1415	1415D	-	1.00	-	1.00	0.00	-	2.98	-	2.98	0.00	
KRL1415	1415C	-	4.00	-	3.99	0.01	-	16.28	-	16.28	0.00	
KRL1415	1415B	-	0.00	-	0.00	0.00	-	0.00	-	0.00	0.00	Standard Parting Code 1 values
KRL1415	1415A	5.70	5.70	0.00	5.71	-0.01	21.82	21.82	0.00	21.82	0.00	
KRL3157	3157B	-	4.60	-	4.56	0.04	-	19.62	-	19.62	0.00	No original log
KRL3157	3157A	-	4.90	-	4.87	0.03	-	21.99	-	21.99	0.00	No original log
KRL3165	3165B	-	4.60	-	4.55	0.05	-	17.18	-	17.18	0.00	No original log
KRL3165	3165A	-	5.70	-	5.66	0.04	-	24.66	-	24.66	0.00	No original log
KRL3184	3184B	-	4.90	-	4.90	0.00	-	16.91	-	16.91	0.00	No original log
KRL3184	3184A	-	5.30	-	5.30	0.00	-	21.20	-	21.20	0.00	No original log
KRL3307	3307C	-	4.90	-	-	-	-	16.72	-	-	-	No original log; not in quality model database
KRL3307	3307B	-	6.10	-	-	-	-	19.70	-	-	-	No original log; not in quality model database
KRL3307	3307A	-	6.00	-	-	-	-	21.82	-	-	-	No original log; not in quality model database
KRL3371	3371C	-	4.00	-	4.00	0.00	-	18.69	-	18.69	0.00	No original log
KRL3371	3371B	-	4.50	-	4.50	0.00	-	24.69	-	24.69	0.00	No original log
KRL3371	3371A	-	4.80	-	4.80	0.00	-	24.47	-	24.47	0.00	No original log
KRL3532	3532C	-	4.70	-	4.70	0.00	-	15.27	-	15.27	0.00	No original log
KRL3532	3532B	-	6.10	-	6.10	0.00	-	17.30	-	17.30	0.00	No original log
KRL3532	3532A	-	6.50	-	6.50	0.00	-	18.92	-	18.92	0.00	No original log
KRL3535	3535C	-	7.20	-	7.20	0.00	-	23.71	-	23.71	0.00	No original log
KRL3535	3535B	-	5.80	-	5.80	0.00	-	15.86	-	15.86	0.00	No original log
KRL3535	3535A	-	6.70	-	6.70	0.00	-	19.50	-	19.50	0.00	No original log
KRL3536	3536C	-	5.90	-	5.90	0.00	-	20.02	-	20.02	0.00	No original log
KRL3536	3536B	-	5.90	-	5.90	0.00	-	17.54	-	17.54	0.00	No original log
KRL3536	3536A	-	6.40	-	6.40	0.00	-	19.89	-	19.89	0.00	No original log
KRL3537	3537C	-	4.70	-	4.70	0.00	-	16.96	-	16.96	0.00	No original log

Drill Hole	Sample Name	Inherent Moisture (%)					Calorific Value (MJ/kg)					Comment
		Original	GDB	Original - GDB	Model	GDB - Model	Original	GDB	Original - GDB	Model	GDB - Model	
KRL3537	3537B	-	5.40	-	5.40	0.00	-	15.01	-	15.01	0.00	No original log
KRL3537	3537A	-	6.10	-	6.10	0.00	-	19.16	-	19.16	0.00	No original log
KRL4935	4935C	-	-	-	-	-	-	-	-	-	-	No original log, GDB data; not in quality model database
KRL4935	4935B	-	-	-	-	-	-	-	-	-	-	No original log, GDB data; not in quality model database
KRL4935	4935A	-	-	-	-	-	-	-	-	-	-	No original log, GDB data; not in quality model database
KRL4936	4936E	-	4.00	-	4.02	-0.02	-	18.63	-	18.63	0.00	No original log
KRL4936	4936D	-	5.10	-	5.14	-0.04	-	21.39	-	21.39	0.00	No original log
KRL5028	5028B	-	5.90	-	5.90	0.00	-	17.69	-	17.69	0.00	No original log
KRL5028	5028A	-	7.00	-	7.00	0.00	-	23.04	-	23.04	0.00	No original log
KRL5055	5055B	3.90	3.90	0.00	3.90	0.00	14.98	14.98	0.00	14.98	0.00	
KRL5055	5055A	6.10	6.10	0.00	6.10	0.00	23.28	23.28	0.00	23.28	0.00	
KRL5058	5058D	5.00	5.00	0.00	5.00	0.00	20.62	20.62	0.00	20.62	0.00	
KRL5058	5058C	2.90	2.90	0.00	2.90	0.00	9.68	9.68	0.00	9.68	0.00	50% Siltstone & carbonaceous dark banded sandstone
KRL5058	5058B	4.00	4.00	0.00	4.00	0.00	13.70	13.70	0.00	13.70	0.00	
KRL5058	5058A	5.80	5.80	0.00	5.80	0.00	24.59	24.59	0.00	24.59	0.00	
KRL5067	5067B	-	4.90	-	4.90	0.00	-	15.02	-	15.02	0.00	No original log
KRL5067	5067A	-	6.10	-	6.10	0.00	-	21.53	-	21.53	0.00	No original log
KRL5093	5093E	-	5.20	-	5.20	0.00	-	16.89	-	16.89	0.00	No original log
KRL5093	5093C	-	-	-	5.60	-	-		-	21.81	-	No original log or GDB quality data
KRL5093	5093M	-	6.10	-	-	-	-	21.95	-	-	-	No original log; not in quality model database
KRL5093	5093B	-	6.40	-	6.40	0.00	-	22.10	-	22.18	-0.08	No original log; not in quality model database
KRL5093	5093A	-	1.50	-	-	-	-	2.00	-	-	-	Sandstone; excluded from seam; not in model
KRL5476	5476H	-	4.60	-	4.60	0.00	-	19.75	-	19.75	0.00	No original log
KRL5476	5476G	-	4.80	-	4.80	0.00	-	15.52	-	15.52	0.00	No original log
KRL5476	5476F	-	5.90	-	5.90	0.00	-	20.07	-	20.07	0.00	No original log
KRL5476	5476E	-	2.80	-	2.80	0.00	-	4.13	-	4.13	0.00	No original log; siltstone
KRL5476	5476D	-	5.90	-	5.90	0.00	-	19.77	-	19.77	0.00	No original log
KRL5476	5476C	-	6.30	-	6.40	-0.10	-	23.79	-	23.79	0.00	No original log
KRL5478	5478H	-	4.80	-	4.80	0.00	-	25.76	-	25.76	0.00	No original log
KRL5478	5478G	-	3.90	-	3.90	0.00	-	14.90	-	14.90	0.00	No original log
KRL5478	5478F	-	4.90	-	4.90	0.00	-	20.50	-	20.50	0.00	No original log
KRL5478	5478E	-	2.80	-	2.80	0.00	-	5.50	-	5.50	0.00	No original log; siltstone
KRL5478	5478D	-	4.90	-	4.90	0.00	-	20.53	-	20.53	0.00	No original log
KRL5478	5478C	-	5.70	-	5.70	0.00	-	23.94	-	23.94	0.00	No original log
KRL5569	5569E	-	4.80	-	4.80	0.00	-	18.24	-	18.24	0.00	No original log
KRL5569	5569D	-	4.00	-	4.00	0.00	-	12.03	-	12.03	0.00	No original log
KRL5569	5569C	-	3.40	-	3.40	0.00	-	7.27	-	7.27	0.00	No original log; siltstone
KRL5569	5569B	-	5.80	-	5.80	0.00	-	20.73	-	20.73	0.00	No original log
KRL5569	5569A	-	5.50	-	5.50	0.00	-	24.17	-	24.17	0.00	No original log

Drill Hole	Sample Name	Inherent Moisture (%)					Calorific Value (MJ/kg)					Comment
		Original	GDB	Original - GDB	Model	GDB - Model	Original	GDB	Original - GDB	Model	GDB - Model	
KRL5628	5628C	-	6.60	-	6.60	0.00	-	22.16	-	22.16	0.00	No original log
KRL5628	5628B	-	5.10	-	5.10	0.00	-	16.45	-	16.45	0.00	No original log
KRL5628	5628A	-	6.50	-	6.50	0.00	-	23.81	-	23.81	0.00	No original log
KRL5630	5630C	-	5.70	-	5.70	0.00	-	19.10	-	19.10	0.00	No original log
KRL5630	5630B	-	5.60	-	5.60	0.00	-	17.60	-	17.60	0.00	No original log
KRL5630	5630A	-	6.20	-	6.20	0.00	-	22.40	-	22.40	0.00	No original log
KRL5657	5657D	-	5.00	-	5.00	0.00	-	17.77	-	17.77	0.00	No original log
KRL5657	5657C	-	4.90	-	4.90	0.00	-	14.42	-	14.42	0.00	No original log
KRL5657	5657B	-	5.60	-	5.60	0.00	-	20.73	-	20.73	0.00	No original log
KRL5657	5657A	-	6.00	-	6.00	0.00	-	23.47	-	23.47	0.00	No original log
KRL5659	5659C	-	6.60	-	6.60	0.00	-	24.60	-	24.60	0.00	No original log
KRL5659	5659B	-	4.80	-	4.80	0.00	-	16.00	-	16.00	0.00	No original log
KRL5659	5659A	-	6.00	-	6.00	0.00	-	23.30	-	23.30	0.00	No original log
KRL5668	5668C	-	5.60	-	5.60	0.00	-	25.90	-	25.90	0.00	No original log
KRL5668	5668B	-	4.00	-	4.00	0.00	-	13.60	-	13.60	0.00	No original log
KRL5668	5668A	-	5.80	-	5.80	0.00	-	23.40	-	23.40	0.00	No original log
KRL5673	5673D	-	5.40	-	5.40	0.00	-	17.28	-	17.28	0.00	No original log
KRL5673	5673C	-	5.00	-	5.00	0.00	-	13.77	-	13.77	0.00	No original log
KRL5673	5673B	-	6.50	-	6.50	0.00	-	22.64	-	22.64	0.00	No original log
KRL5673	5673A	-	6.70	-	6.70	0.00	-	24.65	-	24.65	0.00	No original log
KRL5674	5674C	-	5.20	-	5.20	0.00	-	20.88	-	20.88	0.00	No original log
KRL5674	5674B	-	4.10	-	4.10	0.00	-	12.99	-	12.99	0.00	No original log
KRL5674	5674A	-	6.40	-	6.40	0.00	-	23.58	-	23.58	0.00	No original log
KRL5692	5692C	-	4.00	-	4.00	0.00	-	13.60	-	13.60	0.00	No original log
KRL5692	5692B	-	4.80	-	4.80	0.00	-	15.80	-	15.80	0.00	No original log
KRL5692	5692A	-	6.00	-	6.00	0.00	-	22.00	-	22.00	0.00	No original log
KRL5768	5768D	-	5.10	-	5.08	0.02	-	24.22	-	24.22	0.00	No original log
KRL5768	5768C	-	3.40	-	3.43	-0.03	-	14.33	-	14.33	0.00	No original log
KRL5768	5768B	-	4.40	-	4.40	0.00	-	15.74	-	15.74	0.00	No original log
KRL5768	5768A	-	5.70	-	5.70	0.00	-	23.17	-	23.17	0.00	No original log
KRL5886	5886D	-	4.50	-	4.49	0.01	-	24.42	-	24.42	0.00	No original log
KRL5886	5886C	-	3.00	-	3.03	-0.03	-	12.60	-	12.60	0.00	No original log
KRL5886	5886B	-	4.10	-	4.10	0.00	-	14.68	-	14.68	0.00	No original log
KRL5886	5886A	-	5.10	-	5.09	0.01	-	23.82	-	23.82	0.00	No original log
KRL6123	6123D	-	3.20	-	3.22	-0.02	-	20.38	-	20.38	0.00	No original log
KRL6123	6123C	-	2.80	-	2.82	-0.02	-	14.37	-	14.37	0.00	No original log
KRL6123	6123B	-	3.20	-	3.23	-0.03	-	15.23	-	15.23	0.00	No original log
KRL6123	6123A	-	3.90	-	3.93	-0.03	-	23.04	-	23.04	0.00	No original log
KRL6209	6209D	-	5.20	-	5.21	-0.01	-	21.55	-	21.55	0.00	No original log

Drill Hole	Sample Name	Inherent Moisture (%)					Calorific Value (MJ/kg)					Comment
		Original	GDB	Original - GDB	Model	GDB - Model	Original	GDB	Original - GDB	Model	GDB - Model	
KRL6209	6209C	-	3.70	-	3.73	-0.03	-	13.45	-	13.45	0.00	No original log
KRL6209	6209B	-	4.30	-	4.25	0.05	-	13.85	-	13.85	0.00	No original log
KRL6209	6209A	-	5.80	-	5.84	-0.04	-	22.87	-	22.87	0.00	No original log
KRL6920Z	6920ZC	-	4.50	-	4.49	0.01	-	23.05	-	23.05	0.00	
KRL6920Z	6920ZB	-	5.20	-	5.20	0.00	-	17.31	-	17.31	0.00	
KRL6920Z	6920ZA	-	6.10	-	6.14	-0.04	-	22.10	-	22.10	0.00	
KRL7017	7017D	-	4.10	-	4.11	-0.01	-	12.74	-	12.74	0.00	
KRL7017	7017C	-	3.20	-	3.20	0.00	-	7.66	-	7.66	0.00	
KRL7017	7017B	-	5.20	-	5.24	-0.04	-	17.44	-	17.44	0.00	
KRL7017	7017A	-	5.60	-	5.56	0.04	-	21.99	-	21.99	0.00	
KRL7020	7020C	-	4.80	-	4.81	-0.01	-	17.99	-	17.99	0.00	
KRL7020	7020B	-	4.30	-	4.30	0.00	-	13.40	-	13.40	0.00	
KRL7020	7020A	-	6.20	-	6.20	0.00	-	23.00	-	23.00	0.00	
KRL7072	7072C	-	-	-	5.02	-		-	-	17.82	-	No original log; no GDB quality data; no quality data in model database
KRL7072	7072B	-	-	-	5.08	-		-	-	16.71	-	No original log; no GDB quality data; no quality data in model database
KRL7072	7072A	-	-	-	6.18	-		-	-	22.86	-	No original log; no GDB quality data; no quality data in model database
KRL7075	7075C	-	4.40	-	4.35	0.05	-	17.18	-	17.18	0.00	
KRL7075	7075B	-	4.60	-	4.59	0.01	-	14.74	-	14.74	0.00	
KRL7075	7075A	-	6.10	-	6.14	-0.04	-	23.74	-	23.74	0.00	
KRL7121	7121D	-	3.90	-	3.90	0.00	-	23.69	-	23.69	0.00	
KRL7121	7121C	-	2.80	-	2.76	0.04	-	13.45	-	13.45	0.00	
KRL7121	7121B	-	3.60	-	3.57	0.03	-	15.42	-	15.42	0.00	
KRL7121	7121A	-	4.50	-	4.48	0.02	-	23.91	-	23.91	0.00	
KRL7176	7176D	-	4.40	-	4.39	0.01	-	20.95	-	20.95	0.00	
KRL7176	7176C	-	3.50	-	3.50	0.00	-	15.72	-	15.72	0.00	
KRL7176	7176B	-	4.40	-	4.38	0.02	-	16.20	-	16.20	0.00	
KRL7176	7176A	-	5.60	-	5.56	0.04	-	23.14	-	23.14	0.00	
KRL7180	7180C	-	-	-	5.20	-	-	-	-	18.92	-	No qualities in original log or GDB
KRL7180	7180B	-	-	-	4.74	-	-	-	-	14.64	-	No qualities in original log or GDB
KRL7180	7180A	-	-	-	6.66	-	-	-	-	23.46	-	No qualities in original log or GDB
KRL7284	7284C	-	-	-	4.39	-	-	-	-	18.53	-	No qualities in original log or GDB
KRL7284	7284B	-	-	-	4.16	-	-	-	-	13.76	-	No qualities in original log or GDB
KRL7284	7284A	-	-	-	5.40	-	-	-	-	22.42	-	No qualities in original log or GDB
KRL7288	7288C	-	-	-	4.91	-	-	-	-	16.45	-	No qualities in original log or GDB
KRL7288	7288B	-	-	-	5.05	-	-	-	-	14.73	-	No qualities in original log or GDB
KRL7288	7288A	-	-	-	6.87	-	-	-	-	23.45	-	No qualities in original log or GDB
KRL7307	7307C	-	-	-	6.58	-	-	-	-	22.07	-	No qualities in original log or GDB

Drill Hole	Sample Name	Inherent Moisture (%)					Calorific Value (MJ/kg)					Comment
		Original	GDB	Original - GDB	Model	GDB - Model	Original	GDB	Original - GDB	Model	GDB - Model	
KRL7307	7307B	-	-	-	4.96	-	-	-	-	13.83	-	No qualities in original log or GDB
KRL7307	7307A	-	-	-	7.52	-	-	-	-	22.90	-	No qualities in original log or GDB
KRL7338	7338C	-	-	-	4.51	-	-	-	-	16.56	-	No qualities in original log or GDB
KRL7338	7338B	-	-	-	4.52	-	-	-	-	14.19	-	No qualities in original log or GDB
KRL7338	7338A	-	-	-	6.06	-	-	-	-	23.18	-	No qualities in original log or GDB
KRL7388	7388C	-	-	-	4.60	-	-	-	-	19.76	-	No qualities in original log or GDB
KRL7388	7388B	-	-	-	4.05	-	-	-	-	13.57	-	No qualities in original log or GDB
KRL7388	7388A	-	-	-	5.77	-	-	-	-	23.63	-	No qualities in original log or GDB
KRL7394	7394C	-	-	-	5.31	-	-	-	-	18.99	-	No qualities in original log or GDB
KRL7394	7394B	-	-	-	4.68	-	-	-	-	13.24	-	No qualities in original log or GDB
KRL7394	7394A	-	-	-	6.36	-	-	-	-	23.27	-	No qualities in original log or GDB
KRL7418	7418C	-	5.10	-	5.12	-0.02	-	20.62	-	20.62	0.00	
KRL7418	7418B	-	4.50	-	4.50	0.00	-	13.68	-	13.68	0.00	
KRL7418	7418A	-	6.30	-	6.33	-0.03	-	22.26	-	22.26	0.00	
KRL7439	7439C	-	6.50	-	6.55	-0.05	-	21.65	-	21.65	0.00	
KRL7439	7439B	-	5.50	-	5.44	0.06	-	15.06	-	15.06	0.00	
KRL7439	7439A	-	7.50	-	7.48	0.02	-	22.74	-	22.74	0.00	
KRL7520	7520C	-	4.00	-	4.02	-0.02	-	20.57	-	20.57	0.00	
KRL7520	7520B	-	3.30	-	3.29	0.01	-	12.27	-	12.27	0.00	
KRL7520	7520A	-	4.50	-	4.45	0.05	-	21.98	-	21.98	0.00	
KRL7550	7550C	-	4.50	-	4.46	0.04	-	20.25	-	20.25	0.00	
KRL7550	7550B	-	3.90	-	3.86	0.04	-	13.04	-	13.04	0.00	
KRL7550	7550A	-	5.60	-	5.64	-0.04	-	23.48	-	23.48	0.00	
KRL7574	7574C	-	4.40	-	4.38	0.02	-	20.04	-	20.04	0.00	No original log
KRL7574	7574B	-	3.70	-	3.72	-0.02	-	14.35	-	14.35	0.00	No original log
KRL7574	7574A	-	5.10	-	5.08	0.02	-	23.61	-	23.61	0.00	No original log
KRL7595	7595C	-	4.20	-	4.20	0.00	-	18.10	-	18.10	0.00	
KRL7595	7595B	-	3.70	-	3.67	0.03	-	12.72	-	12.72	0.00	
KRL7595	7595A	-	6.00	-	5.95	0.05	-	23.19	-	23.19	0.00	
KRL7598	7598C	-	5.20	-	5.19	0.01	-	20.09	-	20.09	0.00	No original log
KRL7598	7598B	-	4.20	-	4.22	-0.02	-	13.15	-	13.15	0.00	No original log
KRL7598	7598A	-	5.80	-	5.79	0.01	-	22.44	-	22.44	0.00	No original log
KRL7644	7644C	-	5.60	-	5.58	0.02	-	21.73	-	21.73	0.00	
KRL7644	7644B	-	4.60	-	4.51	0.09	-	12.73	-	12.73	0.00	
KRL7644	7644A	-	6.60	-	6.56	0.04	-	22.79	-	22.79	0.00	
KRL7681	7681C	-	5.10	-	5.08	0.02	-	20.64	-	20.64	0.00	
KRL7681	7681B	-	5.20	-	5.15	0.05	-	14.01	-	14.01	0.00	
KRL7681	7681A	-	7.10	-	7.14	-0.04	-	23.95	-	23.95	0.00	
KRL7704	7704C	-	3.50	-	3.50	0.00	-	18.33	-	18.33	0.00	

Drill Hole	Sample Name	Inherent Moisture (%)					Calorific Value (MJ/kg)					Comment
		Original	GDB	Original - GDB	Model	GDB - Model	Original	GDB	Original - GDB	Model	GDB - Model	
KRL7704	7704B	-	3.00	-	2.95	0.05	-	12.31	-	12.31	0.00	
KRL7704	7704A	-	5.30	-	5.25	0.05	-	22.88	-	22.88	0.00	
KRL7708	7708C	-	4.00	-	3.98	0.02	-	18.17	-	18.17	0.00	
KRL7708	7708B	-	5.30	-	5.34	-0.04	-	17.17	-	17.17	0.00	
KRL7708	7708A	-	5.20	-	5.18	0.02	-	22.84	-	22.84	0.00	
KRL7740	7740D	-	5.60	-	5.64	-0.04	-	22.00	-	22.00	0.00	
KRL7740	7740C	-	4.00	-	4.02	-0.02	-	13.82	-	13.82	0.00	
KRL7740	7740B	-	5.10	-	5.09	0.01	-	21.81	-	21.81	0.00	
KRL7740	7740A	-	5.70	-	5.69	0.01	-	23.85	-	23.85	0.00	
KRL7743	7743C	-	5.80	-	5.75	0.05	-	21.94	-	21.94	0.00	
KRL7743	7743B	-	4.50	-	4.49	0.01	-	12.95	-	12.95	0.00	
KRL7743	7743A	-	6.20	-	6.24	-0.04	-	22.80	-	22.80	0.00	
KRL7802	7802C	-	5.20	-	5.24	-0.04	-	19.27	-	19.27	0.00	
KRL7802	7802B	-	4.30	-	4.31	-0.01	-	11.50	-	11.50	0.00	
KRL7802	7802A	-	6.50	-	6.50	0.00	-	22.28	-	22.28	0.00	
KRL7813	7813C	-	5.30	-	5.29	0.01	-	21.01	-	21.01	0.00	
KRL7813	7813B	-	3.70	-	3.69	0.01	-	12.61	-	12.61	0.00	
KRL7813	7813A	-	5.40	-	5.38	0.02	-	23.47	-	23.47	0.00	
KRL7818	7818C	-	4.50	-	4.49	0.01	-	25.63	-	25.63	0.00	
KRL7818	7818B	-	3.20	-	3.15	0.05	-	12.67	-	12.67	0.00	
KRL7818	7818A	-	6.50	-	6.50	0.00	-	22.89	-	22.89	0.00	
KRL7853	7853C	-	4.30	-	4.33	-0.03	-	19.18	-	19.18	0.00	
KRL7853	7853B	-	3.80	-	3.76	0.04	-	11.97	-	11.97	0.00	
KRL7853	7853A	-	5.80	-	5.77	0.03	-	22.86	-	22.86	0.00	
KRL7878	7878C	-	5.40	-	5.38	0.02	-	21.81	-	21.81	0.00	
KRL7878	7878B	-	3.90	-	3.94	-0.04	-	11.51	-	11.51	0.00	
KRL7878	7878A	-	6.80	-	6.83	-0.03	-	24.39	-	24.39	0.00	
KRL7894	7894C	-	5.60	-	5.64	-0.04	-	19.46	-	19.46	0.00	
KRL7894	7894B	-	3.80	-	3.76	0.04	-	10.33	-	10.33	0.00	
KRL7894	7894A	-	5.80	-	5.80	0.00	-	23.26	-	23.26	0.00	
KRL7928	7928C	-	-	-	5.27	-	-	19.26	-	19.26	-	No qualities in original log; no IM in GDB; not in quality model database
KRL7928	7928B	-	-	-	4.01	-	-	9.64	-	9.64	-	No qualities in original log; no IM in GDB; not in quality model database
KRL7928	7928A	-	-	-	6.21	-	-	23.07	-	23.07	-	No qualities in original log; no IM in GDB; not in quality model database
KRL7930	7930C	-	5.30	-	5.31	-0.01	-	22.42	-	22.42	0.00	
KRL7930	7930B	-	3.20	-	3.19	0.01	-	12.00	-	12.00	0.00	
KRL7930	7930A	-	6.20	-	6.21	-0.01	-	23.01	-	23.01	0.00	
KRL8255	8255D	-	5.30	-	5.33	-0.03	-	19.48	-	19.48	0.00	

Drill Hole	Sample Name	Inherent Moisture (%)					Calorific Value (MJ/kg)					Comment
		Original	GDB	Original - GDB	Model	GDB - Model	Original	GDB	Original - GDB	Model	GDB - Model	
KRL8255	8255C	-	5.00	-	4.96	0.04	-	14.21	-	14.21	0.00	
KRL8255	8255B	-	6.70	-	6.65	0.05	-	23.07	-	23.07	0.00	
KRL8255	8255A	-	5.80	-	5.81	-0.01	-	22.11	-	22.11	0.00	
KRL8267	8267C	-	5.50	-	5.54	-0.04	-	18.96	-	18.96	0.00	
KRL8267	8267B	-	4.40	-	4.40	0.00	-	10.89	-	10.89	0.00	
KRL8267	8267A	-	5.90	-	5.86	0.04	-	21.35	-	21.35	0.00	
KRL8311	8311C	-	4.30	-	4.31	-0.01	-	14.07	-	14.07	0.00	
KRL8311	8311B	-	5.00	-	4.99	0.01	-	17.22	-	17.22	0.00	
KRL8311	8311A	-	5.90	-	5.89	0.01	-	23.42	-	23.42	0.00	
KRL8318	8318C	-	-	-	-	-	-	-	-	-	-	No original log, GDB data; not in quality model database
KRL8318	8318B	-	-	-	-	-	-	-	-	-	-	No original log, GDB data; not in quality model database
KRL8318	8318A	-	-	-	-	-	-	-	-	-	-	No original log, GDB data; not in quality model database
KRL8321	8321C	-	5.60	-	5.60	0.00	-	15.22	-	15.22	0.00	
KRL8321	8321B	-	5.30	-	5.30	0.00	-	16.32	-	16.32	0.00	
KRL8321	8321A	-	6.60	-	6.60	0.00	-	22.27	-	22.27	0.00	
KRL8332	8332C	-	4.50	-	4.50	0.00	-	13.91	-	13.91	0.00	
KRL8332	8332B	-	4.80	-	4.80	0.00	-	14.46	-	14.46	0.00	
KRL8332	8332A	-	6.20	-	6.20	0.00	-	22.86	-	22.86	0.00	
KRL8348	8348D	-	6.80	-	6.81	-0.01	-	23.69	-	23.69	0.00	
KRL8348	8348C	-	6.10	-	6.11	-0.01	-	16.58	-	16.58	0.00	
KRL8348	8348B	-	6.70	-	6.69	0.01	-	21.10	-	21.10	0.00	
KRL8348	8348A	-	7.80	-	7.84	-0.04	-	23.55	-	23.55	0.00	
KRL8411	8411C	-	6.40	-	6.38	0.02	-	24.12	-	24.12	0.00	
KRL8411	8411B	-	4.40	-	4.38	0.02	-	12.87	-	12.87	0.00	
KRL8411	8411A	-	6.80	-	6.80	0.00	-	22.90	-	22.90	0.00	
KRL8416	8416C	-	3.20	-	3.18	0.02	-	18.58	-	18.58	0.00	
KRL8416	8416B	-	3.10	-	3.06	0.04	-	13.52	-	13.52	0.00	
KRL8416	8416A	-	3.20	-	3.17	0.03	-	21.64	-	21.64	0.00	
KRL8420	8420C	-	6.10	-	6.05	0.05	-	18.16	-	18.16	0.00	
KRL8420	8420B	-	4.50	-	4.54	-0.04	-	16.02	-	16.02	0.00	
KRL8420	8420A	-	7.50	-	7.46	0.04	-	22.68	-	22.68	0.00	
KRL8451	8451C	-	5.60	-	5.58	0.02	-	17.61	-	17.61	0.00	
KRL8451	8451B	-	6.00	-	6.03	-0.03	-	17.21	-	17.21	0.00	
KRL8451	8451A	-	7.20	-	7.20	0.00	-	23.06	-	23.06	0.00	
KRL8455	8455D	-	4.90	-	4.93	-0.03	-	21.57	-	21.57	0.00	
KRL8455	8455C	-	4.60	-	4.59	0.01	-	15.04	-	15.04	0.00	
KRL8455	8455B	-	5.90	-	5.86	0.04	-	21.19	-	21.19	0.00	
KRL8455	8455A	-	5.70	-	5.69	0.01	-	23.35	-	23.35	0.00	
KRL8480	8480C	-	3.50	-	3.52	-0.02	-	14.07	-	14.07	0.00	

Drill Hole	Sample Name	Inherent Moisture (%)					Calorific Value (MJ/kg)					Comment
		Original	GDB	Original - GDB	Model	GDB - Model	Original	GDB	Original - GDB	Model	GDB - Model	
KRL8480	8480B	-	5.00	-	4.99	0.01	-	17.67	-	17.67	0.00	
KRL8480	8480A	-	5.60	-	5.61	-0.01	-	23.21	-	23.21	0.00	
KRL8492	8492C	-	5.60	-	5.64	-0.04	-	17.46	-	17.46	0.00	
KRL8492	8492B	-	5.60	-	5.55	0.05	-	17.40	-	17.40	0.00	
KRL8492	8492A	-	6.90	-	6.94	-0.04	-	23.55	-	23.55	0.00	
KRL8494	8494C	-	4.10	-	4.14	-0.04	-	15.26	-	15.26	0.00	
KRL8494	8494B	-	4.50	-	4.50	0.00	-	16.70	-	16.70	0.00	
KRL8494	8494A	-	5.50	-	5.49	0.01	-	22.46	-	22.46	0.00	
KRL8498	8498C	-	4.30	-	4.30	0.00	-	14.77	-	14.77	0.00	
KRL8498	8498B	-	5.20	-	5.24	-0.04	-	16.56	-	16.56	0.00	
KRL8498	8498A	-	5.90	-	5.90	0.00	-	23.26	-	23.26	0.00	
KRL8509	8509C	-	4.40	-	4.37	0.03	-	17.42	-	17.42	0.00	
KRL8509	8509B	-	4.80	-	4.79	0.01	-	15.16	-	15.16	0.00	
KRL8509	8509A	-	5.90	-	5.94	-0.04	-	22.48	-	22.48	0.00	
KRL8527	8527C	-	5.40	-	5.37	0.03	-	20.00	-	20.00	0.00	
KRL8527	8527B	-	5.40	-	5.38	0.02	-	17.06	-	17.06	0.00	
KRL8527	8527A	-	6.20	-	6.15	0.05	-	22.87	-	22.87	0.00	
KRL8529	8529C	-	5.70	-	5.67	0.03	-	17.90	-	17.90	0.00	
KRL8529	8529B	-	5.70	-	5.70	0.00	-	18.10	-	18.10	0.00	
KRL8529	8529A	-	7.00	-	7.02	-0.02	-	22.48	-	22.48	0.00	
KRL8558	8558C	-	4.20	-	4.20	0.00	-	14.71	-	14.71	0.00	
KRL8558	8558B	-	4.30	-	4.34	-0.04	-	15.92	-	15.92	0.00	
KRL8558	8558A	-	5.70	-	5.74	-0.04	-	22.92	-	22.92	0.00	
KRL8561	8561C	-	3.90	-	3.89	0.01	-	13.04	-	13.04	0.00	
KRL8561	8561B	-	5.20	-	5.16	0.04	-	17.65	-	17.65	0.00	
KRL8561	8561A	-	6.00	-	6.03	-0.03	-	22.33	-	22.33	0.00	
KRL8563	8563C	-	3.50	-	3.48	0.02	-	9.65	-	9.65	0.00	
KRL8563	8563B	-	5.20	-	5.15	0.05	-	16.90	-	16.90	0.00	
KRL8563	8563A	-	6.40	-	6.41	-0.01	-	22.90	-	22.90	0.00	
KRL8566	8566C	-	4.50	-	4.50	0.00	-	16.30	-	16.30	0.00	
KRL8566	8566B	-	5.60	-	5.55	0.05	-	17.57	-	17.57	0.00	
KRL8566	8566A	-	6.60	-	6.60	0.00	-	22.69	-	22.69	0.00	
KRL8577	8577C	-	4.80	-	4.78	0.02	-	16.91	-	16.91	0.00	
KRL8577	8577B	-	5.00	-	5.04	-0.04	-	12.39	-	12.39	0.00	
KRL8577	8577A	-	6.80	-	6.75	0.05	-	23.14	-	23.14	0.00	
KRL8581	7748C	-	-	-	-	-	-	-	-	-	-	No qualities in OL, GDB or model
KRL8581	7748B	-	-	-	-	-	-	-	-	-	-	No qualities in OL, GDB or model
KRL8581	7748A	-	-	-	-	-	-	-	-	-	-	No qualities in OL, GDB or model
KRL8634	8634C	-	4.30	-	4.26	0.04	-	15.58	-	15.58	0.00	

Drill Hole	Sample Name	Inherent Moisture (%)					Calorific Value (MJ/kg)					Calorific Value (MJ/kg)
		Original	GDB	Original - GDB	Model	GDB - Model	Original	GDB	Original - GDB	Model	GDB - Model	
KRL8634	8634B	-	5.00	-	4.96	0.04	-	17.73	-	17.73	0.00	
KRL8634	8634A	-	5.90	-	5.90	0.00	-	23.17	-	23.17	0.00	
KRL8647	8647C	-	4.00	-	4.00	0.00	-	11.42	-	11.42	0.00	No original log
KRL8647	8647B	-	5.40	-	5.40	0.00	-	15.70	-	15.70	0.00	No original log
KRL8647	8647A	-	6.40	-	6.40	0.00	-	23.05	-	23.05	0.00	No original log
KRL8654	8654C	-	5.40	-	5.43	-0.03	-	16.37	-	16.37	0.00	
KRL8654	8654B	-	6.00	-	6.03	-0.03	-	18.62	-	18.62	0.00	
KRL8654	8654A	-	6.90	-	6.85	0.05	-	22.69	-	22.69	0.00	
KRL8657	8657C	-	4.80	-	4.80	0.00	-	16.22	-	16.22	0.00	No original log
KRL8657	8657B	-	5.60	-	5.60	0.00	-	18.11	-	18.11	0.00	No original log
KRL8657	8657A	-	6.10	-	6.10	0.00	-	22.72	-	22.72	0.00	No original log
KRL8659	8659C	-	4.70	-	4.70	0.00	-	18.43	-	18.43	0.00	
KRL8659	8659B	-	5.00	-	5.00	0.00	-	17.63	-	17.63	0.00	
KRL8659	8659A	-	6.30	-	6.30	0.00	-	22.80	-	22.80	0.00	
KRL10019	10019C	-	5.30	-	5.30	0.00	-	18.38	-	18.38	0.00	
KRL10019	10019B	-	4.90	-	4.90	0.00	-	14.37	-	14.37	0.00	
KRL10019	10019A	-	5.10	-	-	-	-	15.69	-	-	-	No original log; not in quality model database
KRLA046	A046E	-	3.20	-	3.20	0.00	-	11.94	-	11.94	0.00	No original log
KRLA046	A046D	-	3.60	-	3.59	0.01	-	17.41	-	17.41	0.00	No original log
KRLA046	A046C	-	6.20	-	6.15	0.05	-	22.29	-	22.29	0.00	No original log
KRLB041	B041C	-	3.60	-	3.64	-0.04	-	8.93	-	8.93	0.00	
KRLB041	B041B	-	5.50	-	5.47	0.03	-	17.58	-	17.58	0.00	
KRLB041	B041A	-	6.70	-	6.70	0.00	-	22.50	-	22.50	0.00	
KRLB044	B044C	-	3.90	-	3.88	0.02	-	15.24	-	15.24	0.00	
KRLB044	B044B	-	4.70	-	4.67	0.03	-	17.99	-	17.99	0.00	
KRLB044	B044A	-	5.20	-	5.24	-0.04	-	22.86	-	22.86	0.00	
KRLB067	B067C	-	3.80	-	3.84	-0.04	-	14.24	-	14.24	0.00	
KRLB067	B067B	-	4.80	-	4.78	0.02	-	16.91	-	16.91	0.00	
KRLB067	B067A	-	5.80	-	5.82	-0.02	-	22.72	-	22.72	0.00	
KRLC029	C029C	-	3.10	-	3.10	0.00	-	10.67	-	10.67	0.00	
KRLC029	C029B	-	4.40	-	4.40	0.00	-	16.83	-	16.83	0.00	
KRLC029	C029A	-	5.50	-	5.50	0.00	-	22.56	-	22.56	0.00	
KRLC041	C041C	-	4.00	-	3.98	0.02	-	16.72	-	16.72	0.00	
KRLC041	C041B	-	4.60	-	4.58	0.02	-	17.33	-	17.33	0.00	
KRLC041	C041A	-	5.70	-	5.66	0.04	-	23.26	-	23.26	0.00	
KRLC073	C073C	-	4.00	-	4.00	0.00	-	15.18	-	15.18	0.00	
KRLC073	C073B	-	4.70	-	4.70	0.00	-	16.87	-	16.87	0.00	
KRLC073	C073A	-	5.80	-	5.80	0.00	-	23.24	-	23.24	0.00	
KRLC116	C116E	-	5.10	-	5.10	0.00	-	16.85	-	16.85	0.00	

Drill Hole	Sample Name	Inherent Moisture (%)					Calorific Value (MJ/kg)					Comment
		Original	GDB	Original - GDB	Model	GDB - Model	Original	GDB	Original - GDB	Model	GDB - Model	
KRLC116	C116D	-	5.90	-	5.89	0.01	-	17.02	-	17.02	0.00	
KRLC116	C116C	-	6.80	-	6.80	0.00	-	22.86	-	22.86	0.00	
KRLC180	C180C	-	4.30	-	4.27	0.03	-	12.44	-	12.44	0.00	
KRLC180	C180B	-	5.80	-	5.82	-0.02	-	17.37	-	17.37	0.00	
KRLC180	C180A	-	7.10	-	7.12	-0.02	-	22.99	-	22.99	0.00	
KRLC212	C212C	-	3.60	-	3.60	0.00	-	11.60	-	11.60	0.00	
KRLC212	C212B	-	4.90	-	4.90	0.00	-	17.61	-	17.61	0.00	
KRLC212	C212A	-	6.20	-	6.20	0.00	-	22.69	-	22.69	0.00	
KRLG5S5	G5S5D	-	4.70	-	4.74	-0.04	-	20.55	-	20.55	0.00	
KRLG5S5	G5S5C	-	3.60	-	3.56	0.04	-	8.03	-	8.03	0.00	
KRLG5S5	G5S5B	-	4.90	-	4.85	0.05	-	16.22	-	16.22	0.00	
KRLG5S5	G5S5A	-	6.80	-	6.77	0.03	-	22.25	-	22.25	0.00	
KRLSAS01	SAS01F	-	-	-	-	-	-		-	-	-	No original log, GDB data; not in quality model database
KRLSAS01	SAS01E	-	-	-	-	-	-		-	-	-	No original log, GDB data; not in quality model database
KRLSAS01	SAS01D	-	-	-	-	-	-		-	-	-	No original log, GDB data; not in quality model database
Number	**359**	**359**	**359**	**359**	**359**	**359**	**356**	**355**	**359**	**359**	**359**	

Appendix 2: Risk Register and Assessment

Table B-1: Risk Register and Assessment

Item	Discipline	Contributor	Risk Description	Cause Description	Consequence Description	Probability	Consequence	Inherent Risk Rating	Mitigation	Residual Risk Rating	Risk Type
1	Closure	Ray Mayne and James Lake	Insufficient provision for closure	Post closure water treatment requirements of neutral, but high salinity water currently decanting from pits	Increase closure liability not provided for	Likely	High	Extreme	Quantify the water treatment requirements and make provision	Medium	Weak
2	Closure	Ray Mayne and James Lake	Requirements to increase statutory provisions	Uncertainty in regulatory framework	Increase authority provisions potentially sterilising capital	Possible	Moderate	High	Continue providing input into regulatory development and engaging with authorities	High	Resilient
3	Coal Processing	Peter Hand	Overland conveyor outage	Sabotage / mechanical breakdown	Financial	Possible	High	High	Maintenance procedures Conveyor monitoring	Medium	Robust
4	Coal Processing	Peter Hand	Sasol plant capacity reduction	Oil price / economics	Financial	Possible	High	High	Alternative markets	Medium	Robust
5	Electrical Infrastructure	Kenneth Mahuma	Unreliable bulk power supply	Load shedding by Eskom resulting in load curtailment for high power consumers	Disruption to production	Almost certain	Major	Extreme	Co-generation	High	Robust
6	Electrical Infrastructure	Kenneth Mahuma	High power costs	Year on year tariff increases which are above inflation	Higher operating costs than expected	Likely	Moderate	High	Introduce energy efficiency programmes, co-generation	Medium	Robust
7	Electrical Infrastructure	Kenneth Mahuma	Extended power failures to the infrastructure minisubs (stores, minisubs)	Radial feeder allowed for instead of redundant supply	Prolonged power failures	Unlikely	Minor	Low	Introduction of redundant supply	Low	Resilient
8	Electrical Infrastructure	Kenneth Mahuma	Yearly injection tests schedules not properly followed	Injection testing not done on North Pit Substation No.2 switchgear in 2018	Switchgear failures	Possible	Minor	Medium	Adhere to yearly injection test schedules for early faults detection	Low	Robust
9	Environmental	Ashleigh Maritz and Darryll Kilian	Pollution of environment occurs	Vandalism and theft of rehabilitation/closure infrastructure	Closure obligations not met	Likely	Moderate	High	Monitoring of post closure measures	Medium	Robust
10	Environmental	Ashleigh Maritz and Darryll Kilian	Loss of legal licence to operate	Non-compliance to permit conditions and environmental standards	Directive issued by DMRE	Likely	Moderate	High	The colliery has several action plans in place, including environmental permitting processes in progress, to address the matter. In so doing and once completed, the colliery will no longer be undertaking such activities without appropriate authorisation in place and the risk will fall away. Additionally, there are opportunities and/or formal procedures that the environmental authorities will pursue to address the matter before they would enforce closure of an operation [until such time that the operation complies with the conditions set out by the authorities]. These procedures include, for example, the issuing of pre-directives and/or directives. Furthermore, it is most likely that the colliery will address any steps instructed to them immediately.	Low	Weak
11	Environmental	Ashleigh Maritz and Darryll Kilian	Reputational damage with financial loss	Conducting unauthorised activities	Directive issued by competent authority necessitating stoppage	Possible	Moderate	High	Submit environmental applications for authorisation	Low	Weak
12	Geology	Katherine Black	Unidentified Dykes encountered	Unidentified feeder dykes may be present in the vicinity of the sill in the south of the North Pit	Devolatilised Coal, loss of ROM coal, production delays.	Possible	Minor	Medium	Additional drilling and sample analyses in this area.	Low	Robust
13	Geology	Katherine Black	Increased depth of cover/strip ratio	Increase in depth to seam towards the end of the North Pit	Increase in mining costs	Possible	High	High	Additional drilling to confirm the depth of cover and topographic surface elevation, review of economic cut-off parameters	Low	Weak
14	Geotechnical	Des Mossop	Highwall instability occurs	Slope failure along structure or through weak rock mass, due to poor limit blasting, water pressure, unfavourable geological structure, poor rock mass	Injury to personnel, loss of life, damage to equipment, production losses	Possible	High	High	Slope design analyses per strip, slope stability monitoring and alarming by slope stability radar, drainage and water management programme	Medium	Robust
15	Geotechnical	Des Mossop	Low wall instability occurs	Spoils slope failure due to undermining on the low wall profile, foundation failure, water pressure in spoils	Injury to personnel, loss of life, damage to equipment, production losses	Possible	High	High	Low wall design analysis per strip, inspections, slope stability monitoring, foundation preparation, drainage	Medium	Robust
16	Geotechnical	Des Mossop	Rockfall occurs from highwall or crest	Loose rock falling from highwall or crest due to rainfall, wind, mining vibration (incl. blasting)	Injury to personnel, loss of life, damage to equipment, production losses	Possible	High	High	Protective berms at highwall toe and highwall exclusion zone	Medium	Robust
17	Geotechnical and Hydrogeology	Des Mossop	Flooding of the mining area	Restricted pit access and negative impact on slope stability	Injury to personnel and/or damage to equipment	Possible	High	High	Installation of pumps, construction and maintenance of in-pit drainage, landscaping of surface to facilitate drainage away from the mining area	Medium	Robust

Item	Discipline	Contributor	Risk Description	Cause Description	Consequence Description	Probability	Consequence	Inherent Risk Rating	Mitigation	Residual Risk Rating	Risk Type
18	Geotechnical and Mining	Des Mossop	Open holes, such as blast holes or sinkholes	Personnel falling into open holes resulting from drilling activities and the formation of sinkholes	Injury to personnel	Possible	Moderate	High	Identified areas to be demarcated or barricaded, fill up all known sinkholes as soon as possible according to sinkhole procedure	Low	Weak
19	Geotechnical and Mining	Des Mossop	Material frozen against highwall due to ineffective pre-split	Frozen material resulting in elevated rockfall risk and frozen coal reserves	Reduced NPV for the current strip	Likely	Moderate	High	Limit blasting optimisation programme	Low	Weak
20	Hydrology and Hydrogeology	Benedict Mabenge	Decant from backfill spoils	Lack of adequate rehabilitation	Damage to downstream water resources	Possible	High	High	Maintain pumping to keep groundwater levels low	Medium	Robust
21	Hydrology and Hydrogeology	Benedict Mabenge	Groundwater contamination	Interaction of water with exposed contaminants during mining	Damage to downstream water resources	Possible	High	High	Ensure adequate dewatering	Medium	Robust
22	Hydrology and Hydrogeology	Benedict Mabenge	Ingress of large volumes of water into workings from surface dams	Over filling of dams and damage to dam structure	Disruption to production, damage to equipment, increased costs, safety incidents	Possible	Moderate	High	Routine dam maintenance, implement integrated water management strategy	Low	Weak
23	Hydrology and Hydrogeology	Benedict Mabenge	Depletion of groundwater resources	Abstraction for dewatering	Reduced water supply for irrigation, livestock and domestic purposes	Possible	Moderate	High	Routine groundwater level monitoring, updates to numerical model, integrated water management	Medium	Robust
24	Hydrology and Hydrogeology	Bjanka Korb	Dirty water discharge from mine	Net excess water in mine	Environmental pollution occurs, Damage to reputation, Penalties	Possible	High	High	Construction of a water treatment plant to treat dirty water and discharge it into the environment.	High	Resilient
25	Hydrology and Hydrogeology	Bjanka Korb	Dam failure occurs	Not implementing recommendations in Dam Safety Inspection Reports	Damage to environment, Pit becomes flooded, Dam needs to be rehabilitated / re-established, Damage to reputation	Possible	Major	Extreme	Implement recommendations in Dam Safety Inspection Reports	High	Robust
26	Mechanical Infrastructure	Willie Schoeman	Dragline slips into the pit	Pad failure or subsidence	Production losses, machine damage	Unlikely	High	High	Monitor and repair cracks and wear	Medium	Robust
27	Mechanical Infrastructure	Willie Schoeman	Dragline or shovel fire occurs	Friction, electrical or human error	Production losses, machine damage	Possible	Moderate	High	Maintain fire detection and protection systems	Low	Weak
28	Mechanical Infrastructure	Willie Schoeman	Dragline boom failure occurs	Accident or structural failure	Production losses, machine damage	Unlikely	Minor	Low	Regular inspections, training	Low	Resilient
29	Mechanical Infrastructure	Willie Schoeman	Loss of conveyors, workshops or plant	Spontaneous, electrical faults, machine failure, fire	Building and facility losses. Disruption to production	Unlikely	Moderate	Medium	Fire detection and protection, planned maintenance	Low	Robust
30	Mechanical Infrastructure	Willie Schoeman	Flooding of pit occurs	Heavy rainfall, inundation of pumps, dam failure spilling into pit	Production losses, machine damage	Possible	High	High	Maintain emergency stand-by pumps and procedures	Low	Weak
31	Mine planning	LeRoux Botha	Incorrect transfer of the current resource model to the mine planning group	Poor document and version control, unauthorised access and editing rights	Unauthorised changes to the data and incorrect model data	Possible	Moderate	High	The resource model and geological interpretation have been documented and provided on a shared directory with access and editing rights controlled by a formal process (As per standard AAC SD 23-35-105)	Low	Weak
32	Mine planning	LeRoux Botha	Inappropriate block dimensions used for generating mineable reserves	Methods for most appropriate mining of reserves not correctly documented	Incorrect planning and calculation of production volumes	Possible	Minor	Medium	Selective mining unit ("SMU") dimensions documented (As per AAC SD 23-33-002, LOM planning process)	Low	Robust
33	Mine planning	LeRoux Botha	The cut-off grade/quality applied to estimate the Reserves does not confirm with AAC standards	Criteria not documented and reported.	Incorrect grades and qualities applied to the reserves resulting in unconfirmed reserve statement	Possible	Minor	Medium	Apply cut-off grades / qualities as per AAC SD 23-33-002 LOM planning process	Low	Robust
34	Mine planning	LeRoux Botha	Incorrect mining dilution and ore losses applied to the reserve model	Dilution and losses not justified and documented and available for audit	unauditable dilution and losses applied in the reserve model	Possible	Minor	Medium	Apply dilution and losses as per AAC SD 23-33-002 LOM planning process	Low	Robust
35	Mine planning	LeRoux Botha	The reserve is not classified in accordance with the relevant reporting code	The classification is done without reference to the relevant reporting code	Reserve cannot be signed-off in accordance with the relevant reporting code	Unlikely	Moderate	Medium	Apply mining limits as per AAC SD 23-33-002 LOM planning process	Low	Robust
36	Mine planning	LeRoux Botha	Poor reconciliation between Reserve estimates and actual production results	No formal reconciliation process between actual and planned extraction and processing	Incorrect Reserve estimation	Unlikely	Moderate	Medium	Classify reserve as per AAC SD 23-33-002 LOM planning process	Low	Robust
37	Mine planning	LeRoux Botha	The Resource development plan has not been developed or is inconsistent with AAC approved strategies	Resource development does not take AAC strategies into account	unaligned LOM outcomes	Unlikely	Moderate	Medium	Formalise reconciliation process as per AAC SD 23-33-002 LOM planning process	Low	Robust

Item	Discipline	Contributor	Risk Description	Cause Description	Consequence Description	Probability	Consequence	Inherent Risk Rating	Mitigation	Residual Risk Rating	Risk Type
38	Mine planning	LeRoux Botha	A LOM plan is not available that ensures the operation is planned to meet the AAC environmental, health, safety and community commitments	Plan is not current Design criteria not based on sound engineering and technical studies	LOM plan does not meet AAC HSEC commitments The LOM plan incorporates a production / extraction schedule The LOM plan incorporates HSEC considerations, incorporates AAC standards and site specific issues The LOM plan incorporates waste management The LOM plan incorporates a closure plan	Unlikely	Moderate	Medium	a minimum control standard will be developed to align the overall AAC strategy with the LOM plan	Low	Robust
39	Mine planning	LeRoux Botha	Business decision making is based on incorrect economic and evaluation assumptions	LOM plan does not consider corporate pricing and other economic assumptions	Incorrect financial model	Rare	High	Medium	LOM plan is current, available and mine design criteria and key design parameters and constraints are defined and based on sound engineering and technical studies	Low	Robust
40	Mine planning	LeRoux Botha	Inappropriate mining limits determined	Mining limits used in modelling not justifiable and auditable	Inappropriate mining limits used in mining model and reporting unauditable planning volumes	Possible	Minor	Medium	The financial model in the LOM plan should be consistent with Corporate pricing and other economic assumptions (Including exchange rates, interest rates, CPI rates, price trends etc.) The financial analyst understands and has complied with corporate business evaluation and economic guidelines and standards for financial analysis and modelling	Low	Robust
41	Mining natural hazards	LeRoux Botha	Geological structure resulting in inaccurate or incorrect tonnage estimates due to unforeseen or poorly defined features such as: High-angle normal faulting High-angle reverse faulting Low-angle strike or thrust faulting Folding Igneous intrusions Poorly defined floor gradient High seam dip Depth of cover	Insufficient exploration borehole density	Incorrect tonnage estimates Loss of ground Loss of tonnage Extraction delays increased costs	Rare	Minor	Low	Increase exploration borehole density. Include all available geophysical techniques during exploration	Low	Resilient
42	Mining natural hazards	LeRoux Botha	Coal seam stratigraphy leading to inaccurate or incorrect tonnage estimates due to unforeseen or poorly defined features such as: Seam thickness Increased parting width Massive sandstone channels in roof Other seam potential lost opportunity	Insufficient exploration borehole density	Increased dilution Decreased product yield Lower profit Increased costs	Rare	Moderate	Medium	Increase exploration borehole density. Include all available geophysical techniques during exploration Grade control program is effective	Low	Robust
43	Mining natural hazards	LeRoux Botha	Limited Geotechnical data	high-wall or low-wall failure OC	Decreased production Equipment damage Safety hazard to personnel	Possible	High	High	Highwall inspection strategy plan	Low	Temperate
44	Mining natural hazards	LeRoux Botha	High levels of unplanned water in the pit	Excessive rainfall Encroaching water tables	Loss of production Equipment damage Safety, environmental issues increased costs	Likely	Minor	Medium	Construct highwall drains ahead of mining face, pre-plan and establish sumps in the pit with associated infrastructure, Maintain a water management plan throughout the year	Low	Robust
45	Mining production	LeRoux Botha	Management does not implement full control over the mine plan	Production is allowed to continue operations without following strict adherence to a mine plan	Inconsistent and unpredictable production outputs	Possible	Moderate	High	An agreed annual operating plan is available. Consistency with the LOM plan, detail is monthly.	Medium	Robust

Item	Discipline	Contributor	Risk Description	Cause Description	Consequence Description	Probability	Consequence	Inherent Risk Rating	Mitigation	Residual Risk Rating	Risk Type
46	Mining production	LeRoux Botha	Mining operation does not conform to the agreed plan	Production does not adhere to the mine plan and process	Inconsistent and unpredictable production outputs	Possible	Moderate	High	Monthly and annual reporting of actual against budget is available and monitored. Geotechnical and hydrological monitoring processes are documented and results are reviewed and reported monthly to ensure safe operating conditions.	Medium	Robust
47	Mining production	LeRoux Botha	The short term plans are not consistent with the annual and long term plans	The short term or long term plan does not consider the other during the planning phase and 'Silo' planning takes place with different goals	Unreconcilable production plans and unpredictable outcomes	Possible	Moderate	High	Production schedules are available on a weekly and monthly basis for both coal and waste in terms of tonnes, quality and final products, are based on the annual plan and a realistic assessment of the short term equipment and fixed plant capability in the specific operating conditions known and predicted.	Low	Temperate
48	Mining production	LeRoux Botha	The production plan is not communicated to operating personnel	Production teams are not part of an integrated planning process	Inconsistent and unpredictable production outputs	Possible	Moderate	High	Surveying processes are documented. Reviewed and plans available. Clear procedures and responsibilities for monitoring and reporting operating plan execution to ensure compliance, including regular visual inspection, meetings and periodic measurements of progress.	Low	Temperate
49	Mining production	LeRoux Botha	The grade control methods used do not provide an appropriate level of information to ensure compliance with the mining plan	No work procedures defining the roles	Unreliable review information affecting the reconciliation process and planning cannot use information to effectively predict forward outputs	Possible	Minor	Medium	Work procedures define acceptable bench conditions and safe access to the grade control area. Documentation of the procedures covering grade control data acquisitioning, modelling, material classification, monitoring and reconciliation, including a formal process for communicating all relevant information to the operations/production crews. A minimum QA/QC procedure in place and used to review the precision and accuracy of samples and sampling methods.	Low	Robust
50	Mining production	LeRoux Botha	Critical data, records are not identified, collected and secured properly to allow compliance with statutory commitments	No competent person and/or high turn-over of responsible personnel. Unauthorised access data. Poor back-up facilities.	Non-conformance to statutory commitments	Rare	High	Medium	A listing of the statutory plans and reporting requirements is maintained by a nominated qualified manager, with responsibility to monitor and trigger actions. Measures ensure that only authorized persons can access and alter information. All critical records are backed up frequently or multiple copies maintained. Version control of data and information exists.	Low	Robust
51	Security	Kenneth Mahuma	Equipment theft along the overland conveyor corridor	Lack of security cameras along the overland conveyor corridor	Disruption to production, damage to equipment	Possible	Minor	Medium	Introduce security cameras and monitor from control room	Low	Robust
52	Social	Jessica Edwards and Vassie Maharaj	Loss of legal and social licence to operate	Delayed submission of the SLP	Directive could be issued by DMRE	Possible	Minor	Medium	Letter was sent to the DMRE	Medium	Resilient
53	Social	Jessica Edwards and Vassie Maharaj	Reputational damage with financial loss occurs	Perceived lack of community benefit and development from mine opportunities	Protest action and work stoppage	Possible	High	High	Implement current policies, management plans and social obligations	Medium	Robust
54	Social	Jessica Edwards and Vassie Maharaj	Delays in social transitioning post closure	Ineffective tracking of obligations	Reputational damage and ongoing dependency on the mine	Likely	High	Extreme	Track social obligations and implement social transitioning measures	High	Robust
55	Social	Jessica Edwards and Vassie Maharaj	Social transitioning post closure not being addressed through existing programmes	Anglo Zimele programme not being implemented	Ongoing dependency on the mine	Possible	High	High	Implement Anglo Zimele or similar ESD programmes	Medium	Robust
56	Social	Jessica Edwards and Vassie Maharaj	Lapsed lease agreements	Ineffective tracking of lease agreements	Potential escalation in lease agreement cost, and loss of surface right access	Possible	Moderate	High	Renegotiate expired lease agreements as soon as possible and proactively track status of lease agreements	Low	Temperate
57	Social	Jessica Edwards and Vassie Maharaj	Unresolved land claim	Resolution of land claim delayed	Potential loss in surface right access	Possible	High	High	Use Joint Land Claims Working Committee meetings to regularly track progress and risk	High	Resilient
58	TEM	Andrew van Zyl	Higher than planned SIB expenditure	Ageing equipment requiring additional maintenance (eventual replacement?)	Reduced margin and NPV (from lower production and higher costs)	Possible	Moderate	High	Carry out preventative maintenance as planned - through to end of life	High	Resilient
59	TEM	Andrew van Zyl	Compensation for Sasol purchasing tonnage	Failure to meet production target	Reduced margin and NPV (from penalties)	Possible	Moderate	High	Tonnage sourced from other mines within the group, possibly not within specification. Meet production targets (adhere to rates and plans)	High	Resilient

Item	Discipline	Contributor	Risk Description	Cause Description	Consequence Description	Probability	Consequence	Inherent Risk Rating	Mitigation	Residual Risk Rating	Risk Type
60	Tenure	Lesley Jeffrey	Failure to procure the surface rights from Mr CJ Greyling	The lease agreement over Portion 22 of the farm Aangewys 81 IS expired on 28 February 2019	No mining can take place on that portion of land, loss of production, loss of revenue	Rare	Major	High	Negotiations for ground in the vicinity of the North Pit have recently been successfully concluded	Low	Weak
61	Tenure	Lesley Jeffrey	Failure to procure the surface secure permission from Eskom to mine the Eskom ground	Negotiations and/or discussions have not yet been initiated	No mining can take place on that portion of land, loss of production, loss of revenue	Rare	Major	High	Negotiations with Eskom will be engaged to finalise permissions [from Eskom] to mine the affected areas	Low	Weak
62	Valuation	Norman McGeorge and Andrew van Zyl	Failure to secure [SSF] contract extension beyond 2025	Unsuccessful negotiations; [mine's] operating costs become too high and SSF chooses alternate supplier	Reduced value and sterilised reserves	Unlikely	Major	High	Seek and secure alternative customers (Eskom: Kriel, Matla and Kendal Power Stations)	Low	Weak

Appendix 3: Certificates of Competent Persons and Competent Valuator

CERTIFICATE OF COMPETENT PERSON

As the co-author and co-signatory of the report entitled “Independent Competent Person’s Report on Isibonelo Colliery”, I hereby state:

1. My name is Lesley Sharon Jeffrey and I am a Principal Geologist with SRK Consulting (South Africa) (Pty) Ltd, with address SRK House, 265 Oxford Road, Illovo, Johannesburg 2196, South Africa.
2. I am a geologist and am registered as a Professional Natural Scientist (Pr.Sci.Nat) (Registration number: 400115/01) through the South African Council for Natural Scientific Professions, a Fellow of the Geological Society of South Africa (Membership number: 35715) and a Member of the Fossil Fuel Foundation of Africa (Membership number: 000451).
3. I have a BSc(Geology) from the University of Cape Town, South Africa in 1984 and an MSc (Mining Engineering) from the University of the Witwatersrand, South Africa in 2002.
4. I have worked as a geologist for over 35 years since graduation, all of which have been in coal specializing in exploration, geological modelling and resource estimation. I am a full-time employee of SRK Consulting (South Africa) (Pty) Ltd, with designation Principal Geologist.
5. I am a ‘Competent Person’ as defined in the SAMREC Code.
6. The information in this report that relates to Exploration Results and Coal Resources is based on information compiled by me.
7. I was personally unable to attend the site visit due to prior commitments and a decision to divide the workload between myself and Ms K. Black. I therefore place reliance for the Isibonelo site visit on 27 November 2019 on the following CPs:
   - Exploration, Geology and Coal Resources: Katherine Black BSc.(Hons) (Geology) 2006, who is a CP for coal with 13 years’ appropriate coal experience; and
   - Mining and Coal Reserves: Norman McGeorge BSc (Mining) 1986 MSc (Mining) 1990, who is a QP for coal with over 30 year’s appropriate coal experience.
8. I am responsible for the reporting of the Coal Resources for Isibonelo Colliery as set out in this CPR.
9. I am not aware of any material fact or material change with respect to the subject matter of the CPR that is not reflected in the CPR, the omission of which would make the CPR misleading.
10. I declare that this CPR appropriately reflects my view.
11. I am independent of the Company.
12. I have read the SAMREC Code (2016), SANS10320:2004 and SANS10320:2020 and confirm that the CPR has been prepared in accordance with guidelines of the SAMREC Code.
13. I do not have, nor do I expect to receive, a direct or indirect interest in the Coal Asset or the Company.
14. At the effective date of the CPR, to the best of my knowledge, information and belief, the CPR contains all scientific and technical information that is required to be disclosed to make the report not misleading.

Dated at 25 March 2021 at Johannesburg, South Africa.

SRK Consulting - Certified Electronic Signature
srk consulting
566627/44278/Report
9034-4622-2388-JEFF-25/03/2021
This signature has been printed digitally. The Author has given permission for its use for this document. The details are stored in the SRK Signature Database

L Jeffrey Pr.Sci.Nat

CERTIFICATE OF COMPETENT PERSON

As the co-author and co-signatory of the report entitled “Independent Competent Person’s Report on Isibonelo Colliery”, I hereby state:

1. My name is Norman McGeorge and I am a Principal Mining Engineer with SRK Consulting (South Africa) (Pty) Ltd, with address SRK House, 265 Oxford Road, Illovo, Johannesburg 2196, South Africa.
2. I am a mining engineer and am registered as a professional engineer (PrEng) (Registration number: 20080141) with the Engineering Council of South Africa. I am a Member of the South African Institute of Mining and Metallurgy.
3. I have a BSc (Mining) from the University of the Witwatersrand, South Africa in 1986 and an MSc (Mining) from the University of the Witwatersrand, South Africa in 1990.
4. I have worked as a mining engineer for over 33 years since graduation. I am a full-time employee of SRK Consulting (South Africa) (Pty) Ltd, with the designation Principal Mining Engineer.
5. I am a ‘Competent Person’ as defined in the SAMREC Code.
6. The information in this report that relates to Coal Reserves is based on information compiled by me.
7. I conducted a site visit to Isibonelo Colliery on 27 November 2019.
8. I am responsible for the reporting of the Coal Reserves for Isibonelo Colliery as set out in this CPR.
9. I am not aware of any material fact or material change with respect to the subject matter of the CPR that is not reflected in the CPR, the omission of which would make the CPR misleading.
10. I declare that this CPR appropriately reflects my view.
11. I am independent of the Company.
12. I have read the SAMREC Code (2016) and confirm that the CPR has been prepared in accordance with guidelines of the SAMREC Code.
13. I directly hold 1 000 shares in Anglo American plc, which is an immaterial interest in Isibonelo or the Company (<0.01%). This shareholding has in no way influenced my objective and independent assessment of the Coal Reserves and the compilation of the CPR.
14. At the effective date of the CPR, to the best of my knowledge, information and belief, the CPR contains all scientific and technical information that is required to be disclosed to make the report not misleading.

Dated at 25 March 2021 at Johannesburg, South Africa.

N McGeorge PrEng

CERTIFICATE OF COMPETENT VALUATOR

As the co-author and co-signatory of the report entitled "Independent Competent Person's Report on Goedehoop Colliery" in support of the proposed listing of the Company, I hereby state:

1. My name is Andrew Tobias van Zyl and I am a Principal Consultant with SRK Consulting (South Africa) (Pty) Ltd, with address SRK House, 265 Oxford Road, Illovo, Johannesburg 2196, South Africa.
2. I am a fellow of the Southern African Institute of Mining and Metallurgy (SAIMM), membership number 705294.
3. I have a B Eng (Chem) (with Mineral Processing) from the University of Stellenbosch (1999) and an M Com (Financial Economics and Econometrics) from the University of Johannesburg (2006). I have practised in the fields of mining and engineering since 2000 and have been valuing mineral projects since 2007. During the past 8 years, I have valued mining and exploration related projects for some of the major stock exchanges.
4. I have worked in mining and engineering for over 20 years since graduation, across a range of minerals and in both production and project roles. I have worked full time in valuation for more than ten years. I am a full-time employee of SRK Consulting (South Africa) (Pty) Ltd, with designation Principal Consultant.
5. I am a 'Competent Valuator' as defined in the SAMVAL Code.
6. The information in this report that relates to valuation is based on information compiled by me.
7. I have personally visited the Mineral Assets of Isibonelo on 5 December 2019.
8. I place reliance for aspects of the valuation on the following CPs:
   - Techno-economic model auditing, tax and royalty calculations: Vanessa Snyman, CA (SA), who has 24 years' experience in Corporate and Project Finance with 13 years' experience advising on coal projects; and
   - Mining and Coal Reserves: Norman McGeorge BSc (Mining) 1986 MSc (Mining) 1990, who is a QP for coal with over 30 year's appropriate coal experience.
9. I am responsible for the valuation of Isibonelo Colliery as set out in this CPR.
10. I am not aware of any material fact or material change with respect to the subject matter of the CPR that is not reflected in the CPR, the omission of which would make the CPR misleading.
11. I declare that this CPR appropriately reflects my view.
12. I am independent of the Company.
13. I have read the SAMREC and SAMVAL Codes (2016) and confirm that the CPR has been prepared in accordance with these guidelines.
14. I do not have, nor do I expect to receive, a direct or indirect interest in the Coal Asset or AOPL.
15. At the effective date of the CPR, to the best of my knowledge, information and belief, the CPR contains all scientific and technical information that is required to be disclosed to make the report not misleading.

Dated at 25 March 2021 at Johannesburg, South Africa.

A van Zyl, FSAIMM

Appendix 4: Compliance Checklist – JSE Listing Rules: Chapter 12

Chapter 12 of JSE Listing Rules				Section in the CPR where this is located
Section				**Isibonelo**
12.9	**(a)**		In addition to the relevant Listings Requirements applicable to pre-listing statements/listings particulars/prospectuses (as per Section 6) or Category 1 circulars (as per Section 9), the following information must be included in such documents where they are required to be prepared by Mineral Companies, and by non-Mineral Companies in respect of substantial mineral assets (i) measured against the purchase or disposal consideration, as the case may be, of the asset in respect of a transaction and (ii) measured against the market capitalisation of the applicant issuer in respect of a new listing:	This report Cover Page Executive Summary, 1.3.1, 18
			a Competent Person's Report, complying with:	
		(i)	the SAMREC and SAMVAL Codes, (which, for purposes of this requirement, includes the guidelines in italics and Appendices and Tables of the SAMREC and SAMVAL Codes); and	
		(ii)	paragraph 12.10 of this section;	
	(b)		details of any direct or indirect beneficial interest, which each director (and his associates), Competent Person, Competent Valuator and, where applicable, related party (as defined in Section 10), has or, within two years of the date of the pre-listing statement, had:	1.6.3
		(i)	in any asset (including any right to explore for minerals):	
		(1)	of the applicant issuer;	
		(2)	which has been acquired or disposed of by, or leased to or by, the applicant issuer, including any interest in the consideration passing to or from the applicant issuer; and	
		(ii)	in the share capital of the applicant issuer;	
	(c)		financial information in terms of Section 8 of the Listing Requirements to the extent that the applicant issuer has a financial history;	2.5.3
	(d)		a statement by the directors regarding any legal proceedings that may have an influence on the rights to explore or mine, or an appropriate negative statement; and	1.6.2
	(e)		confirmation that the applicant issuer, or its group (including companies in which it has investments), is in possession of the necessary legal title or ownership rights to explore, mine or explore and mine the relevant minerals.	1.6.2, 3.3.3
Competent Person's Report				
12.10			A Competent Person's Report must comply with the SAMREC and SAMVAL Codes and must:	
	(a)		have an effective date (being the date at which the contents of the competent Person's Report are valid) less than six months prior to the date of publication of the pre-listing statement, listing particulars, prospectus or Category 1 circular;	Cover Page, Executive Summary, 1.4, 6.8
	(b)		be updated prior to publication of the pre-listing statement, listing particulars, prospectus or Category 1 circular if further material data becomes available after the effective date;	Executive Summary, 1.4.1, 20.17
	(c)		if the Competent Person is not independent of the issuer, clearly disclose the nature of the relationship or interest;	1.6.3
	(d)		show the particular paragraph of this section, the SAMREC Code (including Table 1) and SAMVAL Code (including Appendices and Tables) complied with in the margin of Competent Person's Report;	This table, below section headings, Appendices
	(e)		contain a paragraph stating that all requirements of this section, the SAMREC Code (including Table 1) and SAMVAL Code (including Appendices and Tables) have been complied with, or state that certain clauses in the SAMVAL code were not applicable and provide a list of such clauses; and include a statement detailing:	1.6.2, 5, 5.1.3
		(i)	exploration expenditure incurred to date by the applicant issuer and by other parties, where available;	
		(ii)	planned exploration expenditure that has been committed, but not yet incurred, by the applicant issuer concerned; and	
		(iii)	planned exploration expenditure that has not been committed to by the applicant issuer, but which is expected to be incurred sometime in the future, in sufficient detail to fairly present future expectations;	
	(f)		contain a valuation section which must be completed and signed off by a Competent Valuator in terms of and in compliance with the SAMVAL Code (including Appendices and Tables);	Executive Summary, 18, 21
	(g)		be published in full on the applicant issuer's website;	In full in Listing Documentation
	(h)		be included in the relevant JSE document either in full (which includes incorporation by reference pursuant to paragraph 11.61) or as an executive summary. The executive summary must be approved by the JSE (after approval by the Readers Panel) at the same time as the Competent Person's Report is approved by the JSE and the Readers Panel. The executive summary should be a concise summary of the Competent Person's Report and must cover, at a minimum, where applicable:	Set out below
		(i)	purpose;	Executive Summary, 1.1, 1.2, 1.2.1
		(ii)	project outline;	Executive Summary, 2, 2.1
		(iii)	location map indicating area of interest;	1.1.1, 2, 2.1, Figure 1.2
		(iv)	legal aspects and tenure, including any disputes, risks or impediments;	Executive Summary, 1.6.2, 3, 3.1, 3.3, 3.4.3
		(v)	geological setting description;	Executive Summary, 4
		(vi)	exploration programme and budget;	5
		(vii)	brief description of individual key modifying factors;	7, 9.2,10
		(viii)	brief description of key environmental issues;	Executive Summary, 14, 15
		(ix)	Mineral Resource and Mineral Reserve Statement;	Executive Summary, 6, 8, 9.3, Table 9.2
		(x)	reference to risk paragraph in the full Competent Person's Report;	Executive Summary, 7.6, 9.5, 10.12, 11.3, 11.8, 14.2.5, 14.3.3, 14.4.4, 14.5.4, 15.1.8, 15.2.4, 17.4, 18, 19

Chapter 12 of JSE Listing Rules				Section in the CPR where this is located
Section				**Isibonelo**
12.10	**(h)**	**(xi)**	statement by the Competent Person that the summary is a true reflection of the full Competent Person's Report; and	Not applicable
		(xii)	summary valuation table. Where the cash flow approach has been employed, the valuation summary must include the discount rate(s) applied to calculate the NPV(s) (net present value(s)) per share with reference to the specific paragraph in the Competent Person's Report. If inferred resources are used, show the summary valuation with and without inclusion of such inferred resources.	Executive Summary, 18
Confirmation by Competent Person				
12.11			If an issuer prepares a circular containing resource and reserve information, the Competent Person must confirm to the JSE in writing that the circular contains no contradictions with the Competent Person's Report, prior to the JSE granting approval of the circular pursuant to the provisions of Section 16.	To be completed
Announcements				
12.12	**(a)**		In addition to the other requirements under the Listings Requirements, announcements by Mineral Companies and by non-Mineral Companies in respect of substantial mineral assets must comply with the SAMREC Code insofar as they relate or refer to exploration results, Mineral Resources and Mineral Reserves and comply with the SAMVAL Code insofar as it relates to a valuation of mineral assets and announcements must state the name of the Competent Person/Competent Valuator and that the Competent Person/Competent Valuator:	Executive Summary, 1.6.3, 1.6.4,1.8, 6.8 9.3.3, 18.6
		(i)	has approved the information, in writing, in advance of publication; and	
		(ii)	if the Competent Person/Valuator is not independent of the issuer, clearly disclose the nature of the relationship or interest.	
12.12	**(b)**		The JSE reserves the right to request the detailed information supporting the announced information and submit the same for review by the Readers Panel, at the cost of the applicant issuer concerned, to assess compliance with the SAMREC and SAMVAL Codes. The approval mechanism in this instance is as per paragraph 12.4 above. Any non-compliance with the SAMREC and SAMVAL Codes may result in a restatement and consequent re-publication of the information concerned.	Not applicable

Appendix 5: Compliance Checklist – SAMVAL Code Table 1

	SAMVAL Code TABLE 1		Section in the CPR where this is located
Code	**Criteria**	**Comments**	**Isibonelo**
SV1.0	**General**	The Valuation Report shall contain: The signature of the CV^2; The CV^2's qualifications and experience in valuing mineral properties, or relevant valuation experience; A statement that all facts presented in the report are correct to the best of the CV^2's knowledge; A statement that the analyses and conclusions are limited only by the reported forecasts and conditions; A statement of the CV^2's present or prospective interest in the subject property or asset; A statement that the CV^2's compensation, employment, or contractual relationship with the Commissioning Entity is not contingent on any aspect of the Report; A statement that the CV^2 has no bias with respect to the assets that are the subject of the Report, or to the parties involved with the assignment; A statement that the CV^2 has (or has not) made a personal inspection of the property; and A record of the CP's and experts who have contributed to the valuation. Written consent to use and rely on such Reports shall be obtained. Significant contributions made by such experts shall be highlighted individually.	ES30, 1.2.2, 1.3.2, 1.5, 1.6.3, 1.6.4, 1.8, Table 1.1
SV1.1	**Illustrations**	There are numerous instances (especially in the non-listed environment) when a valuation is not accompanied by the CPR on which it is based. In these cases, especially, diagrams/illustrations are required and shall be in the required format. Diagrams, maps, plans, sections, and illustrations shall be legible and prepared at an appropriate scale to distinguish important features. Maps shall be dated and include a legend, author or information source, coordinate system and datum, a scale in bar or grid form, and an arrow indicating north. A location or index map and more detailed maps showing all important features described in the text, including all relevant cadastral and other infrastructure features, shall be included.	Not applicable
SV1.2	**Synopsis**	Provide the salient features of the report – a brief description of the terms of reference, scope of work, the Valuation Date, the mineral property; its location, ownership, geology, and mineralization; history of exploration and production, current status, Exploration Targets, mineralization and/or production forecast, Mineral Resources and Mineral Reserves, production facilities (if any); environmental, social, legal, and permitting considerations; valuation approaches and methods, valuation, and conclusions.	Cover Page, Executive Summary, 1.1.1, 1.2, 1.4, 2.6.1, 3.4.3, 9, 14, 18, 20
SV1.3	**Introduction and Scope**	Introduction and scope, specifying commissioning instructions including reference to the valuation, engagement letter, date, purpose and intended use of the valuation. The CV^2 shall fully disclose any interests in the Mineral Asset or Commissioning Entity. Any restrictions on scope and special instructions followed by the CV^2, and how these affect the reliability of the valuation, shall be disclosed.	1, 1.1, 1.2
SV1.4	**Compliance**	A statement that the report complies with SAMVAL shall be included. Any variations shall be described and discussed.	1, 1.1, 1.2.2, 18
SV1.5	**Identity, Tenure and Infrastructure**	The identity, tenure, associated infrastructure and locations of the property interests, rights or securities to be valued (*i.e.* the physical, legal, and economic characteristics of the property) shall be disclosed.	ES3, ES4, 1, 1.1, 2.1, 3, 3.1, 3.3, 11
SV1.6	**History**	History of activities, results, and operations to date shall be included.	ES12, 2.5, 6.9, 9.4
SV1.7	**Geological Setting**	Geological setting, models, and mineralization shall be described.	ES5, 4, 18
SV1.8	**Exploration Results and Exploration Targets**	Exploration programmes, their location, results, interpretation, and significance shall be described. Exploration Targets shall be discussed.	ES6, 5, 5.1
SV1.9	**Mineral Resources and Mineral Reserves**	Mineral Resource and Mineral Reserve statements shall be provided. They shall be signed off by a Competent Person in compliance with the SAMREC Code or another CRIRSCO code. The CV^2 shall set out the manner in which he has satisfied himself that he can rely upon the information in the CPR.	ES8, ES14, 6.8, 9, 18
SV1.10	**Modifying Factors and Key Assumptions**	A statement of Modifying Factors shall be included, separately summarizing material issues relating to each applicable Modifying Factor. The CV^2 shall set out the manner in which he has satisfied himself that he can rely upon the technical information provided. (**NOTE:** All the Modifying Factors shall be listed, or references provided to relevant definitions). This shall include an explanation of all material assumptions and limiting factors. When reporting on environmental, social and governance modifying factors, reference should be made to the ESG reporting parameters as required by the Southern African Minerals Environmental, Social and Governance Guideline (SAMESG) or other recognised code, e.g. Equator Principles.	ES11, ES13, ES30, 1.6.1, 9, 9.2, 18.1.2
SV1.11	**Previous Valuations**	The valuation shall refer to all available and relevant previous valuations of the Mineral Asset that have been performed in at least the previous two years and explain any material differences between these and the present valuation.	ES25, 18.5
SV1.12	**Valuation Approaches and Methods**	The valuation approaches and methods used in the valuation shall be described and justified in full.	ES24, ES26, 18, 18.1, 18.2, 18.6
SV1.13	**Valuation Date**	A statement detailing the Report Date and the Valuation Date, as defined in this Code, and whether any material changes have occurred between the Valuation Date and the Report Date.	ES2, ES23, ES26, ES27, ES30, 1.4, 1.4.1, 18, 20.17
SV1.14	**Valuation Results**	For the Income Approach, the valuation cash flow shall be disclosed. For the Market Approach, the market comparable information shall be disclosed. For the Cost Approach, the relevant and applicable cost shall be disclosed.	ES22, ES24, ES26, 16, 18, 18.2, 18.6
SV1.15	**Valuation Summary and Conclusions**	A summary of the valuation details, consolidated into single material line items, shall be provided. The Mineral Asset Valuation shall specify the key risks and forecasts used in the valuation. A cautionary statement concerning all forward-looking or forecast statements shall be included. The valuation's conclusions, illustrating a range of values, the best estimate value for each valuation, and whether the conclusions are qualified or subject to any restrictions imposed on the CV^2, shall be included.	ES26, 1.6.5, 18, 18.6, 18.8, 20.16

	SAMVAL Code TABLE 1		Section in the CPR where this is located
SV1.16	**Identifiable Component Asset (ICA) Values**	In some valuations, the valuation shall be broken down into Identifiable Component Asset Values (an ICA valuation) equaling the Mineral Asset Value. This could be, for example, due to the requirements of other valuation rules and legislative practices including taxation (*i.e.* fixed property, plant, and equipment relative to Mineral Asset Value allocations such as in recoupment or capital gains tax calculations or where a commissioned Mineral Asset Valuation specifies a need for a breakdown of the Mineral Asset Valuation). In such cases, the separate allocations of value shall be made by taking account of the value of every separately identifiable component asset. Allocation of value to only some, and not all, identifiable component assets is not allowed. This requires a specialist appraisal of each identifiable component asset of property, plant and equipment, with the 'remaining' value of the Mineral Asset being attributed to the Mineral Resources and Reserves. Such valuations shall be performed by suitably qualified experts, who may include the CV^2. If the Mineral Asset Valuation includes an ICA Valuation, the CV^2 shall satisfy himself or herself that the ICA Valuation is reasonable before signing off the Mineral Asset Valuation.	Not applicable
SV1.17	**Historic Verification**	A historic verification of the performance parameters on which the Mineral Asset Valuation is based shall be presented.	18
SV1.18	**Market Assessment**	A comprehensive market assessment should be presented.	18, 18.3
SV1.19	**Sources of Information**	The sources of all material information and data used in the report shall be disclosed, as well as references to any published or unpublished technical papers used in the valuation, subject to confidentiality. A reference shall be made to any other report that has been compiled, for the purpose of providing information for the valuation, including SAMREC-compliant reports and any other contributions or reports from experts.	1.2.3, 18

Appendix 6: Compliance Checklist – SAMREC Code Table 1

SAMREC TABLE 1						Section in the CPR where this is located
			Exploration Results	Mineral Resources	Mineral Reserves	Isibonelo
Section 1: Project Outline						
SR 1.1	Property Description	(i)	Brief description of the scope of project (i.e. whether in preliminary sampling, advanced exploration, scoping, pre-feasibility, or feasibility phase, LoM plan for an ongoing mining operation or closure).			ES1, ES3, 1, 1.1, 1.2.1, 1.2.2
		(ii)	Describe (noting any conditions that may affect possible prospecting/mining activities) topography, elevation, drainage, fauna and flora, the means and ease of access to the property, the proximity of the property to a population centre, and the nature of transport, the climate, known associated climatic risks and the length of the operating season and to the extent relevant to the mineral project, the sufficiency of surface rights for mining operations including the availability and sources of power, water, mining personnel, potential tailings storage areas, potential waste disposal areas, heap leach pad areas, and potential processing plant sites.			2.4, 2.4.1, 2.4.2, 2.4.3, 2.4.4, 3.3.3, 8.5, 11
		(iii)	Specify the details of the personal inspection on the property by each CP or, if applicable, the reason why a personal inspection has not been completed.			1.9
SR 1.2	Location	(i)	Description of location and map (country, province, and closest town/city, coordinate systems and ranges, etc.).			ES3, 2, 2.1, 2.2
		(ii)	Country Profile: describe information pertaining to the project host country that is pertinent to the project, including relevant applicable legislation, environmental and social context etc. Assess, at a high level, relevant technical, environmental, social, economic, political and other key risks.			2.6.1, 2.6.2, 3.4.2
		(iii)	Provide a general topocadastral map.	Provide a Topo-cadastral map in sufficient detail to support the assessment of eventual economics. State the known associated climatic risks.	Provide a detailed topo-cadastral map. Confirm that applicable aerial surveys have been checked with ground controls and surveys, particularly in areas of rugged terrain, dense vegetation or high altitude.	2.6.1, 2.6.2, 2.4.5 (Fig. 2-2), 3.3.1 (Fig. 3-1)
SR 1.3	Adjacent Properties	(i)	Discuss details of relevant adjacent properties If adjacent or nearby properties have an important bearing on the report, then their location and common mineralized structures should be included on the maps. Reference all information used from other sources.			2.3
SR 1.4	History	(i)	State historical background to the project and adjacent areas concerned, including known results of previous exploration and mining activities (type, amount, quantity and development work), previous ownership and changes thereto.			2.5.1, 2.5.2, 2.5.3
		(ii)	Present details of previous successes or failures with reasons why the project may now be considered potentially economic.			2.5.1, 2.5.2
		(iii)		Discuss known or existing historical Mineral Resource estimates and performance statistics on actual production for past and current operations.		ES9, ES12, 2.5.3, 6.8, 6.9, 20.3
		(iv)			Discuss known or existing historical Mineral Reserve estimates and performance statistics on actual production for past and current operations.	ES15, 2.5.3, 9.3.3, 9.4
SR 1.5	Legal Aspects and Permitting	Confirm the legal tenure to the satisfaction of the CP, including a description of the following:				
		(i)	Discuss the nature of the issuer's rights (e.g. prospecting and/or mining) and the right to use the surface of the properties to which these rights relate. Disclose the date of expiry and other relevant details.			ES4, 1.1.1, 2.6.1, 3, 3.1, 3.2, 3.3
		(ii)	Present the principal terms and conditions of all existing agreements, and details of those still to be obtained, (such as, but not limited to, concessions, partnerships, joint ventures, access rights, leases, historical and cultural sites, wilderness or national park and environmental settings, royalties, consents, permission, permits or authorisations).			1.1.1, 3, 3.4.1, 3.4.2, 14.1
		(iii)	Present the security of the tenure held at the time of reporting or that is reasonably expected to be granted in the future along with any known impediments to obtaining the right to operate in the area. State details of applications that have been made.			3, 3.1, 3.2, 3.3
		(iv)	Provide a statement of any legal proceedings for example; land claims, that may have an influence on the rights to prospect or mine for minerals, or an appropriate negative statement.			3, 3.4.2, 3.4.3
		(v)	Provide a statement relating to governmental/statutory requirements and permits as may be required, have been applied for, approved or can be reasonably be expected to be obtained.			3, 3.4.1, 3.4.2, 14.1, 14.5.2
SR 1.6	Royalties	(i)	Describe the royalties that are payable in respect of each property.			3.1.4, 3.1.5, 18.2.1
SR 1.7	Liabilities	(i)	Describe any liabilities, including rehabilitation guarantees that are pertinent to the project. Provide a description of the rehabilitation liability, including, but not limited to, legislative requirements, assumptions and limitations.			ES20, 1.4.3, 1.6.1, 14.5, 14.5.2, 14.5.3
Section 2: Geological Setting, Deposit, Mineralisation						
SR 2.1	Geological Setting, Deposit, Mineralisation	(i)	Describe the regional geology.			ES5, 4, 4.1
		(ii)	Describe the project geology including deposit type, geological setting and style of mineralisation.			ES5, 4, 4.3
		(iii)	Discuss the geological model or concepts being applied in the investigation and on the basis of which the exploration program is planned. Describe the inferences made from this model.			4, 4.3, 5, 5.1, 6.2

SAMREC TABLE 1						Section in the CPR where this is located
			Exploration Results	Mineral Resources	Mineral Reserves	Isibonelo
		(iv)	Discuss data density, distribution and reliability and whether the quality and quantity of information are sufficient to support statements, made or inferred, concerning the Exploration Target or Mineralisation.			4, 4.3, 5.6
		(v)	Discuss the significant minerals present in the deposit, their frequency, size and other characteristics. Includes minor and gangue minerals where these will have an effect on the processing steps. Indicate the variability of each important mineral within the deposit.			ES5, 4, 6.3.1
		(vi)	Describe the significant mineralised zones encountered on the property, including a summary of the surrounding rock types, relevant geological controls, and the length, width, depth, and continuity of the mineralisation, together with a description of the type, character, and distribution of the mineralisation.			ES5, 4, 6.3.1
		(vii)	Confirm that reliable geological models and / or maps and cross sections that support interpretations exist.			ES5, ES7, 4, 6.3
Section 3: Exploration and Drilling, Sampling Techniques and Data						
SR 3.1	**Exploration**	(i)	Describe the data acquisition or exploration techniques and the nature, level of detail, and confidence in the geological data used (i.e. geological observations, remote sensing results, stratigraphy, lithology, structure, alteration, mineralisation, hydrology, geophysical, geochemical, petrography, mineralogy, geochronology, bulk density, potential deleterious or contaminating substances, geotechnical and rock characteristics, moisture content, bulk samples etc.). Confirm that data sets include all relevant metadata, such as unique sample number, sample mass, collection date, spatial location etc.			ES6, ES10, ES21, 5, 5.1, 5.5, 7, 15, 15.1
		(ii)	Identify and comment on the primary data elements (observation and measurements) used for the project and describe the management and verification of these data or the database. This should describe the following relevant processes: acquisition (capture or transfer), validation, integration, control, storage, retrieval and backup processes. It is assumed that data are stored digitally but hand-printed tables with well-organized data and information may also constitute a database.			1.5, 5, 5.1
		(iii)	Acknowledge and appraise data from other parties and reference all data and information used from other sources.			5, 5.1
		(iv)	Clearly distinguish between data / information from the property under discussion and that derived from surrounding properties.			5, 5.1
		(v)	Describe the survey methods, techniques and expected accuracies of data. Specify the grid system used.			5.2.2
		(vi)	Discuss whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the estimation procedure(s) and classifications applied.			5.1
		(vii)	Present representative models and / or maps and cross sections or other two or three-dimensional illustrations of results, showing location of samples, accurate drill-hole collar positions, down-hole surveys, exploration pits, underground workings, relevant geological data, etc.			4, 5, 6.3.1
		(viii)	Report the relationships between mineralisation widths and intercept lengths are particularly important, the geometry of the mineralisation with respect to the drill hole angle. If it is not known and only the down-hole lengths are reported, confirm it with a clear statement to this effect (e.g. 'down-hole length, true width not known').			5, 5.1
SR 3.2	**Drilling Techniques**	(i)	Present the type of drilling undertaken (e.g. core, reverse circulation, open-hole hammer, rotary air blast, auger, Banka, sonic, etc.) and details (e.g. 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.).			ES6, 5, 5.2, 5.2.4
		(ii)	Describe whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, technical studies, mining studies and metallurgical studies.			ES6, 5, 5.6
		(iii)	Describe whether logging is qualitative or quantitative in nature; indicate if core photography. (or costean, channel, etc.) was undertaken.			ES6, 5, 5.2.3
		(iv)	Present the total length and percentage of the relevant intersections logged.			ES6, 5, 5.2.3
		(v)	Results of any downhole surveys of the drill hole to be discussed.			ES6, 5, 5.2.4
SR 3.3	**Sample method, collection, capture and storage**	(i)	Describe the nature and quality of sampling (e.g. 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.			5.3.2, 5.6
		(ii)	Describe the sampling processes, including sub-sampling stages to maximize representivity of samples. This should include whether sample sizes are appropriate to the grain size of the material being sampled. Indicate whether sample compositing has been applied.			5.3.2, 5.6
		(iii)	Appropriately describe each data set (e.g. geology, grade, density, quality, diamond breakage, geo-metallurgical characteristics etc.), sample type, sample-size selection and collection methods.			5.5, 5.6
		(iv)	Report the geometry of the mineralisation with respect to the drill-hole angle. State whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type. State if the intersection angle is not known and only the downhole lengths are reported.			5.3.2, 5.6
		(v)	Describe retention policy and storage of physical samples (e.g. core, sample reject, etc.).			5.3.2, 5.6
		(vi)	Describe the 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 and 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.			5.3.2, 5.6

SAMREC TABLE 1						Section in the CPR where this is located
			Exploration Results	Mineral Resources	Mineral Reserves	Isibonelo
		(vii)	If a drill-core sample is taken, state whether it was split or sawn and whether quarter, half or full core was submitted for analysis. If a non-core sample, state whether the sample was riffled, tube sampled, rotary split etc. and whether it was sampled wet or dry.			5.3.2, 5.6
SR 3.4	Sample Preparation and Analysis	(i)	Identify the laboratory(s) and state the accreditation status and Registration Number of the laboratory or provide a statement that the laboratories are not accredited.			5.3.3
		(ii)	Identify the analytical method. Discuss the nature, quality and appropriateness of the assaying and laboratory processes and procedures used and whether the technique is considered partial or total.			5.3.3
		(iii)	Describe the process and method used for sample preparation, sub-sampling and size reduction, and likelihood of inadequate or non-representative samples (i.e. improper size reduction, contamination, screen sizes, granulometry, mass balance, etc.).			5.3.3
SR 3.5	Sampling Governance	(i)	Discuss the governance of the sampling campaign and process, to ensure quality and representivity of samples and data, such as sample recovery, high grading, selective losses or contamination, core/hole diameter, internal and external QA/QC, and any other factors that may have resulted in or identified sample bias.			5.3.1, 5.4
		(ii)	Describe the measures taken to ensure sample security and the Chain of Custody.			5.3.1
		(iii)	Describe the validation procedures used to ensure the integrity of the data, e.g. transcription, input or other errors, between its initial collection and its future use for modelling (e.g. geology, grade, density, etc.).			5.3.1, 5.4, 5.5
		(iv)	Describe the audit process and frequency (including dates of these audits) and disclose any material risks identified.			5.3.1
SR 3.6	Quality Control/Quality Assurance	(i)	Demonstrate that adequate field sampling process verification techniques (QA/QC) have been applied, e.g. the level of duplicates, blanks, reference material standards, process audits, analysis, etc. If indirect methods of measurement were used (e.g. geophysical methods), these should be described, with attention given to the confidence of interpretation.			5.4
SR 3.7	Bulk Density	(i)	Describe the method of bulk density determination with reference to the frequency of measurements, the size, nature and representativeness of the samples.			5.5
		(ii)	If target tonnage ranges are reported, state the preliminary estimates or basis of assumptions made for bulk density.			Not applicable
		(iii)	Discuss the representivity of bulk density samples of the material for which a grade range is reported.			?
		(iv)	Discuss the adequacy of the methods of bulk density determination for bulk material with special reference to accounting for void spaces (vugs, porosity etc.), moisture and differences between rock and alteration zones within the deposit.			5.5
SR 3.8	Bulk-Sampling and/or trial-mining	(i)	Indicate the location of individual samples (including map).			Not applicable
		(ii)	Describe the size of samples, spacing/density of samples recovered and whether sample sizes and distribution are appropriate to the grain size of the material being sampled.			Not applicable
		(iii)	Describe the method of mining and treatment.			Not applicable
		(iv)	Indicate the degree to which the samples are representative of the various types and styles of mineralisation and the mineral deposit as a whole.			Not applicable
Section 4: Estimation and Reporting of Exploration Results and Mineral Resources						
SR 4.1	Geological model and interpretation	(i)	Describe the geological model, construction technique and assumptions that forms the basis for the Exploration Results or Mineral Resource estimate. Discuss the sufficiency of data density to assure continuity of mineralisation and geology and provide an adequate basis for the estimation and classification procedures applied.			6.2, 6.3.1
		(ii)	Describe the nature, detail and reliability of geological information with which lithological, structural, mineralogical, alteration or other geological, geotechnical and geo-metallurgical characteristics were recorded.			ES7, ES10, 6.2, 6.3, 7
		(iii)	Describe any obvious geological, mining, metallurgical, environmental, social, infrastructural, legal and economic factors that could have a significant effect on the prospects of any possible exploration target or deposit.			6.3
		(iv)		Discuss all known geological data that could materially influence the estimated quantity and quality of the Mineral Resource.		ES7, ES27, 1.4.1, 6.3, 6.3.2, 6.4, 6.8, 20.17
		(v)		Discuss whether consideration was given to alternative interpretations or models and their possible effect (or potential risk) if any, on the Mineral Resource estimate.		ES7, 6.3
		(vi)		Discuss geological discounts (e.g. magnitude, per reef, domain, etc.), applied in the model, whether applied to mineralized and / or un-mineralized material (e.g. potholes, faults, dykes, etc.).		6.7

SAMREC TABLE 1						Section in the CPR where this is located
			Exploration Results	Mineral Resources	Mineral Reserves	Isibonelo
SR 4.2	**Estimation and modelling techniques**	**(i)**	Describe in detail the estimation techniques and assumptions used to determine the grade and tonnage ranges.			6.7
		(ii)		Discuss the nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values (cutting or capping), compositing (including by length and/or density), domaining, sample spacing, estimation unit size (block size), selective mining units, interpolation parameters and maximum distance of extrapolation from data points.		ES11, ES14, 6.4, 6.7, 9, 9.1.1, 9.1.2
		(iii)		Describe assumptions and justification of correlations made between variables.		6.4
		(iv)		Provide details of any relevant specialized computer program (software) used, with the version number, together with the estimation parameters used.		6.2, 6.4, 8.3, 9.1.2
		(v)		State the processes of checking and validation, the comparison of model information to sample data and use of reconciliation data, and whether the Mineral Resource estimate takes account of such information.		ES9, ES15, 6.3, 20.3
		(vi)		Describe the assumptions made regarding the estimation of any co-products, by-products or deleterious elements.		6.7
SR 4.3	**Reasonable prospects for eventual economic extraction**	**(i)**		Disclose and discuss the geological parameters. These would include (but not be limited to) volume / tonnage, grade and value / quality estimates, cut-off grades, strip ratios, upper- and lower- screen sizes.		6.4
		(ii)		Disclose and discuss the engineering parameters. These would include mining method, dilution, processing, geotechnical, geohydraulic and metallurgical) parameters.		Executive Summary (ES10, ES11, ES16, ES17, ES19, ES21), 6.4, 7, 8, 8.3, 9.1.2, 10, 11, 15
		(iii)		Disclose and discuss the infrastructural including, but not limited to, power, water, site-access.		6.4, 11.3
		(iv)		Disclose and discuss the legal, governmental, permitting, statutory parameters.		6.4
		(v)		Disclose and discuss the environmental and social (or community) parameters.		6.4, 14.3
		(vi)		Disclose and discuss the marketing parameters.		6.4, 16
		(vii)		Disclose and discuss the economic assumptions and parameters. These factors will include, but not limited to, commodity prices and potential capital and operating costs.		6.4, 8.7, 11.7
		(viii)		Discuss any material risks.		ES27, 6.4, 1.4.1, 20.17
		(ix)		Discuss the parameters used to support the concept of "eventual".		6.4
SR 4.4	**Classification Criteria**	**(i)**		Describe criteria and methods used as the basis for the classification of the Mineral Resources into varying confidence categories.		6.5
SR 4.5	**Reporting**	**(i)**	Discuss the reported low and high-grades and widths together with their spatial location to avoid misleading the reporting of Exploration Results, Mineral Resources or Mineral Reserves.			ES14, 9
		(ii)	Discuss whether the reported grades are regional averages or if they are selected individual samples taken from the property under discussion.			ES8, 6.8
		(iii)	State assumptions regarding mining methods, infrastructure, metallurgy, environmental and social parameters. State and discuss where no mining related assumptions have been made.			9, 9.1.1, 9.1.2
		(iv)	State the specific quantities and grades / qualities which are being reported in ranges and/or widths and explain the basis of the reporting.			ES8, 6.8

SAMREC TABLE 1						Section in the CPR where this is located
			Exploration Results	**Mineral Resources**	**Mineral Reserves**	**Isibonelo**
		(v)		Present the detail for example open pit, underground, residue stockpile, remnants, tailings, and existing pillars or other sources in the Mineral Resource statement.		ES8, 6.8
		(vi)		Present a reconciliation with any previous Mineral Resource estimates. Where appropriate, report and comment on any historic trends (e.g. global bias).		ES9, ES15, 6.9, 9.4, 20.3
		(vii)		Present the defined reference point for the tonnages and grades reported as Mineral Resources. State the reference point if the point is where the run of mine material is delivered to the processing plant. It is important that, in all situations where the reference point is different, such as for a saleable product, a clarifying statement is included to ensure that the reader is fully informed as to what is being reported.		ES8, 6.8
		(viii)	If the CP is relying on a report, opinion, or statement of another expert who is not a CP, disclose the date, title, and author of the report, opinion, or statement, the qualifications of the other expert and why it is reasonable for the CP to rely on the other expert, any significant risks and any steps the CP took to verify the information provided.			Not applicable
		(ix)	State the basis of equivalent metal formulae, if applied.			Not applicable
Section 5: Technical Studies						
SR 5.1	**Introduction**	**(i)**	Technical Studies are not applicable to Exploration Results.	State the level of study – whether scoping, prefeasibility, feasibility or ongoing LoM.	State the level of study – whether prefeasibility, feasibility or ongoing LoM. The Code requires that a study to at least a Pre-Feasibility level has been undertaken to convert Mineral Resource to Mineral Reserve. Such studies will have been carried out and will include a mine plan or production schedule that is technically achievable and economically viable, and that all Modifying Factors have been considered.	ES13, ES14, 8.8, 9, 9.2
		(ii)			Provide a summary table of the Modifying Factors used to convert the Mineral Resource to Mineral Reserve for Pre-feasibility, Feasibility or on-going LoM studies.	ES13, 9, 9.2
SR 5.2	**Mining Design**	**(i)**	Technical Studies are not applicable to Exploration Results.	State assumptions regarding mining methods and parameters when estimating Mineral Resources or explain where no mining assumptions have been made.		ES11, 8, 8.1, 8.3, 8.8
		(ii)			State and justify all modifying factors and assumptions made regarding mining methods, minimum mining dimensions (or pit shell) and internal and, if applicable, external) mining dilution and mining losses used for the techno-economic study and signed-off, such as mining method, mine design criteria, infrastructure, capacities, production schedule, mining efficiencies, grade control, geotechnical and hydrological considerations, closure plans, and personnel requirements.	ES10, ES20, ES21, 7, 8, 8.3, 8.7, 8.8, 14.5
		(iii)			State what mineral resource models have been used in the study.	6.2, 8
		(iv)			Explain the basis of (the adopted) cut-off grade(s) or quality parameters applied. Include metal equivalents if relevant.	ES11, 8, 8.3
		(v)			Description and justification of mining method(s) to be used.	8, 8.1, 8.3
		(vi)			For open-pit mines, include a discussion of pit slopes, slope stability, and strip ratio.	7.4, 7.5, 8, 8.3
		(vii)			For underground mines, discussion of mining method, geotechnical considerations, mine design characteristics, and ventilation/cooling requirements.	ES21, 8
		(viii)			Discussion of mining rate, equipment selected, grade control methods, geotechnical and hydrogeological considerations, health and safety of the workforce, staffing requirements, dilution, and recovery.	ES10, ES18, ES19, ES21, 7, 8, 8.2, 8.3, 8.4, 8.5, 10, 10.1, 10.6, 10.10, 13, 15, 15.1, 15.2

SAMREC TABLE 1						Section in the CPR where this is located
			Exploration Results	Mineral Resources	Mineral Reserves	Isibonelo
		(ix)			State the optimisation methods used in planning, list of constraints (practicality, plant, access, exposed Mineral Reserves, stripped Mineral Reserves, bottlenecks, draw control).	ES14, 8, 8.3, 9, 9.3
SR 5.3	Metallurgical and Testwork	(i)	Technical Studies are not applicable to Exploration Results.		Discuss the source of the sample and the techniques to obtain the sample, laboratory and metallurgical testing techniques.	5.2, 5.3.3, 10
		(ii)			Explain the basis for assumptions or predictions regarding metallurgical amenability and any preliminary mineralogical test work already carried out.	10
		(iii)		Discuss the possible processing methods and any processing factors that could have a material effect on the likelihood of eventual economic extraction. Discuss the appropriateness of the processing methods to the style of mineralisation.	Describe and justify the processing method(s) to be used, equipment, plant capacity, efficiencies, and personnel requirements.	ES16, ES27, 10, 10.1, 10.2, 10.6, 10.10
		(iv)			Discuss the nature, amount and representativeness of metallurgical test work undertaken and the recovery factors used. A detailed flow sheet / diagram and a mass balance should exist, especially for multi-product operations from which the saleable materials are priced for different chemical and physical characteristics.	10, 10.1, 10.2
		(v)			State what assumptions or allowances have been made for deleterious elements and the existence of any bulk-sample or pilot-scale test work and the degree to which such samples are representative of the ore body as a whole.	10
		(vi)			State whether the metallurgical process is well-tested technology or novel in nature.	10, 10.2
SR 5.4	Infrastructure	(i)	Technical Studies are not applicable to Exploration Results.	Comment regarding the current state of infrastructure or the ease with which the infrastructure can be provided or accessed.		ES17, 2.4.2, 11
		(ii)			Report in sufficient detail to demonstrate that the necessary facilities have been allowed for (which may include, but not be limited to, processing plant, tailings dam, leaching facilities, waste dumps, road, rail or port facilities, water and power supply, offices, housing, security, resource sterilisation testing etc.). Provide detailed maps showing locations of facilities.	ES17, 2.4.2, 11, 11.3
		(iii)			Statement showing that all necessary logistics have been considered.	10.1
SR 5.5	Environmental and Social	(i)	Technical Studies are not applicable to Exploration Results.	Confirm that the company holding the tenement has addressed the host country environmental legal compliance requirements and any mandatory and/or voluntary standards or guidelines to which it subscribes.		ES19, 2.6.1, 2.6.2, 3.4.1, 14, 14.2.2
		(ii)		Identify the necessary permits that will be required and their status and where not yet obtained, confirm that there is a reasonable basis to believe that all permits required for the project will be obtained.		ES19, 3.4.1, 14, 14.1
		(iii)		Identify and discuss any sensitive areas that may affect the project as well as any other environmental factors including I&AP and/or studies that could have a material effect on the likelihood of eventual economic extraction. Discuss possible means of mitigation.		ES27, 1.4.1, 2.6.1, 2.6.2, 3.4.1, 14, 14.1, 20.17
		(iv)		Identify any legislated social management programmes that may be required and discuss the content and status of these.		ES19, 14.3
		(v)		Outline and quantify the material socio-economic and cultural impacts that need to be mitigated, and thei~~r~~ mitigation measures and where appropriate the associated costs.		ES27, 2.6.2, 14.3
SR 5.6	Market Studies and Economic criteria	(i)	Technical Studies are not applicable to Exploration Results.		Describe the valuable and potentially valuable product(s) including suitability of products, co-products and by products to market.	16, 17
		(ii)			Describe product to be sold, customer specifications, testing, and acceptance requirements. Discuss whether there exists a ready market for the product and whether contracts for the sale of the product are in place or expected to be readily obtained. Present price and volume forecasts and the basis for the forecast.	ES22, ES23, 10.2, 16, 17

SAMREC TABLE 1						Section in the CPR where this is located
			Exploration Results	Mineral Resources	Mineral Reserves	Isibonelo
		(iii)			State and describe all economic criteria that have been used for the study such as capital and operating costs, exchange rates, revenue / price curves, royalties, cut-off grades, reserve pay limits.	6.4, 8.7, 11.7, 18
		(iv)			Summary description, source and confidence of method used to estimate the commodity price/value profiles used for cut-off grade calculation, economic analysis and project valuation, including applicable taxes, inflation indices, discount rate and exchange rates.	6.4, 18, 18.1, 18.2
		(v)			Present the details of the point of reference for the tonnages and grades reported as Mineral Reserves (e.g. material delivered to the processing facility or saleable product(s)). It is important that, in any situation where the reference point is different, a clarifying statement is included to ensure that the reader is fully informed as to what is being reported.	ES14, 9, 9.3
		(vi)			Justify assumptions made concerning production cost including transportation, treatment, penalties, exchange rates, marketing and other costs. Provide details of allowances that are made for the content of deleterious elements and the cost of penalties.	ES23, 16, 17
		(vii)			Provide details of allowances made for royalties payable, both to Government and private.	3.1.5
		(viii)			State type, extent and condition of plant and equipment that is significant to the existing operation(s).	ES17, 11
		(ix)			Provide details of all environmental, social and labour costs considered.	8.7, 14.5.3
SR 5.7	Risk Analysis	(i)	Technical Studies are not applicable to Exploration Results.	Report an assessment of technical, environmental, social, economic, political and other key risks to the project. Describe actions that will be taken to mitigate and/or manage the identified risks.		ES28, 9.5, 10.12, 11.8, 13, 14.2.5, 14.3.3, 14.5.4, 15.1.8, 15.2.4, 17.4, 18.7, 19, 20
SR 5.8	Economic Analysis	(i)	Technical Studies are not applicable to Exploration Results.	At the relevant level (Scoping Study, Pre-feasibility, Feasibility or on-going LoM), provide an economic analysis for the project that includes:		ES26, 18, 18.3
		(ii)		Cash Flow forecast on an annual basis using Mineral Reserves or an annual production schedule for the life of the project.		18, 18.2
		(iii)		A discussion of net present value (NPV), internal rate of return (IRR) and payback period of capital.		18, 18.2
		(iv)		Sensitivity or other analysis using variants in commodity price, grade, capital and operating costs, or other significant parameters, as appropriate and discuss the impact of the results.		18, 18.2
Section 6: Estimation and Reporting of Mineral Reserves						
SR 6.1	Estimation and modelling techniques	(i)		Describe the Mineral Resource estimate used as a basis for the conversion to a Mineral Reserve.		ES8, .6.8, 9, 9.1.1, 9.1.2
		(ii)		Report the Mineral Reserve Statement with sufficient detail indicating if the mining is open pit or underground plus the source and type of mineralisation, domain or ore body, surface dumps, stockpiles and all other sources.		ES11, 8, 8.1, 9, 9.3.3
		(iii)			Provide a reconciliation reporting historic reliability of the performance parameters, assumptions and modifying factors including a comparison with the previous Reserve quantity and qualities, if available. Where appropriate, report and comment on any historic trends (e.g. global bias).	ES9, ES13, ES15, 8.3.1, 9, 9.1.1, 9.2, 20.3
SR 6.2	Classification Criteria	(i)			Describe and justify criteria and methods used as the basis for the classification of the Mineral Reserves into varying confidence categories, based on the Mineral Resource category, and including consideration of the confidence in all the modifying factors.	ES13, 9, 9.2, 9.3.1
SR 6.3	Reporting	(i)			Discuss the proportion of Probable Mineral Reserves, which have been derived from Measured Mineral Resources (if any), including the reason(s) therefore.	ES14, 9, 9.3.3
		(ii)			Present details of for example open pit, underground, residue stockpile, remnants, tailings, and existing pillars or other sources in respect of the Mineral Reserve statement.	ES14, 9.3.3

SAMREC TABLE 1						Section in the CPR where this is located
			Exploration Results	**Mineral Resources**	**Mineral Reserves**	**Isibonelo**
		(iii)			Present the details of the defined reference point for the Mineral Reserves. State where the reference point is the point where the run of mine material is delivered to the processing plant. It is important that, in all situations where the reference point is different, such as for a saleable product, a clarifying statement is included to ensure that the reader is fully informed as to what is being reported. State clearly whether the tonnages and grades reported for Mineral Reserves are in respect of material delivered to the plant or after recovery.	10.2, 10.7
		(iv)			Present a reconciliation with the previous Mineral Reserve estimates. Where appropriate, report and comment on any historic trends (e.g. global bias).	ES9, 9.4
		(v)			Only Measured and Indicated Mineral Resources can be considered for inclusion in the Mineral Reserve.	9.3.3
		(vi)			State whether the Mineral Resources are inclusive or exclusive of Mineral Reserves.	ES8, 6.8, 9, 9.4
Section 7: Audits and Reviews						
SR 7.1	**Audits and Reviews**	**(i)**	State type of review/audit (e.g. independent, external), area (e.g. laboratory, drilling, data, environmental compliance etc.), date and name of the reviewer(s) together with their recognized professional qualifications.			1, 1.1, 2.6.2, 3.4.2, 6.3, 14.2.2, 14.2.4, 14.3.1, 15.1.4
		(ii)	Disclose the conclusions of relevant audits or reviews. Note where significant deficiencies and remedial actions are required.			ES29, ES30, 2.6.2, 3.4.2, 6.3, 14.2.2, 14.2.4, 14.3.1, 15.1.4, 20
Section 8: Other Relevant Information						
SR 8.1		**(i)**	Discuss all other relevant and material information not discussed elsewhere.			Not applicable
Section 9: Qualification of CP(s) and other key technical staff. Date and Signature Page						
SR 9.1		**(i)**	State the full name, registration number and name of the professional body or RPO, for all the CP(s). State the relevant experience of the CP(s) and other key technical staff who prepared and are responsible for the Public Report.			1.3.2, 1.8, 21
		(ii)	State the CP's relationship to the issuer of the report.			1.8, 21
		(iii)	Provide the Certificate of the CP (Appendix 2), including the date of sign-off and the effective date, in the Public Report.			Cover Page, ES2, 1.4, Appendix 3

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