

Corporate Profile

Profile

Nokeng Fluorspar Mine (Pty) Ltd, a wholly owned subsidiary of Sephaku Fluoride Limited, which is a wholly owned subsidiary of Sephaku Holdings Limited, is planning to develop its Nokeng Project into a fluorspar mine, producing 130,000tpa, acid grade fluorspar by the second half of 2013.

History

In the 1970s, Gold Fields South Africa (Pty) Ltd conducted an extensive drilling programme on Naauwpoort 208JR, which resulted in the delineation of an alluvial outwash fan with a fluoritic ironstone horizon. The programme supported the definition of a non-compliant Mineral Resource of 8.94Mt of ore at 21.9% CaF₂ for 1.95Mt of contained fluorspar.

BHP Billiton SA Limited was awarded a Prospecting Right for fluorspar on Naauwpoort 208JR on 13 December 2005, which was renewed on 13 December 2007. An application in terms of Section 11 of the MPRDA to the DME was submitted by BHPBilliton. This application provides for the transfer of BHPBilliton's prospecting right for fluorspar on Naauwpoort 208JR to the then Caltlin Investments.

The Nokeng Fluorspar Mine (Pty) Ltd (previously Caltlin Investments (Pty) Ltd) was awarded a Prospecting Right for all minerals excluding coal and iron ore on Kromdraai on 13 December 2005.

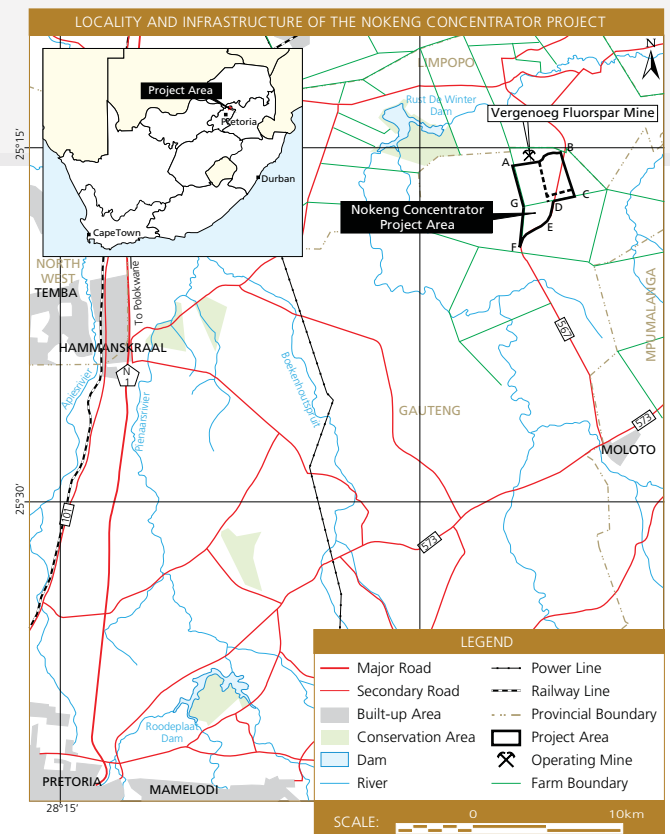
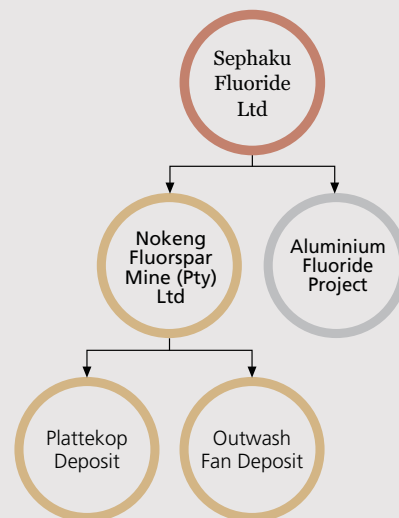
Location

The Nokeng Project entails the development of two fluorspar deposits, the Outwash Fan and Plattekop Deposit, located on the Kromdraai 209JR and Naauwpoort 208JR farms, on which these two major fluorspar deposits are:

- A haematite-fluorspar deposit in the northern region of Kromdraai, which has been named the Plattekop Deposit
- A place outwash fan further south, which straddles the Kromdraai and Naauwpoort farm boundary. The deposit has been termed the Outwash Fan Deposit

The properties are located in the north-eastern quadrant of the Gauteng Province of South Africa in the Metsweding District Municipality. The Nokeng Project is situated within the Nokeng tsa Taemane local authority area and adjacent to Pretoria. The project lies approximately 80km north of Pretoria and 32km east of the village and rail siding of Pienaar's River. The nearest settlement is Rust de Winter, north of the project area.

Corporate Structure



On 21st January 2009, the then Caltlin Investments and BHPB, entered into a sale agreement to cede the Prospecting Right from BHPB to Caltlin Investments. An application in terms of Section 11 of the MPRDA, was approved by the then Department of Minerals and Energy (DME) in a communication dated 25 August 2009.

The Resource

Outwash Fan Deposit

- the deposit is interpreted as a placer, outwash fan-delta conglomerate, formed as a result of sedimentary deposition after erosion of the primary pyroclastic rock suite. The sequence comprises alternating, laminated beds of fine grit and coarse ferruginous conglomerate;
- the horizon of economic interest is a single fluorspar bearing, ferruginous conglomerate/breccias 1m to 9m thick (average 4m), with a fine grained matrix of fluorspar, rhyolite, tuff, quartzite and haematite;
- the horizon dips at approximately between 7° to 15° east and is approximately 1.1km x 1.3km in aerial extent;
- the deposit is transacted by a central east west fault which divides it into three areas, a northern block within which the ore body thickness ranges between 3m and 8m; a south-eastern block within which the ore body thickness reduces to between 2m to 3m and a south-west block with thicknesses of 4m to 1m;
- the overburden thickness is less than 2.5m in the north and over 80m in the east; and
- a series of sub-parallel, east-west, north-east or north-west faults have produced graben-like structures across the Nokeng project area and these structures are responsible for the uplift and erosion of sections of the ore body resulting in preservation in some areas of the ore body and removal of mineralised horizons in others.

Plattekop Deposit

- the deposit forms a 200m x 400m plateau capping the Plattekop Hill and represents an erosional remnant of a presumably larger original deposit;
- the sedimentological features of the sequence suggests only limited re-working of the primary material and the deposit is currently interpreted as a froth flow channel lag deposit feeding from the Vergenoeg exhalative vent;
- geologically the deposit comprises a 6m to 27m thick horizon of fluorsparhaematite within a sequence of ferruginous pyroclastics associated with the Vergenoeg vent immediately to the north;
- the ore body thickens in the north eastern area from 6m to over 27m and there is a lens shaped body of waste material within the economic horizon in this area. The mineralised horizon thickness decreases towards the south west along the ore body; and
- SRK Consulting South Africa (SRK) performed the Mineral Resource Estimates on both the Plattekop and Outwash Fan deposits and are reported in accordance with the South African Code for the Reporting of Exploration Results, Mineral Resources and Mineral Reserves (The SAMREC Code) and comprise of the following:

Mineral Resource Estimate					
Deposit	Classification	Density (t/m ³)	Tonnes (kt)	CaF ₂ (%)	Contained CaF ₂ (kt)
Outwash Fan	Measured	3.83	8 182.5	24.6	2 010.9
	Indicated	3.8	2 917.0	42.4	1 236.0
Plattekop	Inferred	3.8	361	38.4	138

The Outwash Fan Deposit has a Measured Mineral Resource estimate of 8.2 Mt at a CaF₂ grade of 24.6% and is a stratiform type deposit. The ore body has a shallow dip of 6° to 9° from west to east and an average thickness of 4m. The Measured Resource was upgraded to a Mineral Reserve during the completion of the DFS.

The Plattekop Deposit has an Indicated Mineral Resource estimate of 2.9 Mt at a CaF₂ grade of 42.4%. Additional drilling on Plattekop was undertaken to provide enough data to upgrade the ore resource. The assay results have been received and was upgraded to a Mineral Reserve by Sound Mining Solutions.

Figure 01

Plant view facing north west

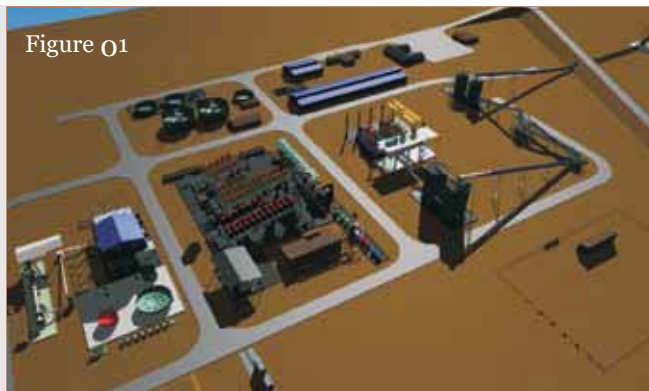
Figure 02

Flotation, storage and milling

Figure 03

Secondary crushing, storage, milling and flotation

Figure 01



Thickness of the fluor spar layer varies between 1 and **9.5 metres** and averages 4 meters

Exploration programme

Geology

- Bulk sampling for bench scale metallurgical test work;
- Diamond drilling programme totalling 2 532 meters;
- Drilling on the Outwash Fan consists of:
 - 45 boreholes on a 100m x 100m grid to depths of 6m – 59m;
 - 4 geotechnical drill holes to depths of 20m – 50m;
 - 8 sterilisation drill holes; and
 - 5 water boreholes.
- Drilling programme on Plattekop comprised of 28 boreholes drilled to depths of 8m – 70m;
- Sample assaying of approximately 600 samples; and
- Boreholes surveying by independent surveyors.

Studies completed

- Betachem – Scan Electron Microscopic (SEM) Studies;
- Mintek – Filtration, phase 1 and 2 crushing, milling and floatation test work were completed by Mintek, together with metallurgical test work which confirmed that an acid grade fluor spar of 97.2% can be produced;
- SRK Consulting South Africa (SRK) – SRK was contracted to perform a Mineral Resource Estimate of both the Plattekop and Outwash Fan deposits;
- A Concept Study and CPR on the proposed Nokeng Mine were completed by SRK during April 2009 and Venmyn Rand during July 2009 respectively. The CPR formed part of the pre-listing statement in support of the listing of Sephaku Holdings on the JSE on 21st August 2009; and
- A complete and independently compiled Definitive Feasibility Study (DFS) compiled by Venmyn Rand (Pty) Ltd.

Current project status

During the DFS application was made to the relevant authorities for the following authorisations required to commence mining:

- Environmental Authorisation under the National Environmental Management Act;
- Water Use Licence has been submitted
- Mining Right was granted
- Social and Labour Plan was accepted

The Nokeng Mine is in the process of:

- Conducting an Environmental Impact Assessment (EIA) in accordance with the requirements of NEMA;
- Completing an Environmental Management Programme Report (EMPR) as part of the MRA, in accordance with the requirements of the MPRDA; and
- Consulting with interested and affected parties.

Project strengths

- High Grade World Class Ore Body;
- Geologically and Technically Sound Operation;
- Low Cost Fluor spar Producer;
- Simple Open Pit Extraction Requirements;
- Uncomplicated Mining and Processing Requirements;
- Favourable Fluor spar Market Conditions;
- Experienced Management and Technical Team;
- Lack of commercially viable acid-grade fluor spar around the world;
- Government's primary goal of fluoro chemical expansion initiative; and
- Great upside resource potential from additional Wiltin Target.

Figure 02



Figure 03



Downstream beneficiation

Sephaku Fluoride Limited is planning a beneficiation Production Facility consisting of a Sulphuric Acid Plant, a Hydrogen Fluoride Plant, as well as, an Aluminium Fluoride Plant.

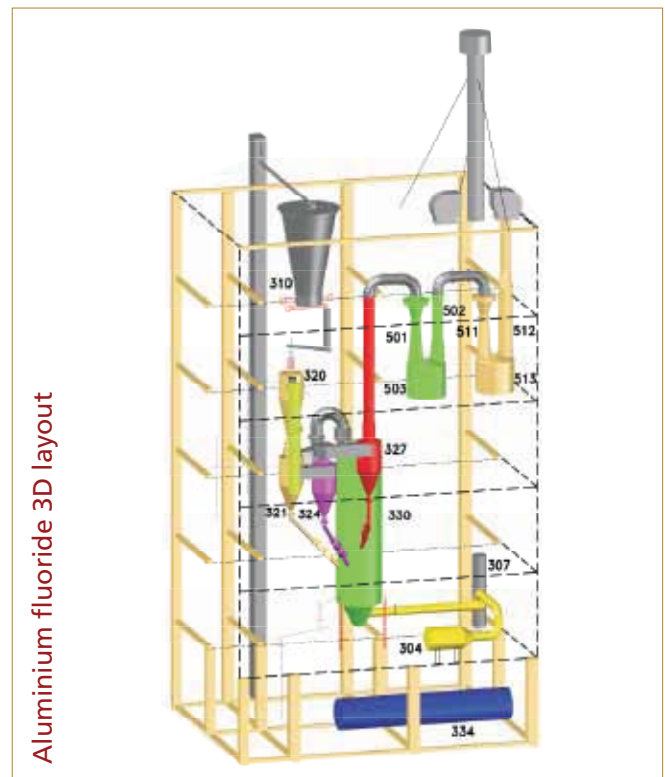
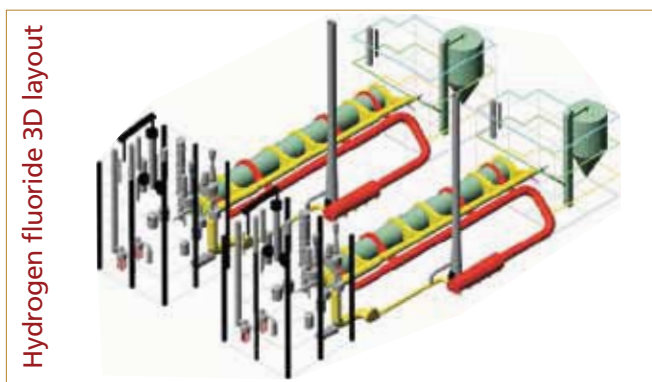
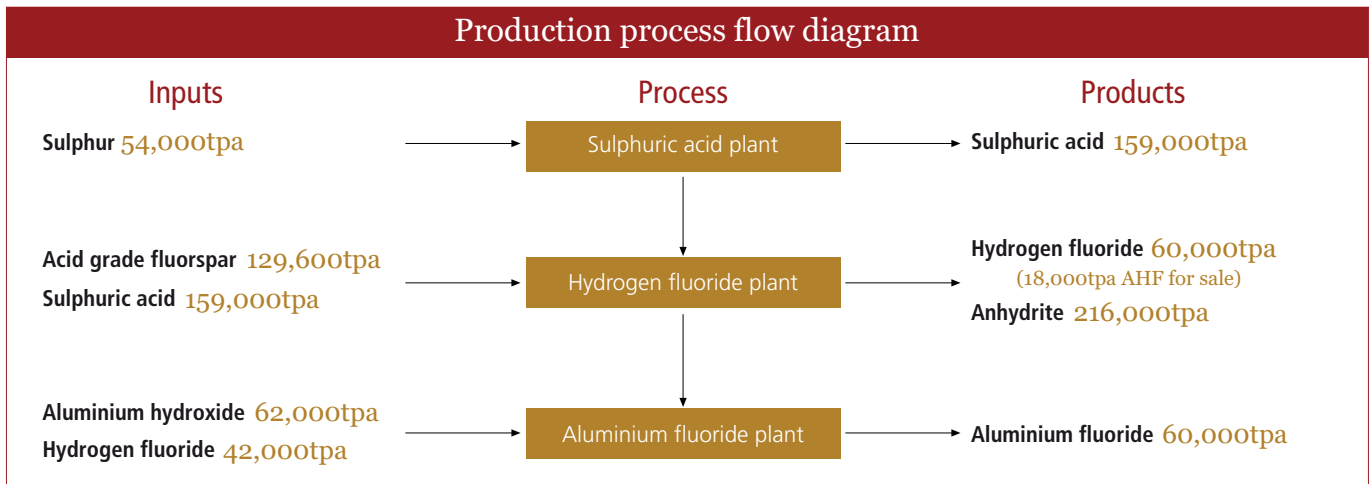
A high level financial analysis was performed to validate the feasibility and opportunities associated with the specific products and quantities intended to be produced by the Production Facility.

Sephaku Fluoride, through Nokeng Mine, will be a major supplier of fluorspar following the commissioning of the Nokeng concentrator in the last quarter of 2013, the combination of local aluminium fluoride production and economy of the supply, will result in Sephaku Fluoride being one of the lowest cost suppliers of aluminium fluoride in the market. Furthermore, Sephaku Fluoride will realise additional profits from the local production of high quality fluorspar, as well as

from the highest quality aluminium fluoride, produced at the lowest operating costs, using the latest technology.

The current global market for fluorspar and aluminium fluoride is very favourable, with sufficient opportunity to sell the products and by-products (anhydrite and calcium fluorosilicate) from the Production Facility within South Africa, the Middle East, as well as in Europe and South America.

The key technology to be utilised in the Production Facility will include the production of 159,000tpa sulphuric acid and oleum, and together with 129,600tpa acid grade fluorspar will produce 60,000tpa anhydrous hydrogen fluoride. The Production Facility will consume 42,000tpa anhydrous hydrogen fluoride to produce 60,000tpa aluminium fluoride and the balance of 18,000tpa AHF will be available for sale to the market.



Contact details

Project manager:
Loek van den Heever

Tel: +27 12 665-5060
Fax: +27 12 665-3641

Business address:
Suites 4-6 Manhattan Office Park
16 Pieter Road
Highveld Technopark, Centurion
PO Box 68149, Highveld, 0169

www.sephakuholdings.co.za