KLIPFONTEIN 385 JS
BELFAST SILICA MINE

GEOLOGICAL REPORT

Table of Contents

1. GEOLOGY AND MINERAL RESOURCES

1.1.1. Conventions

1.1.1.1. Units

The metric or SI system of units is used for this project. Depths are reported in metres and volumes in cubic metres. All reserve and resource figures are quoted in million metric tons (air –dried tons).

1.1.1.2. The Project Coordinate and Grid Systems

The coordinate system used at Klipfontein 385JS is the WGS84 LO29 grid system. The WGS84 system is the official co-ordinate system (1st January 1999) for South Africa and is based on the World Geodetic System 1984 ellipsoid, commonly known as WGS84, with ITRF91 (epoch 1994.0) co-ordinates of the Hartbeeshoek Radio Astronomy Telescope used as the origin of the system. This new datum, which replaced the old Cape datum, is known as the Hartebeeshoek94 Datum. Borehole collars are surveyed using a GPS survey system.

1.1.1.3. Abbreviations

Abbreviation	Description
Pr. Sci. Nat.	Professional Natural Scientist
JORC	Australasian Code for Reporting of Mineral Resources and Mineral Reserves – The JORC Code (2004 Edition)
SAMREC	South African Code for Reporting of Mineral Resources and Mineral Reserves – The SAMREC Code (March 2000)

1.1.1.4. Project Locality

The Klipfontein silica resources resource area is located in the Belfast district of the Mpumalanga Province in the Republic of South Africa, approximately 7km North west of the town of Belfast.

1.1.2. TENURE

Belfast Silica (PTY) Ltd is currently the holder of an old order Mining Right on a Portion of Portion 1 of the farm Klipfontein 385JS.

1.1.5. Data Acquisition

A Digital Terrain Model (DTM) of the area was constructed and sourced from Eugene Pretorius and associates and was used to construct the Topo grid for the mine. Lithological information was derived from surface and pit mapping.

1.1.5.1. Geological and Topographic Mapping

The sediments of the Transvaal Supergroup cover the total area. Due to the surface outcrop of the quartzite deposits surface mapping of these horizonsis relatively easy. The general topography dips down towards the west at 17°.

1.1.5.2. Drilling and Sampling

No drilling or sampling was conducted as part of the study.

1.1.5.3. Data Management

All geological data is stored electronically as well as hard copies. The hard copies are stored by Precison Project Management (Pty) Ltd. The electronic Xcel database is backed up onto the server at the offices of EPA (PTY) LTD on a daily and weekly basis.

1.1.5.7. Aeromagnetic Survey

No aeromagnetic survey was conducted as part of the project.

1.1.6. Deposit Geology

1.1.6.1. General Geology

The mining area is underlain by the Houtenbek and Steenkampsberg Formations. The Steenkampsberg Formation is a thick quartzite layer (up to 200m) and the top layers are relatively are pure quartz arenites. The Houtenbek Formation lies on top of the Steenkamsberg Quartzites and consists of quartzites, hornfels, limestone and chert. The strike of the layers is about 10° and dip is 12° to the west.

1.1.7. Resource Estimation

1.1.7.1. Geological Modelling

The geological model used for this evaluation was created using the Windows version of the Startmodellr software. The gridding was done using the standard method of interpolation. The algorithm has been tested for accuracy and is being used as the standard for generating model grids by EPA (PTY) LTD. The DTM defining the topography was generated from 2m interval topography contours.

The following parameters were modelled for each of the mineable horizon:

Horizon Floor and Roof Elevations;

Horizon Thickness;

Grids were created for elevations 1730 – 1800m in 10m increments. These were used to establish volumes between the topography and the respective levels.

1.1.7.2. Resource Estimation and Classification

1.1.7.2.1. Klipfontein

Silica Resource classification and reporting has been conducted in accordance with the requirements of SAMREC Code.

The classification of silica resources into inferred, indicated and measured, is a function of increasing geological confidence in the estimate. It is based on the density of points of observation, physical continuity of the lithological horizons, and the reliability of the geological model and the evaluation method.

Factors contributing to the uncertainty in silica resource estimation include the geological model, the thickness variation within the geological model and the silica quality distribution within the geological model. The categories of silica resources are based on the level of confidence in the estimate of the tonnage and silica quality. Reconnaissance resources and inferred resources are at a low level of confidence, indicated resources are at a moderate level of confidence, while measured silica resources are at a high level of confidence.

Silica resources are reported on either a gross in situ, in situ, or mineable in situ reporting basis.

The classification of the resources and reserves that is used in this report is based on the definitions summarised in Figure 6.1 of the SAMREC Code. The diagram is reproduced here, and the criteria required for the inclusion of tonnages in each of these categories are described below.

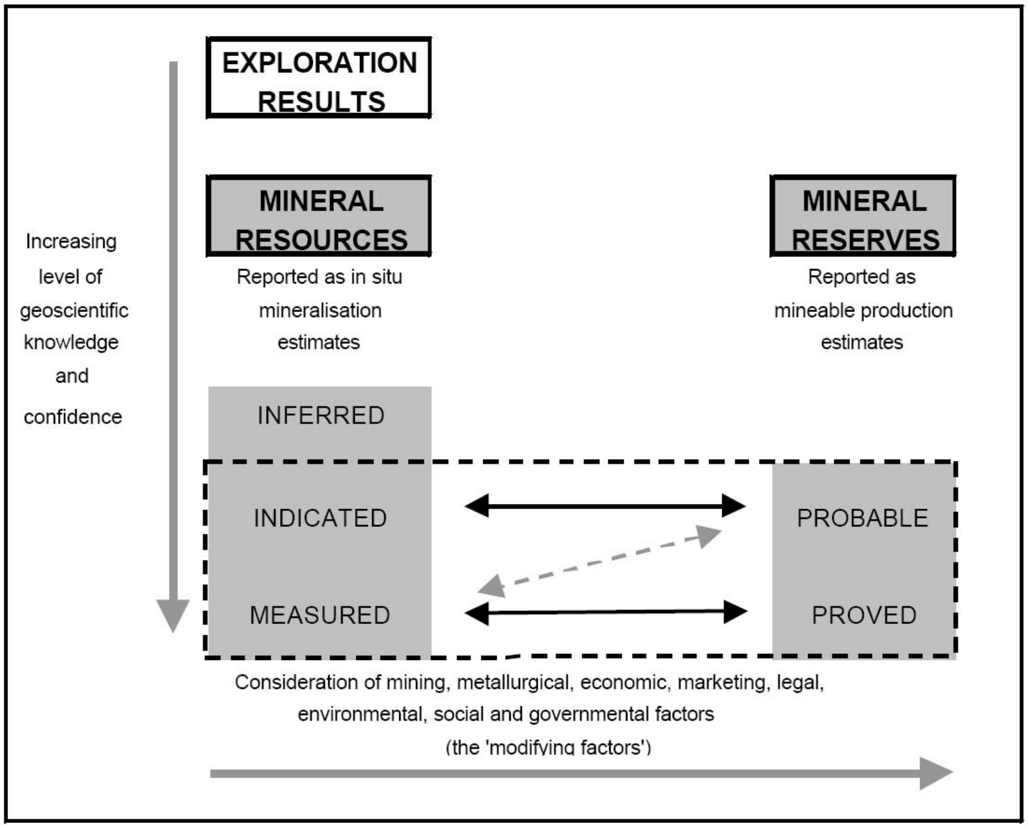


Figure above explains the relationship between resources and reserves (derived from SAMREC Code, figure 6.1)

Silica resource reporting categories

The basis of the silica resource statements in this report, in terms of the limited information available regarding borehole spacing, lithological structure, and estimation confidence, have been stated.

The following qualifications have been used:

1	2
Resource Category	**Qualification**
Gross in situ silica resource	Full Lithological Unit
In situ silica resource	Full Lithological Unit, Geological Loss

	Factors
Mineable in situ silica resource	Theoretical Mineable Horizon, Geological Loss Factors.

Characteristics of the silica deposits which, based on the information supplied, could materially influence the economic value of that deposit, have been reported (SAMREC Code, 5.2.2).

The silica resources have been subdivided, in order of increasing confidence in respect of geoscientific evidence into inferred, indicated and measured categories (see figure above). Portions of a deposit that do not have reasonable and realistic prospects for eventual economic extraction have not been included in the silica resource (SAMREC Code, 5.4.1).

The silica resource estimates are not precise calculations. Therefore, the reporting of tonnage has been rounded off to appropriately significant figures to reflect the order of accuracy of the estimates. In the case of inferred silica resources, these estimates have been qualified with terms such as 'approximately' (SAMREC Code, 5.4.2).

The appropriate category of resource has been chosen, depending on the quantity, distribution and quality of data available and the level of confidence attached to the data. The competent person responsible for preparing this report has determined the appropriate resource category. (SAMREC Code, 5.4.6). Where the quoted resource figures may combine two or more of the categories, the figures for the individual categories are also provided (SAMREC Code, 5.4.8).

Reporting Of Silica Resources

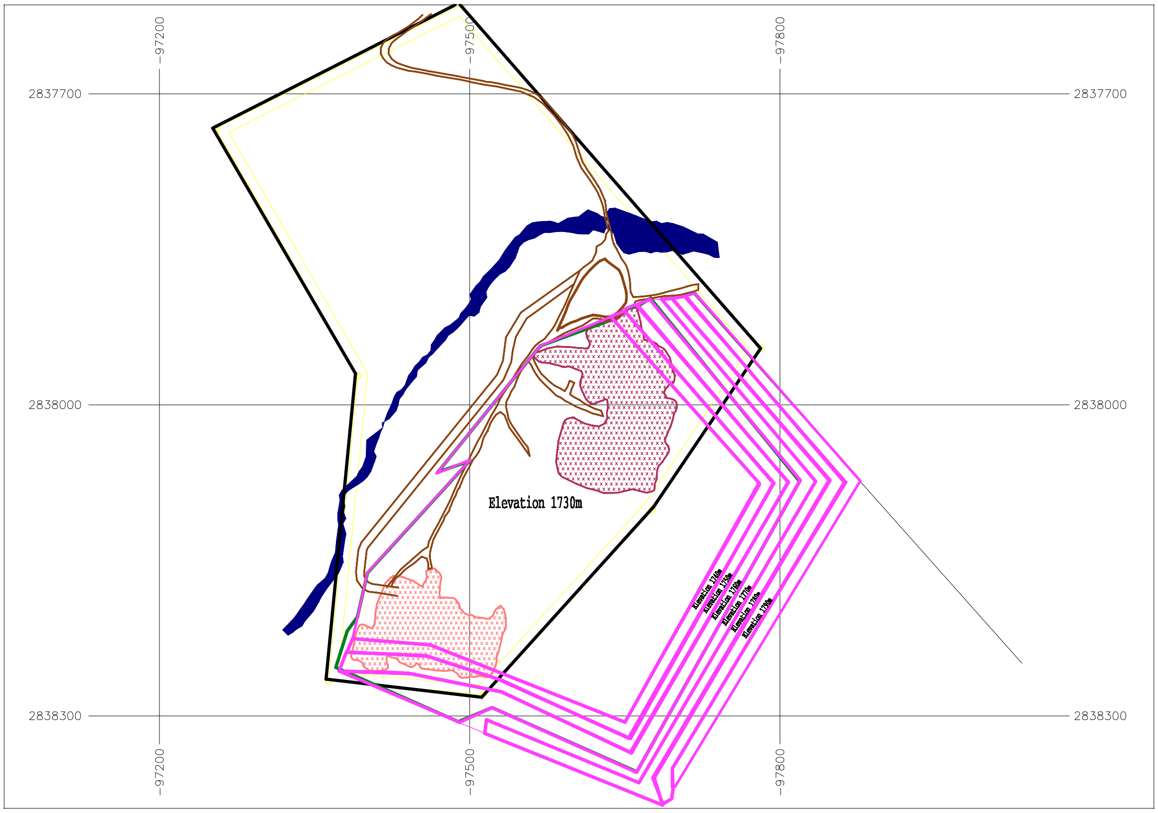
Appropriate assessments have been made regarding realistically assumed mining and processing. These assessments demonstrate at the time of reporting that extraction is reasonably justifiable (SAMREC Code, 5.5.1).

The silica reserves are categorised as “proved”/”probable” depending on the quantity, distribution and quality of data available and the level of confidence attached to the data. The category has been determined by the competent person responsible for the report (SAMREC Code, 5.5.4).

Geological discount factors:

The geological discount factor used was 15%, a function of the drill hole density. A 5%, mining loss, methodology loss of 2%.

1.1.8 Silica Resources


2837700
2838000
2838300
-97200
-97500
-97800
Elevation 1730m

1. LIFE OF MINE VOLUME/TONNAGE REQUIREMENTS

Required tons per month	Density	Volume (m3)	Annual (m3)	LOM (m3)	Average Depth (m)	Area (m2)
20,000	2.60	7,692	92,308	3,692,308	30	123,077

2. EXISTING MINING RIGHT AREA (TO 1762M ELEVATION)

VOLUME (m3)	DENSITY	MONTHLY RQD (m3)	LOM (Months)
146,897	2.60	7,692	19

Source: D Scholtz (Cut and Fill)
Note: Includes tiangle on North Eastern Pit 1 and limited to 1762m level

3. EXISTING PIT AND EXTEND TO PROSPECTING RIGHT (Limited by DTM and Elevation 1760m)

	Area	Depth	Volume	Tons
Existing Pit			1,115,385	2,900,000
Area4	6,921	40	276,840	719,784
Area 5	13,059	55	718,245	1,867,437
Area 6	7,939	50	396,950	1,032,070
Area 7	7,411	45	333,495	867,087
Area 8	8,306	35	290,710	755,846
Area 9	11,350	25	283,750	737,750
Area10	8,424	10	84,240	219,024
Total	**63,410**		**3,499,615**	**6,198,998**

	Years
Life of Mine	**26**

4. EXTEND BEYOND DTM AND EXTRAPOLATE SURFACE

	Area	Depth	Volume	Tons
Existing Pit			1,115,385	2,900,000
Area4	10,382	40	415,260	1,079,676
Area 5	19,589	55	1,077,368	2,801,156
Area 6	11,909	50	595,425	1,548,105
Area 7	11,117	45	500,243	1,300,631
Area 8	12,459	35	436,065	1,133,769
Area 9	17,025	25	425,625	1,106,625
Area10	12,636	10	126,360	328,536
Total	**95,115**		**4,691,730**	**9,298,497**

	Years
Life of Mine	**39**

The mineable resource is classified as indicated in terms of the SAMREC classification.

1.1.9 Competent persons statement

The Klipfontein silica resource area tonnages were calculated according to the SAMREC guidelines based on all the current available geological information.

____

A.M.T. Bullock

Pr. Sci. Nat (400059/98)