Mokopane Tin Project, South Africa

Independent Technical Report

Prepared by MSA Geoservices (Pty) Ltd on behalf of:
Greenhills Resources Ltd

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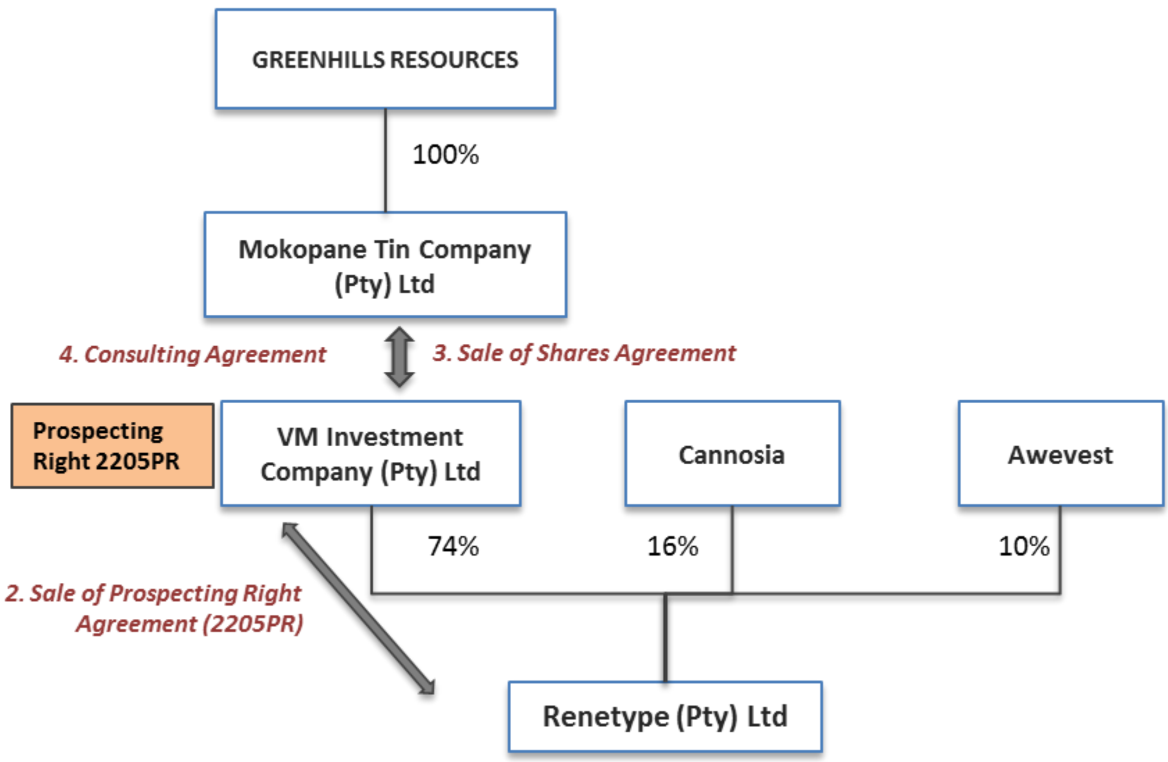
1 SUMMARY

The Mokopane Tin Project property comprises six farms situated over the acid phase rocks of the Bushveld Complex. The property is approximately 13 422 ha in extent. The equivalent of nearly 22 000 tonnes of tin metal have been historically produced from four of the farms, from high grade pipe-like mineralisation, and from lower grade disseminated mineralisation occurring near the upper parts of a granite sheet.

Prospecting Right (PR) LP 2205 PR is held in the name of VM Investment Company (Pty) Ltd (VMIC). The license is valid for a period of five years, from 14 July 2010 to 13 July 2015, and grants exclusive prospecting rights to the holder. The PR gives the holder rights to explore for tin, rare earth metals, fluorspar, molybdenum, gold, arsenic, uranium, zirconium, iron ore and zinc. Greenhills Resources Ltd has access to PR 2205 PR through its shareholding of VMIC via the Mokopane Tin Company as shown in the following shareholding structure.



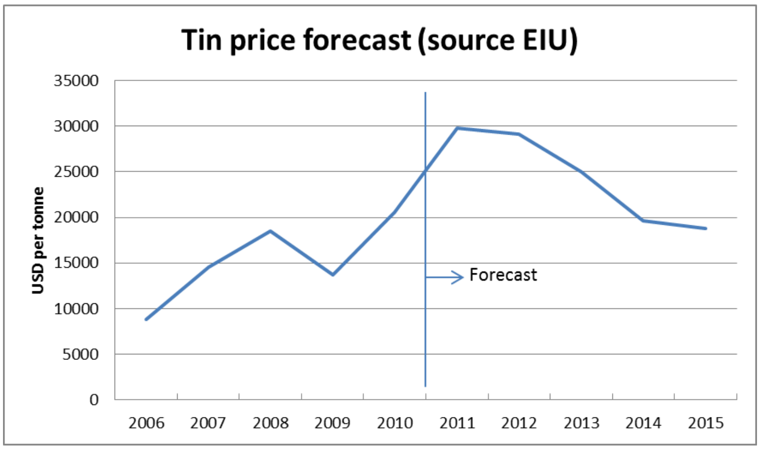
The high grade tin mineralisation has mostly been mined out. However, at least two areas of lower grade disseminated tin mineralisation remain on the farms Groendoorn 225KR and Groenfontein 227KR. This deposit represents only one of five targets identified in the project area. It may be significantly increased through further exploration on these targets. The current focus of the exploration programme is to move the Groenfontein target towards a feasibility study and prove up more tonnes on the other targets. One of these deposits occurs in the Bobbejaankop Granite and has not yet been investigated in detail. The second occurs in the overlying Lease Granite and has been effectively sampled during drilling campaigns undertaken during the 1970s, and verified and enhanced during 2011. Measured, Indicated and Inferred Mineral Resources (as per JORC) have been estimated in the Lease Granite at Groenfontein as shown in the following tables.

Measured				*Indicated*				*Inferred*			
Cut-off (%Sn)	**Tonnes**	**Grade (%Sn)**	**Sn tonnes**	**Cut-off (%Sn)**	**Tonnes**	**Grade (%Sn)**	**Sn tonnes**	**Cut-off (%Sn)**	**Tonnes**	**Grade (%Sn)**	**Sn tonnes**
0	10,289,000	0.052	5,350	0	85,384,000	0.018	15,369	0	49,073,000	0.017	8,342
0.01	8,459,000	0.062	5,245	0.01	61,591,000	0.023	14,166	0.01	35,681,000	0.021	7,493
0.02	7,359,000	0.069	5,078	0.02	18,954,000	0.05	9,477	0.02	9,843,000	0.046	4,528
0.03	6,153,000	0.078	4,799	0.03	12,169,000	0.064	7,788	0.03	5,745,000	0.062	3,562
0.04	4,802,000	0.09	4,322	0.04	8,451,000	0.078	6,592	0.04	3,901,000	0.075	2,926
0.05	3,722,000	0.104	3,871	0.05	6,550,000	0.088	5,764	0.05	2,990,000	0.085	2,542
0.06	2,884,000	0.118	3,403	0.06	4,683,000	0.101	4,730	0.06	2,078,000	0.099	2,057
0.07	2,267,000	0.132	2,992	0.07	3,508,000	0.114	3,999	0.07	1,442,000	0.115	1,658
0.08	1,817,000	0.147	2,671	0.08	2,798,000	0.124	3,470	0.08	1,203,000	0.123	1,480
0.09	1,434,000	0.163	2,337	0.09	2,290,000	0.132	3,023	0.09	1,027,000	0.129	1,325
0.1	1,177,000	0.179	2,107	0.1	1,918,000	0.14	2,685	0.1	898,000	0.134	1,203
0.11	1,001,000	0.192	1,922	0.11	1,247,000	0.16	1,995	0.11	536,000	0.157	842
0.12	840,000	0.206	1,730	0.12	1,058,000	0.168	1,777	0.12	467,000	0.163	761
0.13	717,000	0.221	1,585	0.13	880,000	0.177	1,558	0.13	352,000	0.176	620
0.14	632,000	0.232	1,466	0.14	731,000	0.186	1,360	0.14	271,000	0.188	509
0.15	561,000	0.243	1,363	0.15	591,000	0.196	1,158	0.15	244,000	0.193	471
0.16	496,000	0.255	1,265	0.16	472,000	0.206	972	0.16	206,000	0.201	414
0.17	430,000	0.269	1,157	0.17	387,000	0.215	832	0.17	174,000	0.207	360
0.18	391,000	0.278	1,087	0.18	313,000	0.225	704	0.18	111,000	0.225	250
0.19	357,000	0.287	1,025	0.19	245,000	0.236	578	0.19	75,000	0.246	185
0.2	322,000	0.297	956	0.2	193,000	0.248	479	0.2	68,000	0.251	171

In the Lease Granite at the Groenfontein target, a Measured + Indicated Mineral Resource of 3 095 000 tonnes, containing 4 792 tonnes tin (at 0.1% Sn cut-off) has been estimated, at an average grade of 0.15% Sn. A further 898 000 tonnes is estimated in the Inferred Mineral Resource category, at an average grade of 0.13% Sn. A preferred cut-off of 0.1% Sn has been selected by benchmarking the project against similar tin projects elsewhere in the world, and by estimating the in situ value of ore based on a three year average tin price. However, there may be upside to the Mineral Resource base if the tin price remains high, which may allow a lower cut-off grade to be applied. Locally, drilling has intersected relatively high-grade mineralisation with grades reaching up to 0.46% Sn over 11m, and 0.41% Sn over 16m.

No economic study of the project has yet been undertaken. The Mineral Resource that has been defined crops out at surface and occurs at shallow depth. The stripping ratio and mining costs would therefore be relatively low.

Examination of the tin market indicates that the tin price is currently at an all-time high. Forecasts of the tin price all suggest that the price is likely to increase further in the short term, before levelling off and falling slightly in the medium term.



Because this project is situated in South Africa, it would be subject to exchange risk as the Rand / US Dollar exchange rate fluctuates. Operating costs would be in Rands, but the sales revenue for tin produced would be based on an international pricing model. Also, the deposit that has been defined is relatively small and low grade. This provides little margin should negative factors impact a future mine.

It is recommended that a scoping study is undertaken on the Mineral Resource to determine whether a proportion of the Mineral Resources can be mined economically. A preliminary metallurgical study should be undertaken to establish the grain size of the cassiterite and its recoverability.

2 INTRODUCTION AND TERMS OF REFERENCE

2.1 Scope of Work

The MSA Group (MSA) has been commissioned by Greenhills Resources Ltd (Greenhills) to provide an independent competent person's report (CPR) on the Mokopane Tin Project in the Limpopo Province of South Africa. This report is intended to comply with standards set forth by the Joint Ore Reserves Committee of the Australian Institute of Mining and Metallurgy, Australian Institute of Geoscientists, and Mineral Council of Australia, in the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (The JORC Code).

2.2 Principal Sources of Information

Tin mining in the vicinity of the Mokopane Tin Project commenced in 1906 and most recently ended in about 1990 as a result of depressed tin prices at that time. A significant volume of both published and unpublished scientific and commercial information has been produced on mines in the area and MSA believes that a representative and relevant proportion of this information has been collated for use in the preparation of the report. The documents used in this review are listed in section 17 of the report.

2.3 Qualifications, Experience and Independence

MSA is an exploration and resource consulting and contracting firm which has been providing services and advice to the international mineral industry and financial institutions since 1983. This CPR has been compiled by Dr Leon Liebenberg and Mr Michael Lynn. The information in this report that relates to Exploration Results and Mineral Resources is based on information compiled by Dr Leon Liebenberg, who is a registered Member of the South African Council for Natural Scientific Professions (SACNASP), a Recognised Overseas Professional Organisation included in a list promulgated by the ASX from time to time. His registration number is 401139/83.

Dr Liebenberg is a professional geologist with 43 years' industry experience with a number of multinational mining and exploration companies and in a variety of commodities. He worked at the Zaaiplaats Tin Mine for a short period early in his career and has worked on tin projects in South Africa and elsewhere. He is an Associate Consulting Geologist with MSA, a registered professional scientist with the South African Council for Natural Scientific Professions (SACNASP), a Member of the Geological Society of South Africa (MGSSA) and the Society of Economic Geologists (MSEG). Dr Liebenberg has the appropriate relevant qualifications, experience, competence and independence to act as a 'competent person' as that term is defined in the JORC Code.

Mr Lynn is a professional geologist with 25 years' experience, primarily in the exploration for and evaluation of mineral deposits in Southern, Central, West and East Africa and India. This includes work on tin-tantalum granites and pegmatites in the Democratic

Republic of Congo. He is a member of the Geological Societies of South Africa and India, and of the Society of Economic Geologists. He is registered as a Professional Natural Scientist with the South African Council for Natural Scientific Professions (400148/11). His contributions to this CPR have been signed off by Dr Liebenberg.

The Mineral Resource work has been reviewed by Mr Michael Hall. Mr Hall is a resource geologist with over 30 years' experience in multi-commodity mineral exploration and resource management. He is Principal Consultant, Mineral Resources, with MSA, a registered professional scientist with South African Council for Natural Scientific Professions (SACNASP), and a Member of the Geological Society of South Africa (MGSSA) and the Australian Institute of Mining and Metallurgy (AIMM). Mr Hall has the appropriate relevant qualifications, experience, competence and independence to act as a 'competent person' as that term is defined in the JORC Code.

Peer review has been undertaken by Mr Robert Croll, who is a professional mining engineer and a Qualified Valuator as that term is defined by the Special Committee Of The Canadian Institute Of Mining, Metallurgy and Petroleum on Valuation of Mineral Properties (CIMVAL), with over 35 years' experience in mining and valuation of mineral projects within Africa and elsewhere internationally. Mr Croll is a Fellow of the South African Institute of Mining and Metallurgy.

Neither MSA, nor the authors of this CPR, have or have had previously, any material interest in Greenhills or the mineral properties in which Greenhills has an interest. Our relationship with Greenhills is solely one of professional association between client and independent consultant. This CPR is prepared in return for professional fees based upon agreed commercial rates and the payment of these fees is in no way contingent on the results of this CPR.

2.4 Current Personal Inspection

A site visit was made on 11 April 2011 to the Mokopane Tin Project by Dr. Leon Liebenberg DSc MSc Pr.Sci.Nat, a 'competent person' as that term is defined in the JORC Code, and Mr Mike Lynn MSc of MSA, accompanied by Professors Morris and Richard Viljoen, representatives of Greenhills, and also 'competent persons'. A visit was made to the historical marked drill locations and current verification drilling activities on the property, and to the core store situated in the nearby town of Mokopane.

3 RELIANCE ON OTHER EXPERTS

The information and conclusions contained in this CPR are based on information available to MSA at the time of preparation of the report. MSA assumed that all of the information and technical documents reviewed and listed in the "References" are accurate and complete in all material aspects. While MSA carefully reviewed all of this information, MSA has not concluded any extensive independent investigation to verify their accuracy and completeness. The Mineral Resource was independently estimated by Mr Dexter Ferreira of IRES.

Greenhills has warranted that a full disclosure of all material information in its possession or control has been made to MSA. Greenhills has agreed that neither it nor its associates will make any claim against MSA to recover any loss or damage suffered as a result of MSA's reliance upon the information provided by Greenhills for use in preparation of this report. Greenhills has also indemnified MSA against any claim arising out of the assignment to prepare this report, except where the claim arises as a result of proved wilful misconduct or negligence on the part of MSA. This indemnity is also applied to any consequential extension of work through queries, questions, public hearings or additional work required arising from MSA's performance of the engagement.

Greenhills has reviewed draft copies of this report for factual errors. Any changes made as a result of these reviews did not involve any alteration to the conclusions made. Hence the statements and opinions expressed in this document are given in good faith and in the belief that such statements and opinions are not false and misleading at the date of this report.

MSA reserves the right to, but will not be obligated to, revise this report and conclusions thereto if additional information becomes known to MSA subsequent to the date of this report.

4 PROPERTY DESCRIPTION AND LOCATION

MSA has obtained a copy of Prospecting Right (PR) LP 2205 PR with protocol reference 47/2010, issued by the Department of Minerals and Energy (DME) in the name of VM Investment Company (Pty) Ltd (VMIC), as evidence that the licence is valid and in good standing. However, MSA has not independently verified the legal status of this license, nor is it qualified to do so. The present status of tenements listed in this report is based on information and copies of documents provided by Greenhills, and the report has been prepared on the assumption that the licenses are lawfully accessible for evaluation. The license is valid for a period of five years, from 14 July 2010 to 13 July 2015, and grants exclusive prospecting rights to the holder. The PR gives VMIC the right to explore for tin, rare earth metals, fluorspar, molybdenum, gold, arsenic, uranium, zirconium, iron ore and zinc.

4.1 Area and Demarcation of Property

The area of the PR is defined by farm boundaries. The PR comprises the farms Groendoorn 225 KR (excluding Portion 05), Groenfontein 227 KR (excluding Portion 25), Sterkwater 229 KR, Salomon's temple 230 KR, Roodepoort 222 KR and Zaaiplaats 223 KR. According to the PR, the property totals 13 421.7362 ha. A locality map and map of the property as defined by the description in the Prospecting Right is shown in Figure 4-1.

4.2 Shareholding

In terms of an agreement with the DME, provision needs to be made to incorporate Black Economic Empowerment (BEE) partners in the project. This provision is being fulfilled through a transfer to Renetype (Pty) Ltd, which was set up for the specific purpose of developing the prospecting right 2205 PR, and in which 26% of the shares are held by BEE companies. VMIC is a 74% shareholder of Renetype. This shareholding will be transferred to a subsidiary of Greenhills Resources Limited (Greenhills), called Mokopane Tin Company, in terms of a Sale of Shares Agreement between VMIC and Mokopane Tin Company (Pty) Ltd.

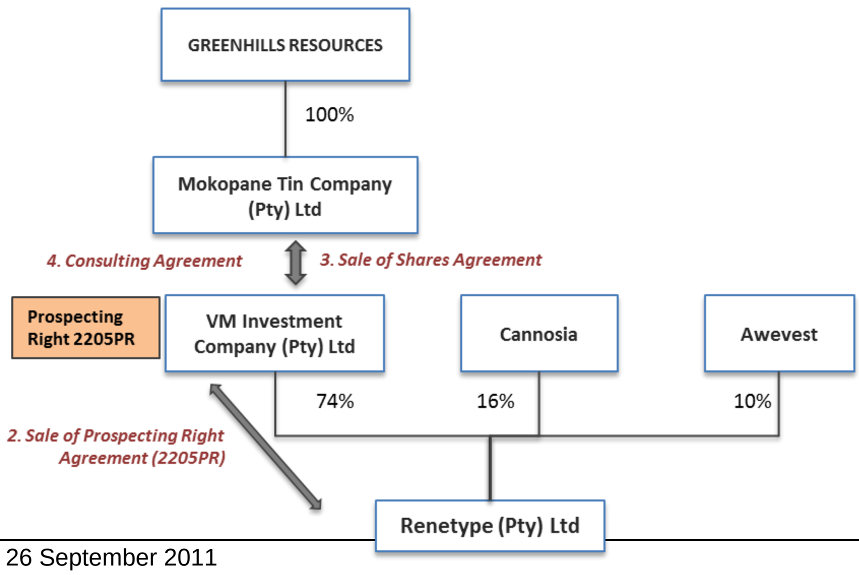
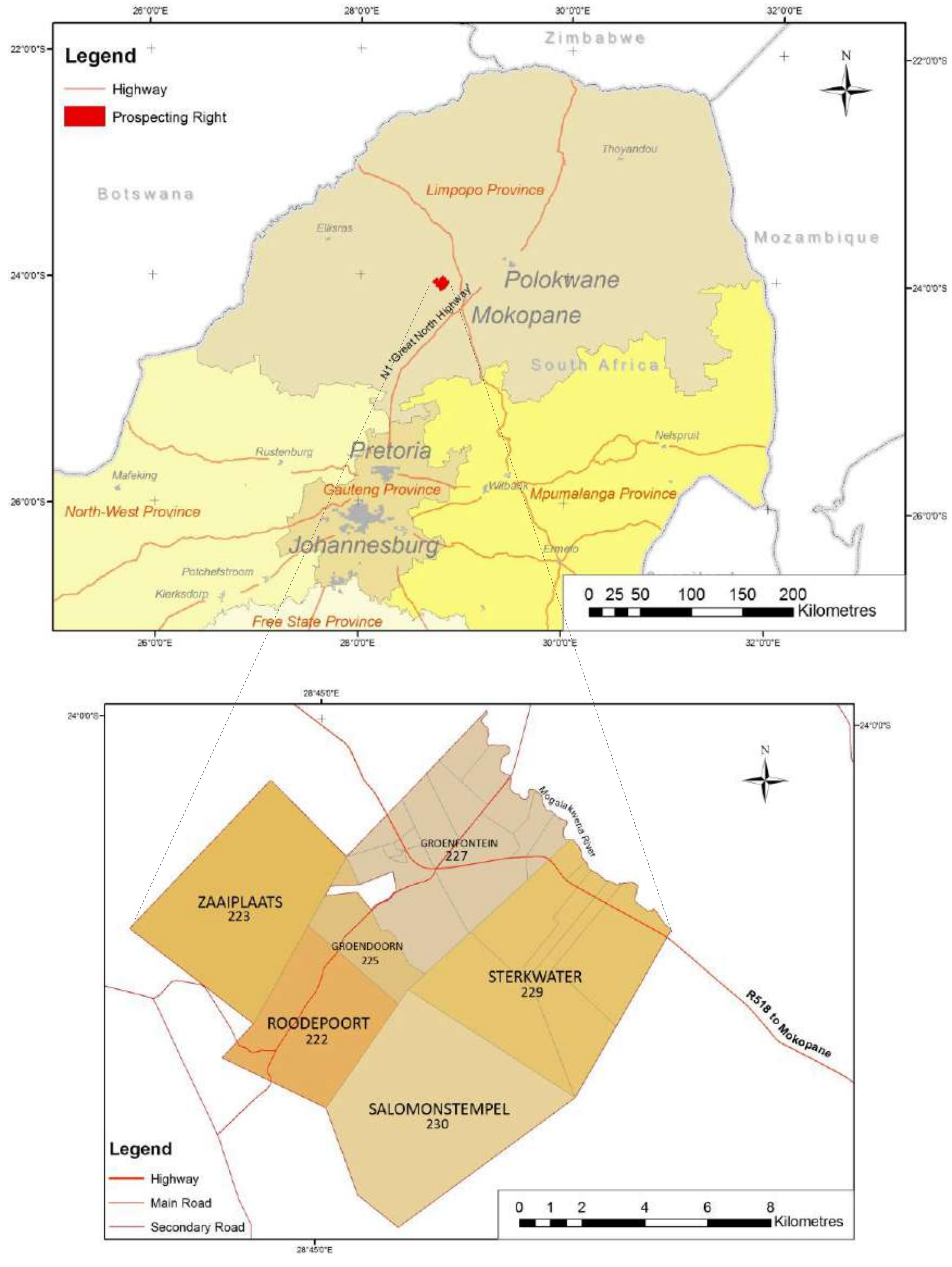


Figure 4-1
Locality Map of Prospecting Right LP 2205 PR



5 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

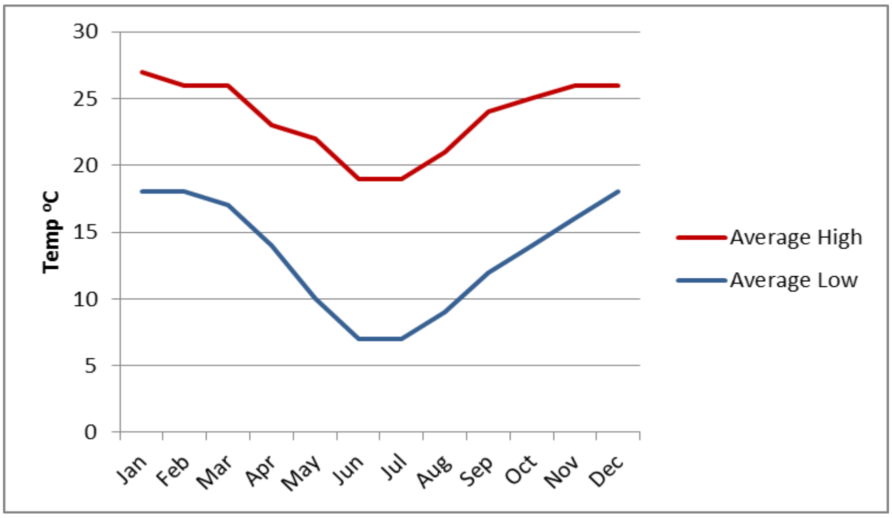
5.1 Access

Access to the property is via the N1 motorway from Johannesburg to Mokopane (formerly Potgietersrus), and then via the R518 tarred secondary road which passes through the property (Figure 4-1). The journey time is approximately three-and-a-half hours by car. Jeep tracks provide access to various parts of the property and most of these are not suitable for normal 2WD road vehicles. There is a cellular phone signal for the major networks.

5.2 Climate

Mokopane experiences a semi-arid climate with hot to very hot summer months. Average rainfall is 350-400 mm and mostly occurs as afternoon thunderstorms during the months from November to March. Winter months are generally cool to warm and sunny during the day with temperatures dropping considerably in the evenings (Figure 5-1).

Figure 5-1
Average Temperature chart for Mokopane



5.3 Physiography

The property is hilly with elevation ranging between 1 565 m in the southern ridges, and 990 m in the valley of the Mogolakwena River at the northern tip of the property. The hills are formed by the resistive granophyre that forms the roof of the mineralised Bobbejaankop and Lease Granites.

5.4 Local Resources and Infrastructure

Mining services and human resources are available in Mokopane and surrounding areas, which have a long history of mining, being situated within the Bushveld Complex. There are nearby operating platinum, chrome and gold mines. Drilling contractors, services and consultants are available in Johannesburg and the greater Gauteng area.

The region is served by major existing power infrastructure. The 765 kV Matimba-Witkop power line passes 25 km north of the property. In additon, further infrastructure is in development to transmit power from the Matimba power station (situated some 120 km to the northwest of the property) to accommodate the increased demand in the Mokopane area, to satisfy the platinum mining industry. Various options are under review, and one of these options passes within 5 km of the property (Diamond, 2008).

Water availability may be limited due to the semi-arid environment. However, the old underground mine workings are flooded, and the property is flanked by the Mogolakwena and Sterk Rivers. It is therefore probable that sufficient process water could be sourced locally.

6 DEPOSIT TYPE

The principal tin deposits of the world occur in association with evolved calc-alkaline granites emplaced late in orogenic cycles (also termed post-kinematic or anorogenic granites). These ‘tin granites’ commonly occur in composite batholiths in old continental mobile zones. The granites associated with tin deposits are the most highly evolved and the latest intrusion in the composite batholith. They tend to be discordant to bedding, regional structure, regional metamorphic isograds and older foliated granites.

Geochemistry

Tin granites have a number of geochemical features in common, which helps distinguish them from unmineralised granites. They are generally enriched in: SiO_2, alkalis, fluorine (F), lithium (Li), boron (B), beryllium (Be), tin (Sn), tantalum (Ta), niobium (Nb), rubidium (Rb), gallium (Ga), yttrium (Y), light rare earth elements (REE), uranium (U), thorium (Th), tungsten (W) and lead (Pb). They are generally depleted in: TiO_2, Al_2O_3, MgO, CaO, H_2O, P_2O_5 strontium (Sr), barium (Ba), cobalt (Co), nickel (Ni) and europium (Eu) when compared to associated unmineralised granites. This enrichment and depletion is related to proximity to the upper contact of the batholith and is enhanced in upward projections of the batholith into the surrounding and overlying country rocks. The source granite rocks for tin deposits are characterised by an enrichment in the most incompatible large-ion lithophile elements (such as U, Th and Rb), large, highly charged ions (such as Sn^{4+}, W^{6+} and U^{4+}) and small ions (such as Li^{+}, Be^{2+} and B^{3+}).

Tin granites are the final product of fractionation derived from a source rock enriched in silica (Si) and potassium (K).

Mineralogy

Tin granites are usually multiphase intrusions. The most commonly recognised early phase is a porphyritic granite characterised by large quartz and K-feldspar phenocrysts in a finer grained groundmass. This type of granite commonly grades into a more seriate textured granite from the outside of the intrusion, inwards.

Tin granites usually contain abundant large (often pinkish) potassium (K) feldpsar crystals with a perthitic texture, in a groundmass of K feldspar, quartz and zoned plagioclase (with sodic rims) and biotite. Accessory minerals include muscovite, tourmaline, fluorite, F-apatite, ilmenite, topaz, monazite, zircon, xenotime, andalusite and cordierite.

6.1 Tin Mineral Resources

Examples of current tin projects around the world are shown in Table 6-1.

Table 6-1
Current Tin Projects

Project	Country	Measured plus Indicated Resources (Mt)	Inferred Resources (Mt)	Cut-off (% Sn)	Avg Grade (% Sn)	Contained Sn (t)	Depth
Heemskirk	Australia	1.8	5.5	0.1%	0.60%	33 000	Shallow
Achmmach	Morocco	-	7.0	0.5%	0.80%	56 000t	Underground
Oropesa	Spain	-	7.0	0.2%	0.64%	44 800	Shallow
Doradillo	Spain	-	7.81	0.1%	0.25%	22 300t	Shallow
Godfrey	Australia	-	2.8	-	0.42%	11 760	Underground

7 GEOLOGICAL SETTING

7.1 Regional Geology

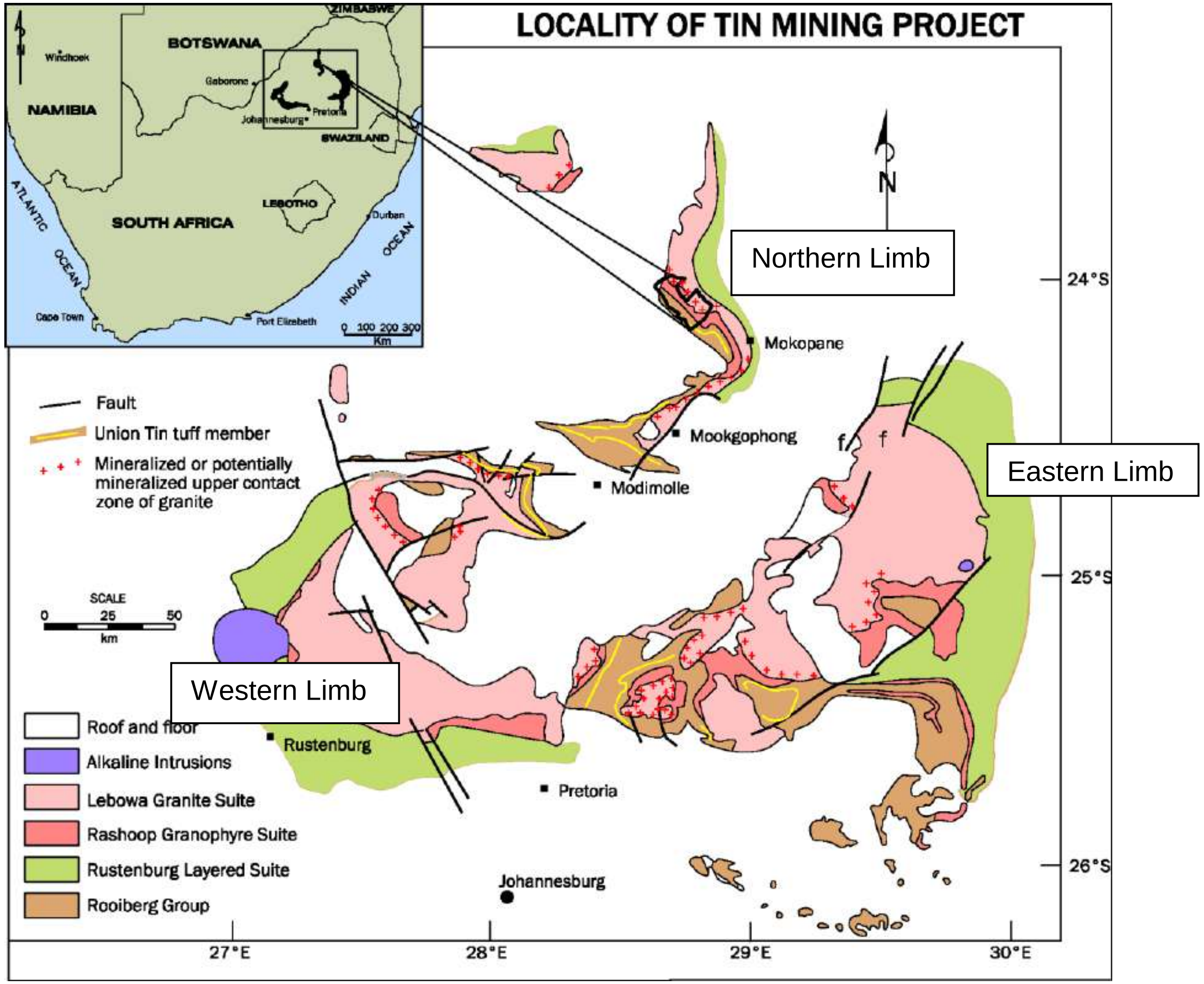
The Bushveld Complex (“BC”; 2.06 Ga) in South Africa is the largest layered intrusion in the world. It covers an area of 65 000 km^2 and comprises a mafic sequence, the Rustenburg Layered Suite (”RLS”), overlain by the felsic rocks of the Lebowa Granite Suite. The BC is geographically divided into a Western Limb, Eastern Limb, and Northern Limb (Figure 7-1). The Mokopane project is situated on the granitic rocks of the Northern Limb.

The granites of the Lebowa Granite Suite in the Northern Limb of the BC comprise a thick, sheet-like composite pluton dipping gently towards the west and southwest. The granite sheet separates the mafic rocks of the RLS below, from their original roof of felsites of the Rooiberg Group (Figure 7-1).

Two distinct suites of granitic rocks occur: the older unit is the Rashoop Granophyre Suite which predates the mafic rocks of the RLS, and the younger unit is the Lebowa Granite Suite which post-dates the RLS. The granite lies below the granophyre and mineralisation is restricted to the uppermost portion of the granites.

The Lebowa Granite Suite is overlain to the west by sedimentary rocks of the Waterberg Group (circa 2.0 Ga).

Figure 7-1
Regional geological map



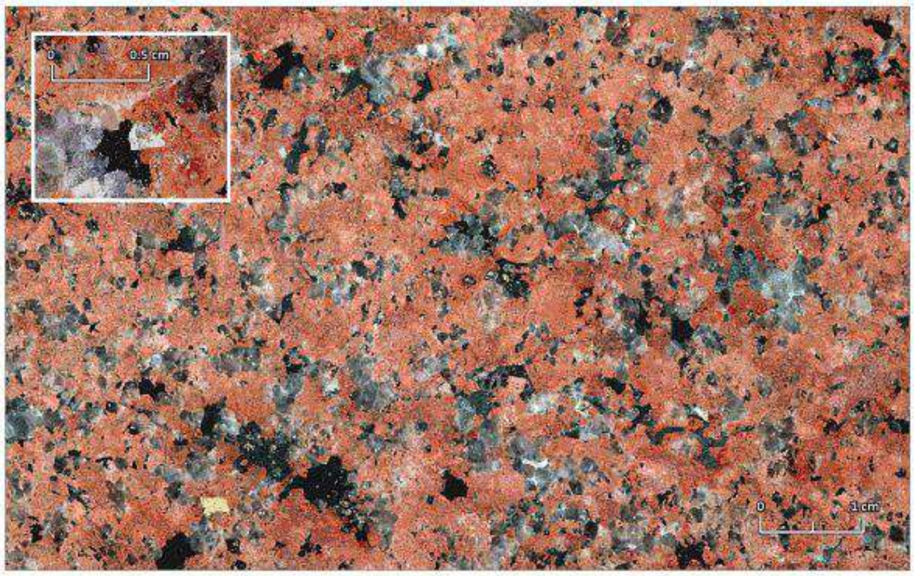
7.2 Local and Property Geology

Three major types of granite occur within the Lebowa Granite Suite: the Nebo, Bobbejaankop, and Lease Granites. The Nebo (or Main) Granite is a coarse-grained rock composed of quartz and perthite with lesser amounts of sodic plagioclase, hornblende and biotite.

The Bobbejaankop Granite (Figure 7-2) is a hydrothermally altered facies equivalent of the Nebo Granite. On a regional scale, it usually occurs in the upper part of the sheetlike Nebo Granite pluton. The Bobbejaankop Granite is host to the disseminated cassiterite mineralisation on the farm Zaaiplaats 223KR, and it also contains high-grade pipes of hydrothermal origin, that cross-cut the disseminated deposits. The Bobbejaankop Granite is confined to the uppermost part of the composite pluton and shows gradational contacts with the underlying Nebo Granite. It is a medium- to coarse-grained deep red rock with a distinctive texture composed of linked chains of quartz.

Figure 7-2
Bobbejaankop Granite

The rock is hydrothermally altered and is composed of complex K-feldspar-albite intergrowths (red) and quartz (grey/white), with minor dark biotite which has largely been altered to chlorite. The dark areas are cavities filled with hydrothermal minerals including cassiterite, scheelite, sericite, and fluorite.



The Lease Granite is a fine-grained aplite that forms a thin (up to 120 m) but continuous hood facies to the Bobbejaankop Granite. The contact between the Bobbejaankop and

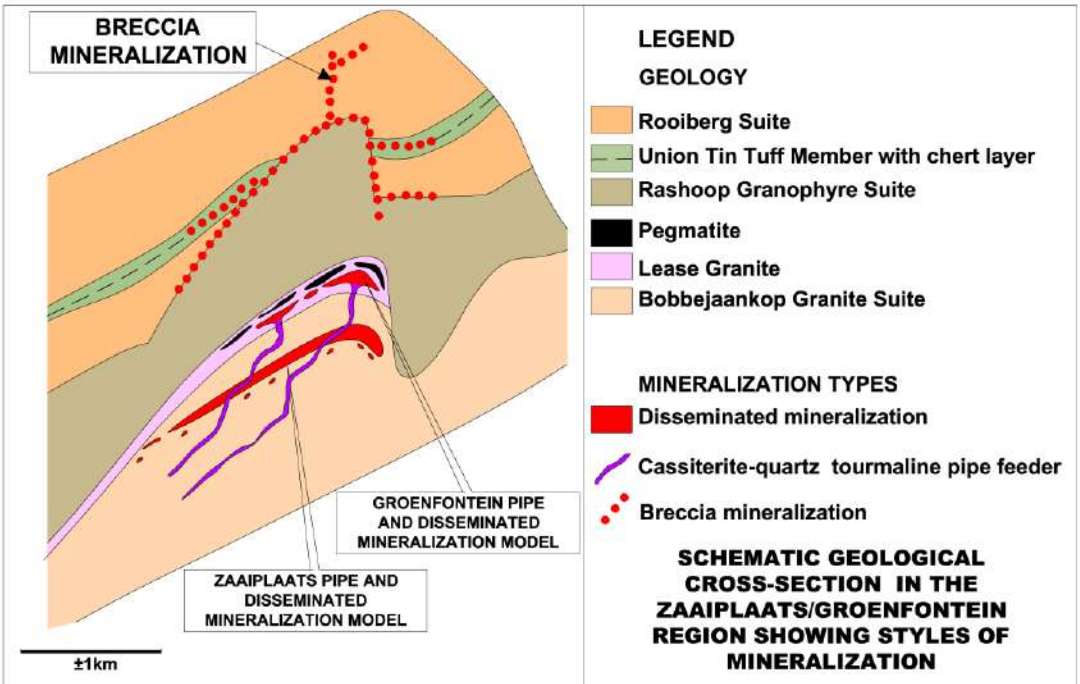
Lease Granites may be sharp or gradational. The contact between the Lease Granite and the overlying Rashoop Granophyre Suite is always sharp and marked by a coarse quartz-feldspar pegmatite. The high-grade pipe orebodies may penetrate into the Lease Granite, but do not penetrate into the older, overlying granophyre.

7.2.1 Styles of Mineralisation

Tin mineralisation is restricted to the Lease and Bobbejaankop Granites where it occurs in pipe-like bodies, sub-horizontal lenticular bodies and as a sub-horizontal disseminated low grade bodies within both granites. All tin mineralisation is in the form of cassiterite (SnO_2) and is of endogenic and syngenetic origin within the granites (Figure 7-3).

Figure 7-3

Schematic of the styles of mineralisation present in the Mokopane Project



Pipe-like bodies are prominent in the Lease Granite but also occur in the Bobbejaankop granite on Zaaiplaats 223KR. The cassiterite concentration is up to 70% with an average of between 12% and 30%. These are restricted, bodies, roughly circular in cross-section with diameters varying from a few centimetres up to 12 m and lengths from a few metres up to 1 200 m. The attitude varies from horizontal to vertical.

Lenticular ore bodies occur in the Lease Granite immediately below the pegmatite zone and appear to be the product of “bubbles” of tin bearing fluids which were trapped beneath the impermeable pegmatite. These were the main source of ore at the Groenfontein Mine.

Alluvial deposits existed in the past but have largely been mined out. They do not constitute a target for the current programme. Figure 7-4 shows the local geology in the area of the project and Figure 7-5Figure 7-5 is a geological map of the property.

Figure 7-4
Local Geological map of the project area

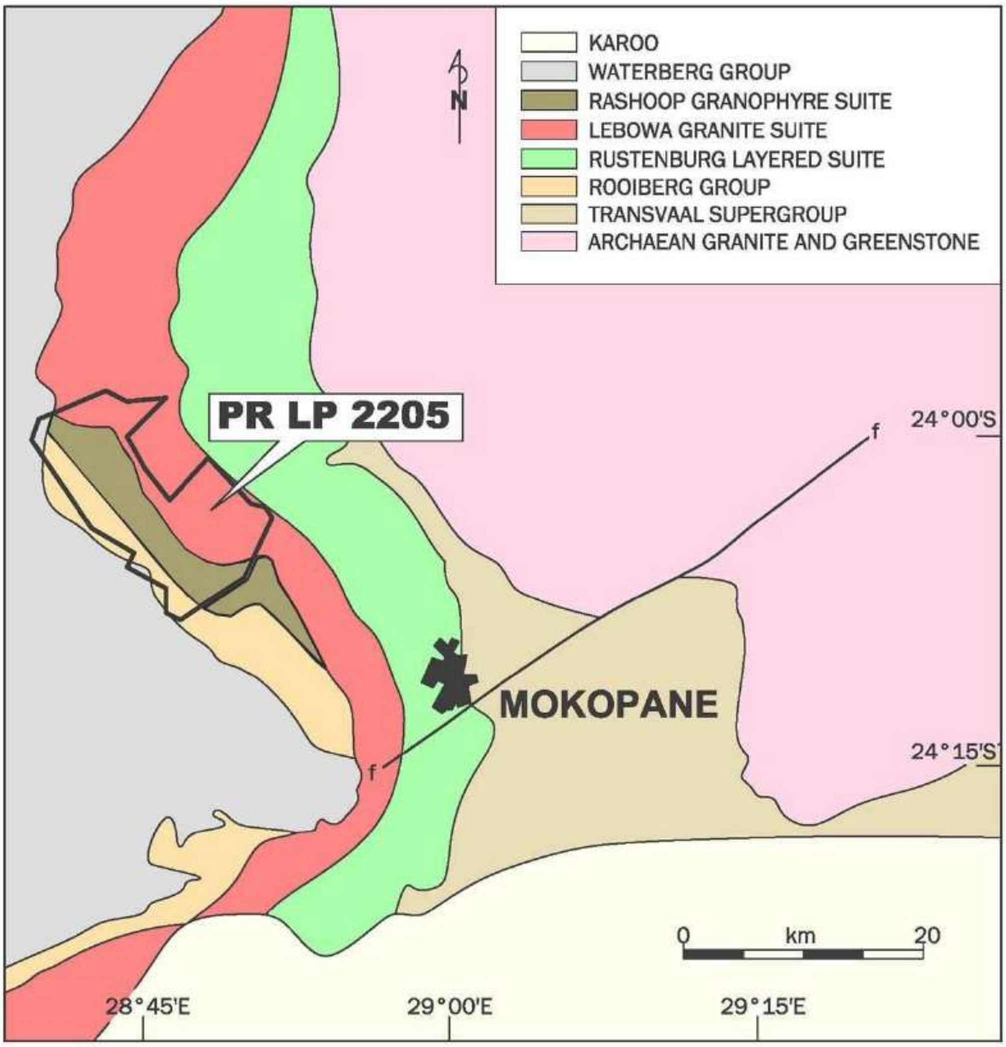
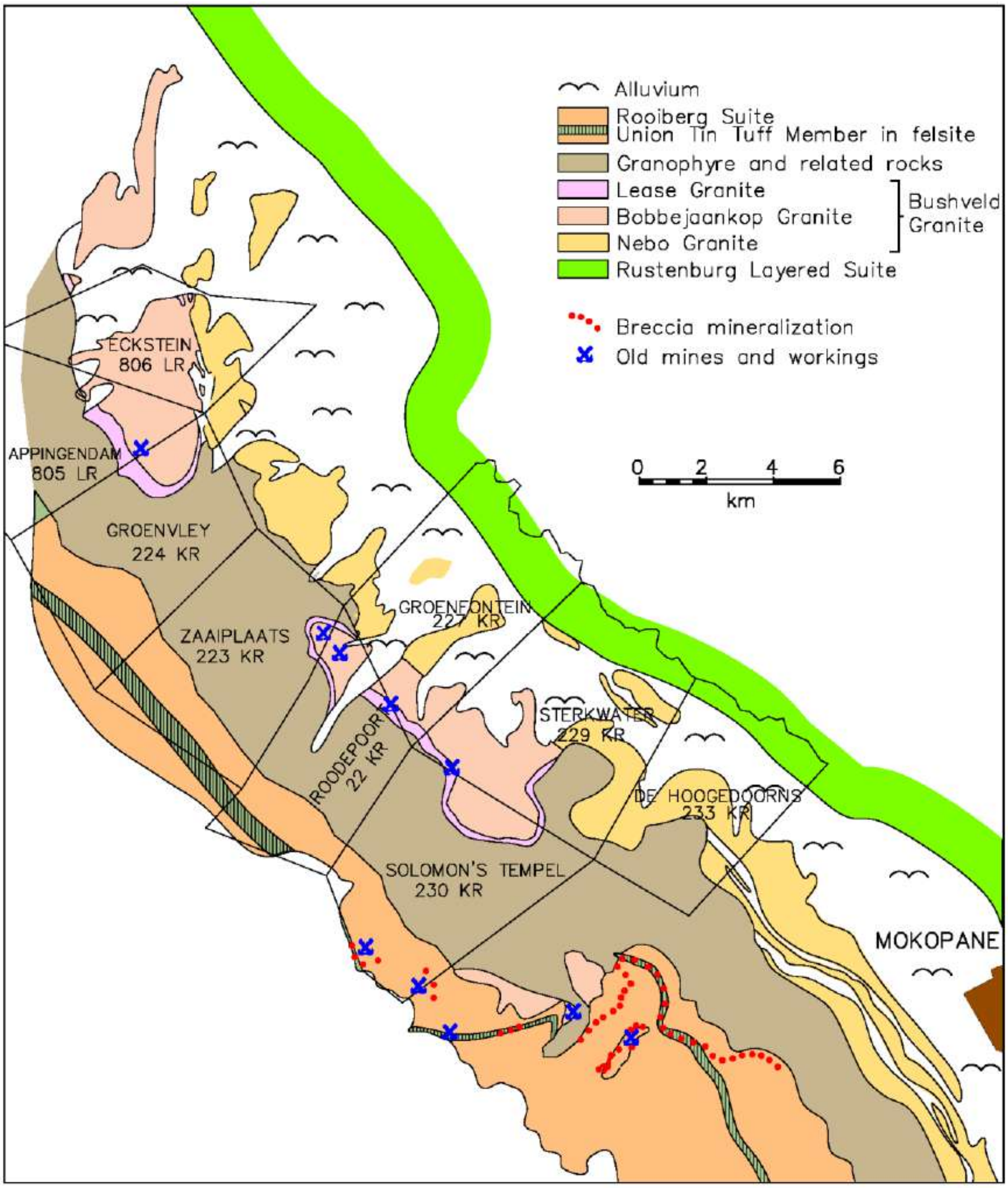


Figure 7-5
Geological map of the property



8 HISTORY

8.1 Mining History

Cassiterite was discovered in 1905 by prospectors on the farms Roodepoort 222KR, Groenfontein 227 KR and Zaaiplaats 223KR. This lead to the establishment of the Groenfontein Tin Mine and the Zaaiplaats Tin Mining Company. Subsequently, further tin deposits were discovered on adjacent farms, including Salomon's Temple 230KR. The Zaaiplaats Tin Mining Company produced cassiterite concentrate and tin metal continuously from its inception to its closure in 1989. Table 8-1 summarises production from the area.

Table 8-1
Total tin production from the Mokopane Tin Field (source: Crocker, 1986)

Farm properties highlighted in light green are included in the Greenhills property, whilst those highlighted in pink, are not.

Farm Property	Part of LP2205 PR	Concentrate (t)	Tin Metal (t)
Zaaiplaats 223KR	Yes	25 929	17 300
Groenfontein 227KR	Yes	6 395	4 463
Roodepoort 222KR	Yes		
Salomon's Temple 230KR	Yes	116	48
Waterval 250KR	No	235	125
Welgevonden 232 KR	No		
Groenvley 224KR	No	19	12
Appingendam 805LR	No		
Total		**32 694**	**21 948**

Mineral resource drilling of the disseminated cassiterite deposit on the farm Groenfontein 227KR was undertaken during the 1970s. This work is the focus of current redrilling, to try to establish a JORC compliant Mineral Resource.

8.2 Exploration History

In 1962 a targeting exercise was conducted by Transvaal Consolidated Lands (TCL) which identified the Roodepoort 222KR and Groenfontein 227KR as targets for further exploration (Kriel, 1962). The report identified four types of mineralisation, viz;

- Pipe-like bodies: The pipe like ore-bodies in the Lease Granite or Bobbejaankop Granite were not considered to be a major source of ore for a large-scale operation due to their small size, irregularity and unpredictable nature.

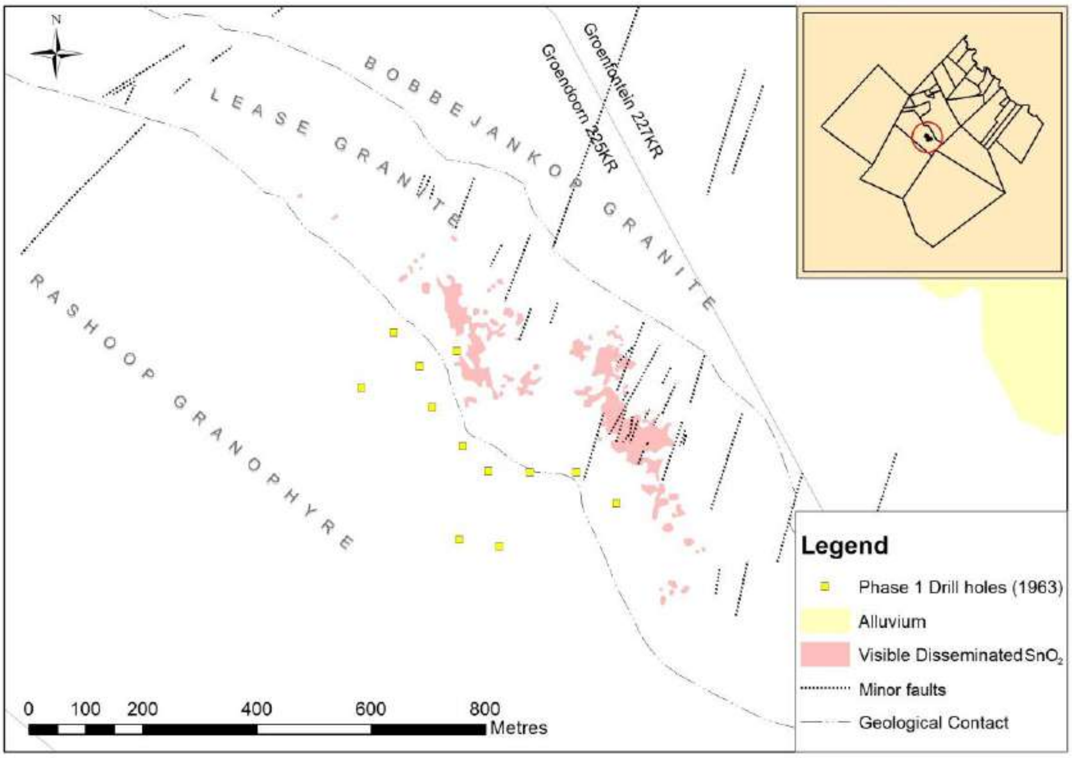
- Lenticular Ore-Bodies in Lease Granite: The lenticular orebodies in Lease Granite were not considered to be prime targets for exploration because of their unpredictable nature.
- Disseminated Cassiterite: The disseminated zones were considered to be the most attractive exploration targets because of their potential for large volumes of predictably mineralized granite. This fact was enhanced by the possibility of lenticular ore bodies being associated with areas of disseminated cassiterite within the Lease granite acting as sweeteners for any mining operation.
- Alluvial Deposits: Two alluvial targets, to the north and north east of Groenfontein Tin Mine were identified for investigation for workable alluvial tin deposits.

The major conclusion of this work was that an area of disseminated cassiterite identified in outcrop along the boundary between the farms Groenfontein 227KR and Roodepoort 222KR was an attractive target. This area has subsequently been proclaimed as a separate farm called Groendoorn 225KR (Figure 4-1).

8.3 Follow-up Work Programme and Mineral Resource

A wide spaced percussion drilling programme comprising 12 boreholes was conducted in 1963 over the disseminated cassiterite target on Groendoorn 225KR. The details of the sampling and assay methodology are not available. However, the programme established an anomalous zone of tin mineralisation which was demonstrated to continue down dip beneath the Rashoop Granophyre (Figure 8-1). This programme was subsequently followed up by surface geochemical sampling in 1976, to establish whether further areas of shallow disseminated tin mineralisation occur.

Figure 8-1
Map of the surface outcrop of visible disseminated tin and Phase 1 drill holes



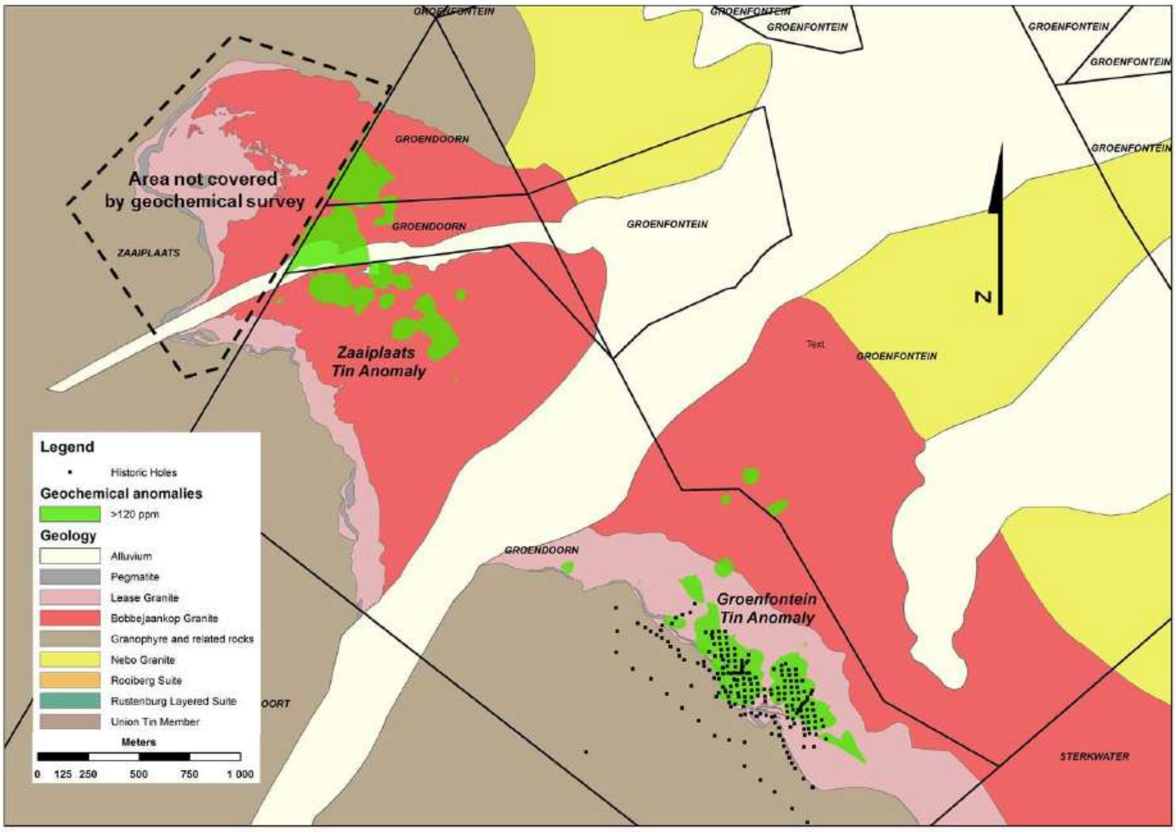
8.3.1 Geochemical Sampling Programme

In 1976, a detailed systematic surface sampling programme was carried out over the southern part of Groenfontein 227KR and what is now the farm Groendoorn 225KR. The entire area was sampled except the areas covered by alluvium and tailings from the Zaaiplaats Tin Mine. Granite chip samples and soil/alluvial/elluvial samples were collected, initially on a 50 m by 50 m grid and later on a 10 m by 5 m grid on some of the more interesting areas.

The results of the 50 m by 50 m grid sampling only confirmed known cassiterite occurrences which had already been identified from mapping of the disseminated tin mineralisation on surface. These were associated with disseminated tin mineralisation in the Bobbejaankop Granite, which is an extension of the mineralisation on the farm Zaaiplaats 223KR, and with the disseminated mineralisation within the Lease Granite on the farm Groendoorn 225KR (Figure 8-2). The results of the geochemical sampling programme prompted the planning and execution of a phased drilling programme during 1978, to further investigate the disseminated tin mineralisation in the Lease Granite.

Figure 8-2

Map of the two anomalies defined by the 1976 geochemical sampling programme



8.3.2 1978 Drilling Programme

The drilling conducted in 1963 and 1978 is summarised in Table 8-2 and shown in Figure 8-3. All of the holes were drilled vertically.

The 1978 drilling programme was undertaken by Rand Mines Ltd and was divided into four phases (Phases 2 to 5 in Table 8-2 and Figure 8-3) carried out with the aim of investigating the economic viability of the disseminated tin deposit on the farms Roodepoort 222KR and Groenfontein 227KR in an area that is today on the farm Groendoorn 225KR. The programme background, implementation and results were assessed and reported on by I.M. Clementson in February 1979.

Table 8-2
Summary of historical drilling on the property

Phase Hole Nos.	Objective	Number of Holes	Total Metres	Average Hole Depth (m)	Drilling Type	Year
1 RDP 1-12	To investigate outcropping disseminated Sn mineralisation on the farm Groendoorn 225KR	12	1400.91	116.74	Percussion /Core	1963
2* RDP 13-53	To investigate the down dip extension of the tabular tin mineralisation identified in Phase 1	40	2356.36	58.91	Percussion /Core	1978
3 RDP 54-67	To investigate the down dip extension of the tabular tin mineralisation identified in Phase 2	14	2007.08	143.36	Percussion /Core	1978
4 RDP 68-97	To confirm the directional trend of mineralisation	30	1131.76	37.73	Percussion	1978
5** RDP 98-213	To develop a "reserve" in the shallow disseminated Sn mineralisation	107	1396.00	13.05	Percussion	1978
	Total	**203**	**8292.11**	**40.85**		

* one hole not drilled, ** 9 holes not drilled

Figure 8-3
Map of the five drilling phases drilled in 1963 and 1978 on the Lease Granite target

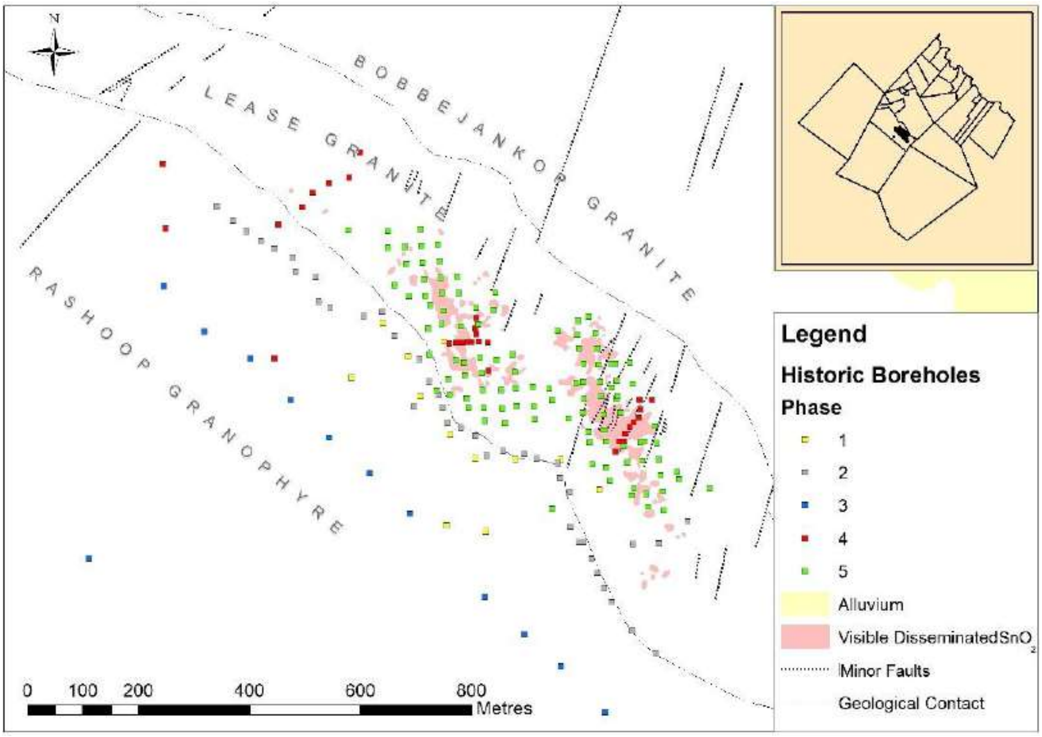
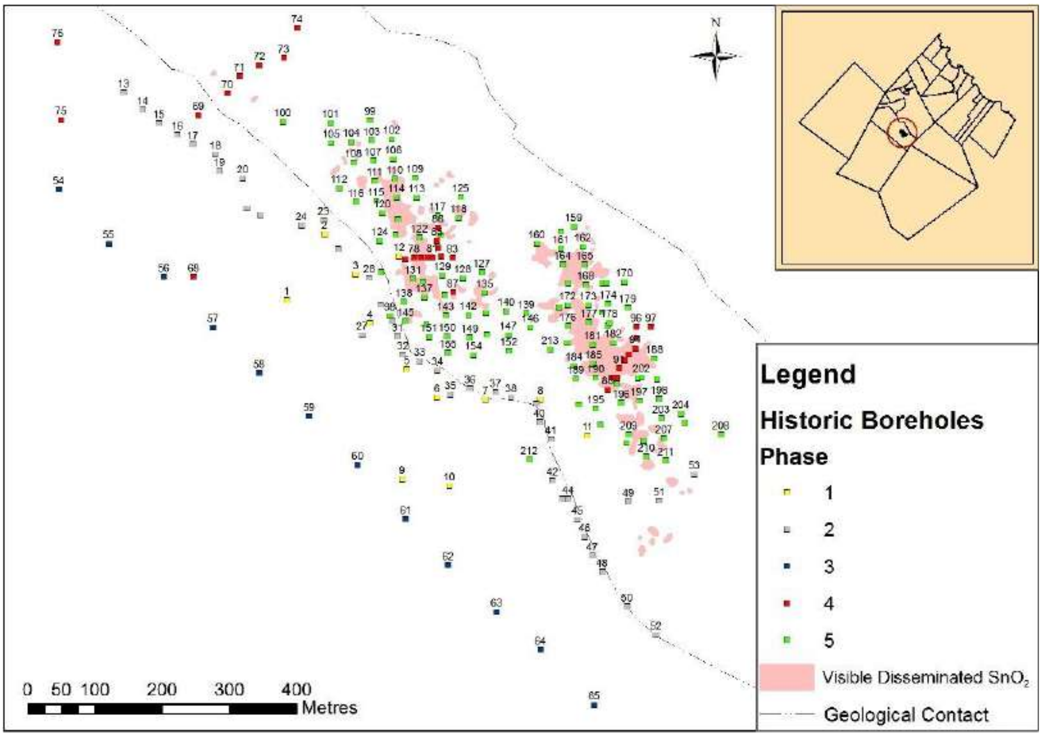


Figure 8-4
Borehole numbers of the historical drilling phases



Phase 2 of drilling (RDP 13 to 53) was a line of diamond holes alternating with percussion holes drilled above the contact of the Lease Granite with its roof of Rashoop Granophyre, roughly parallel to the Granophyre-Lease Granite contact, to investigate the down-dip extension of the mineralisation in the Lease Granite. The holes were placed at 30 m intervals and BX sized core was recovered. The diamond holes were drilled to about 40 m below the upper contact of the Lease Granite which is defined by an immediately overlying pegmatite zone. Previous knowledge revealed that mineralisation is restricted to a zone about 30 m thick at the top of the Lease Granite. The core was logged and sampled from the top of the pegmatite to the end of the hole. Sampling involved splitting the core in half and sampling continuously over 1 m intervals. All of the pegmatite and the intersected portion of the Lease Granite were sampled. The unsampled half core was apparently stored at Groenfontein Tin Mine. However, the core is no longer available.

Samples were initially analysed for Sn, Cu and CaF_2 but later for Sn only. There was no correlation between Sn and Cu or between Sn and CaF_2. Cu values in the pegmatite and

Lease Granite were low, averaging 44 ppm Cu. The Lease Granite contains CaF_2, the maximum recorded result being 4.4% CaF_2.

Alternate 4.5 inch (approximately 113 mm) percussion drill holes were sampled by a cyclone system or an enclosed system of catch trays over every metre drilled. The sample material was split using a riffle splitter and one half submitted for analysis while the other half was stored in the labelled bags at Groenfontein Tin Mine. Most of the holes were drilled to about 40 m below the calculated depth of the top of the Lease Granite, based on the measured dip if the contact. However, boreholes RDP49, 51 and 53 were drilled off the main line of holes, being drilled further to the east directly over the geochemical anomaly on the Lease Granite to a depth of approximately 60 m and were collared in Lease Granite. This was done to check if the mineralisation persisted at depth to the east. RDP47 was drilled to a depth of 72 m below the Granophyre- Lease contact to check the assumption that mineralisation was restricted to the upper 30 m of the Lease Granite. RDP25 was not drilled as it fell adjacent to RDP2 (drilled during the first phase of drilling in 1963). Several holes, which were sited over underground workings were repositioned as close to the original site as possible.

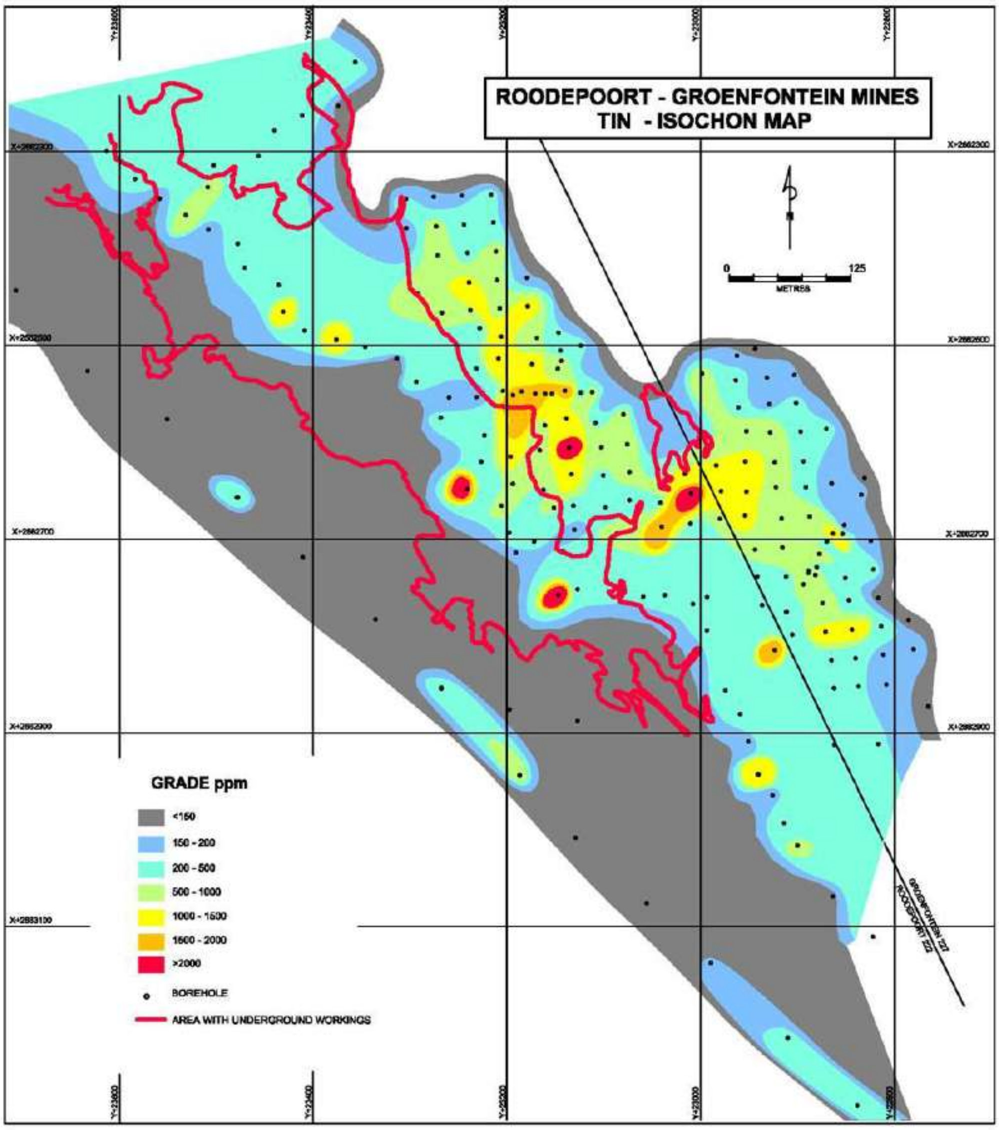
Phase 3 (RDP 54 to 67) was a second line of holes drilled 200 m further down dip to Phase 2 and to the southwest. This line of holes was planned to intersect the projected ore body further down dip from the Phase 2 holes. The holes were spaced at 100 m intervals, each hole piloted by percussion drilling to about 20 m above the Main-Lease contact, as calculated from contact intersections in Phase 1 diamond holes, then diamond drilled to about 40 m below the contact. Logging and sampling procedures were the same as in Phase 2.

The information gathered about the deposit was as follows:

- The Rashoop Granophyre-Lease Granite contact is sharp with an average dip of 21° to the SW.
- Phase 2, RDP 13-52, excluding 49 and 51 gave anomalous results and a correlation of tin values is possible. However values are low except for RDP 29 to 35.
- Phase 3 holes were all barren and demonstrate that any mineralisation in the Lease Granite is restricted to the surface outcrop area and only extends for a limited distance down dip.
- Pegmatite grades are variable, with RDP 16, 17 and 20 giving high tin grades associated with pegmatite.
- Boreholes RDP 23, 43 and 45 are anomalous outliers, being surrounded by barren areas. However these boreholes lie within an area of underground workings.

The results of Phases 1, 2 and 3 revealed that mineralisation in the upper fine grained Lease Granite is largely restricted to the surface outcrop area of an exposed elongate dome-like structure that only extends to a limited depth and limited distance down dip (Figure 8-5).

Figure 8-5
Grade map showing the contiguous zones of anomalous tin (>500 ppm)



Phase 4 of drilling was a series of close spaced boreholes designed to check whether surface geological anomalies presumed to extend south-southwest had not been misinterpreted and actually trend northwest in Lease or Bobbejaankop Granite. RDP68 to

RDP74 were drilled at 30 to 50m intervals in a line extending northeast from RDP16 (Figure 8-4). In addition RDP77-87 and RDP 88-97 were percussion-drilled to depths of approximately 10 m over the two geochemical anomalies where disseminated cassiterite is visible in Lease Granite. RDP86 was deepened to 166.2 m in Bobbejaankop Granite to check for possible mineralisation.

Phase 4 proved that the disseminated mineralisation does not extend northwest.

The final phase of drilling, Phase 5, was a 30 m by 30 m grid pattern over the major portion of the surface geochemical anomaly. Boreholes RDP098 to RDP213 were drilled and most of them intersected significant disseminated tin mineralisation, with only four holes out of 107 not intersecting anomalous tin values (>150 ppm Sn).

8.3.3 Composite Drilling Results

Drilling defined an approximately 200 m wide, northwest-southeast trending zone of anomalous tin mineralisation (>200 ppm) extending for over 1 km and open ended on both ends (Figure 8-2). Within this zone is a core of mineralisation with a 500 ppm cut-off grade that extends for over 600m, and within this core are two contiguous more highly mineralised zones defined by a cut-off grade of 1000 ppm Sn. These cover a combined area of approximately 125 m x 325 m in extent and broadly correspond to the surface outcrop of the disseminated tin mineralisation.

8.3.4 Overburden

The mineralised tin granite is largely exposed on the surface and takes the form of a broad anticlinal structure with a north-west trend. Three limbs can be observed:

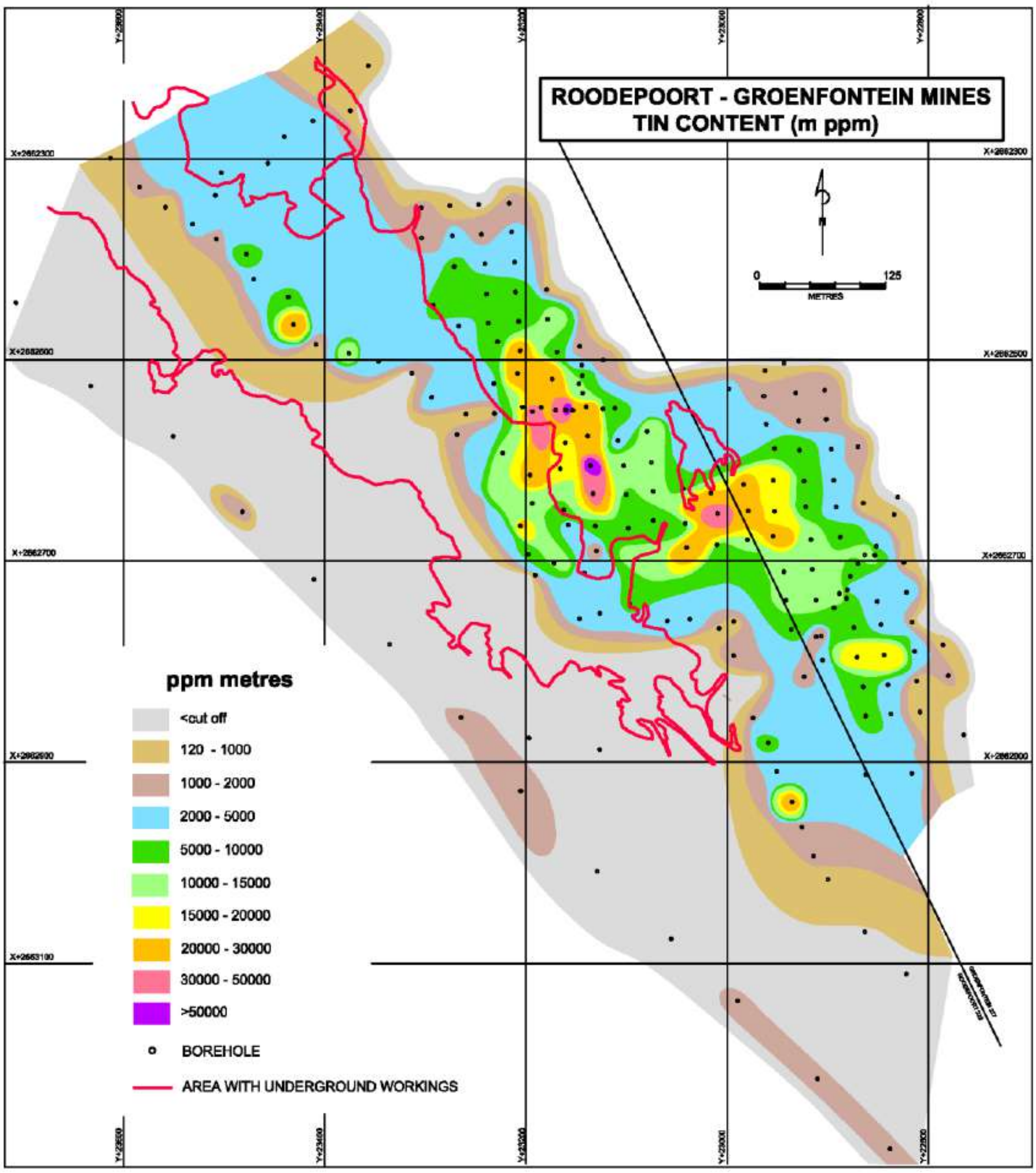
- A southwest limb of the main mineralised zone with a general dip of about 10° to 15° to the southwest, which is the general dip of rocks of the BIC rocks in the area.
- An eastern limb with a general dip of about 10° to15° to the northeast.
- A north-northwest limb with a north-northwest general dip direction.

The overburden thickness increases down dip to the southwest as the mineralised Lease Granite dips beneath the barren Rashoop Granophyre. The overburden thickness is shown in relation to the 200 ppm Sn cut-off contour in Figure 8-6. The 200 ppm cut-off is at an average depth of 40m below overlying barren rocks in the south western limb of the mineralised zone and is mostly exposed on surface on the north east side of the anticlinal structure.

Figure 8-6 is a composite map showing the tin content isochon (expressed as tin metres ppm) in relation to the axis of maximum grade (grade isochon), and thickness (isopach).

The axes show that the areas of thickest development of mineralisation corresponds to the best grades. The tin content is also shown in relation to the 200 ppm contour. The extent of exposed mineralisation as well as the extent of area with underground working is also shown.

Figure 8-6
Composite map of drilling results



9 HISTORICAL MINERAL RESOURCE ESTIMATE

The drilling data gathered during the drill programmes in 1963 and 1978 has been used by Greenhills to formulate an indicative mineral resource. It should be noted that this resource does not comply with JORC standards, since none of the QAQC, assay, or procedural documentation is available for verification. The indicative resource was compiled from scanned plans and sections compiled from the original drilling. Nevertheless, the indicative mineral resource which has been produced is the basis for current exploration work and is described here for reference.

9.1 Resource Model

Greenhills commissioned resource modelling through Shava Mining Enterprise (Pty) Ltd. A 3D model was constructed from files supplied in a portable document format (pdf). A total of 32 pdf files were received. Of these files, two were surface maps and 30 were section maps. All section information contained the following:

- Colour coded grade distribution of tin (Sn) ppm (tin parts per million).
- Scale bars used in registering section information into Vulcan.
- Section number information.
- Borehole number information.

These files were captured into Vulcan and a grade model was created. The pdf map was geo-referenced into Vulcan. Due to software setup, all co-ordinates are negative within Vulcan and positive within the maps. Section information was captured into Vulcan. No grid information was captured on the original section maps. Scaling of distances was used to create the referencing parameters for the vertical section registering. Borehole position information was used to reference the sections horizontally. Once all sections were captured within Vulcan, all Sn intercepts were digitized and polygons of ore zones created. This was done from 250 Sn ppm to 2000 Sn ppm.

The grade model was further delineated by breaking down triangulations in smaller sections to match grade distribution. Based on the information used, all triangulations have been assigned separate values. All available digitised section information was used in this way to generate a 3D wireframe model for each ore grade intercept. The models were all validated to check closure and intersections.

Using a priority-based boundary construction, a block model was constructed from the various triangulations into six grade groupings: 250 – 500 ppm; 500 -750 ppm; 750-1 000 ppm; 1 000 – 1 500 ppm; 1 500-2 000 ppm; and >2 000 ppm. From the historical data-derived block model, an indicative mineral resource was defined (Table 9-1 and Table 9-2). Again it is stressed that this resource estimate is not JORC compliant. However, it forms the basis of the current exploration programme which is designed to validate these results to produce a JORC compliant Mineral Resource.

Table 9-1
Historical Indicative Mineral Resource grade distribution (not JORC compliant)

Grade Interval (ppm)	Average Grade (ppm)	Volume (m^3)	Metric Tonnes (SG of 2.65)	Tonnes of Tin metal
250-500	386	836 150	2 215 798	856
500-750	609	646 650	1 713 623	1 044
750-1000	874	244 900	648 985	567
1000-1500	1 175	259 900	688 735	810
1500-2000	1 776	120 500	319 325	567
>2000	4 652	29 650	78 573	366
Totals	**-**	**2 137 750**	**5 665 038**	**4 210**

Table 9-2
Cumulative volume and tonnage estimates based on historical data (not JORC compliant)

Grade Cut-off (ppm)	Volume (m^3)	Metric Tonnes (SG of 2.65)
>250	2 137 750	5 665 038
>500	1 301 600	3 449 240
>750	654 950	1 735 618
>1000	387 050	1 025 683
>1500	150 150	397 898
>2000	29 650	78 573

10 CURRENT EXPLORATION PROGRAMME

In 2010, VMIC was granted a new order prospecting right (No. 2205 PR) to conduct prospecting programmes on the property comprising the six farms: Zaaiplaats 223KR, Roodepoort 222KR, Groenfontein 227KR, Groendoorn 225KR, Sterkwater 229KR and Salomon's Temple 230 KR (Figure 4-1). The most recent exploration programme is focused on the farms Groenfontein 222KR and Roodepoort 227KR, and aims to define a resource of disseminated cassiterite ore within Lease Granite, by means of the twinning of a number of the 1978 Rand Mines boreholes and by drilling a number of new boreholes.

The exploration programme entailed the drilling and sampling of 53 boreholes (22 twinned with historic boreholes) during 2011. The core from the boreholes was analysed by Set Point Laboratories in Johannesburg. Analytical data obtained from the 22 twinned boreholes were compared to the historical borehole assay data in order to justify the incorporation of the historical data into the resource quantification exercise. Twinning of boreholes followed by the application of comparative and correlative statistics by Independent Resource Estimations (IRES) determined that the old data is "useable". Statistical analysis between the previous drilling results and the 22 twin boreholes from the current programme indicate a very good correlation.

The geological model and resource estimate compiled by IRES includes the historical data together with drill information and assay data from the current exploration programme. The model and resource estimate have been reviewed by MSA and in MSA's opinion, they reflect a fair representation of the project.

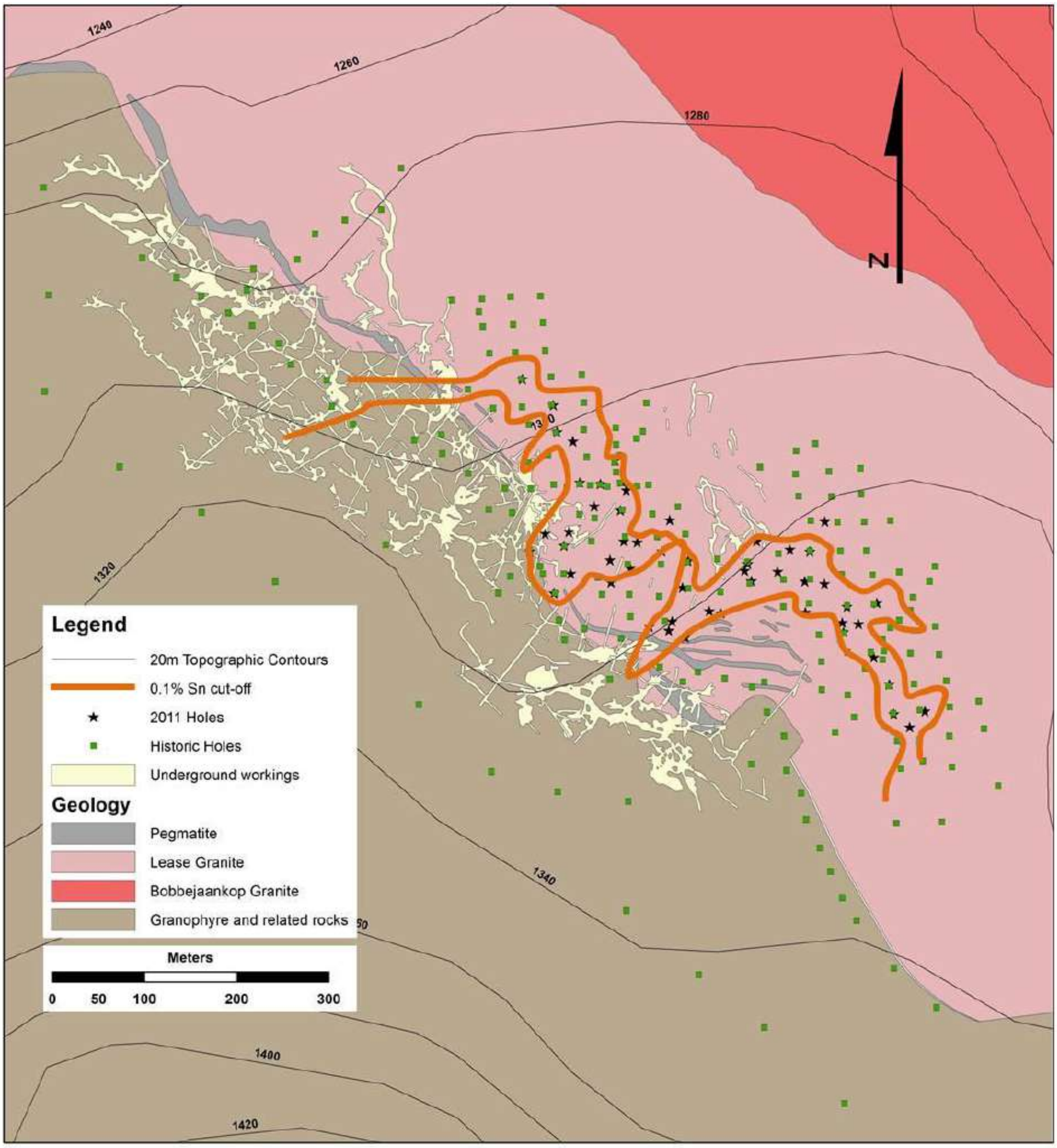
10.1 Data management and database

All drilling information was recorded on hard copy using pro-forma data sheets. These included 'quick log' sheets, geotechnical logs, geological log sheets and sample ledgers. These pro-forma logs were then scanned and digitized using equivalent excel spread sheets. Data entries were validated while being captured against the original hard copies. Once captured the data was validated for missing values, intervals and anomalous data entries. All digital information was stored on a central computer and regularly backed up onto two external data storage devices and another computer.

10.2 Current Exploration

The current exploration programme was focused on an area where extensive mining activity has taken place in the past. Much of this previous mining was focused on the extraction of high-grade pipe-like ore bodies, and only limited mining of disseminated ore was carried out. The current exploration programme targets the disseminated tin mineralisation occurring in the Lease Granite. It was proposed that a cut-off grade of 0.1% Sn would be used and drilling was therefore focused within a well-defined targeted area identified from historical drilling work (Figure 10-1).

Figure 10-1
Composite map of historic and recent boreholes



10.2.1 Diamond drilling and site management

Diamond drilling by means of the wireline method was undertaken by Drillcorp Africa (Pty) Ltd (Figure 10-2). Boreholes were sited using geological cross-sections, previous analytical information and soil and rock chip geochemistry. ArcGIS was used to manage all spatial data and final drill site confirmation was performed using ArcGIS. All drill sites were demarcated and made known to the contractor by a geologist or geological technician, with the borehole number being supplied, before the start of each borehole. Downhole surveys were not routinely undertaken since initial surveys indicated no significant deviation in the shallow holes that were drilled. Core orientation was not carried out.

Figure 10-2
Drilling underway during the recent work programme

Top left – the drill site was well managed with high HSE standards. Top right – the Drillcorp rig. Bottom left – close up of the Lease Granite drill core; Bottom right – Dr Leon Liebenberg examines the drill core.

The following procedures were applied during diamond drilling:

- Drill sites were plotted on large scale ArcGIS generated field plans, accompanied with an excel table consisting of the borehole ID, the coordinates (using WGS84 datum, LO29 coordinate system) and the planned drilling depths for each hole. A digital copy was then supplied to the exploration office in Mokopane.

- Layout of the drill sites were performed by means of a handheld GPS by either the geological technician or geologist.

- Drill sites were indicated to the drillers to ensure correct placement of the drills.

- All drilled boreholes were vertically inclined, HQ in size (63.5 mm internal diameter) with a PQ size (85 mm internal diameter) within the weathered zone.

- The drill core was retrieved from the core barrels after each drill run and laid out in steel core trays as provided by the driller.

- The driller recorded the end of run depth, drilled core length and core loss or gain. The end of each borehole was indicated and marked by a plastic marker.

- The driller marked each core box with borehole ID number, box number and the depth intervals (from and to).

- The drilling process and core recovered was monitored by a geologist on a daily basis with the core quality and driller's measurements verified by the geological technician or geologist.

- A provisional field geological log – hand written excel quicklog template was maintained where deemed necessary by the geologist. The quicklog assisted with the decisions to stop or continue drilling the boreholes.

- A daily progress report was completed based on the borehole ID, metres drilled, drilled borehole position, core size, date drilled and date processed (sampled).

- The core trays were transferred to the Mokopane core yard either by the geologist or geological technician. Detailed logging and sampling were performed on a regular basis.

- The instruction to cease drilling was issued by the geologist to the driller in charge at which point the drill contractor dismantled the rig and moved to the next site.

- A hand held GPS was used in the determination of the coordinates of the boreholes with the final co-ordinates being determined by the surveyor.

- The driller was responsible for cleaning up of the immediate surroundings and borehole site rehabilitation.

- The rehabilitated drill site was then again visited by the geologist in charge, verifying that the rehabilitation has been performed as per the rehabilitation protocol.

10.2.2 Borehole Survey

Boreholes drilled during this project, as well as visible historical boreholes, visible old mine workings and shafts were surveyed by Exact Survey Services using a real time differential GPS. All existing historic borehole data was converted from the Cape System LO 29 Clarke to WGS/29 and visible historic boreholes were also re-surveyed. All the boreholes were surveyed on the edge of the casing and the elevation determined on the top of the concrete cover. The survey was conducted using a single control beacon (located on the farm Solomon’s Tempel) approximately 1.5 km from the drilling site.

10.2.3 Core logging and sampling

Sampling of the core was undertaken after the completion of geotechnical logging, geological logging and metre marking of the core. Photographs of the core were either taken before or after sampling. All core measuring, core cutting, sampling, bagging and despatch procedures were completed at the Mokopane exploration premises under the full time supervision of a qualified geologist.

Prior to the commencement of the logging, the core was clearly marked with a longitudinal line showing the orientation of the core (later used by core cutters) and sprayed with water. The orientation and arrangement of the core was also verified by identifying any abrupt changes in lithological appearances and also by “fitting” core pieces to verify the correct position.

Core logging was performed by the onsite geologist, utilizing a pro-forma quick log and geotechnical log sheet. The quick log was used to give a rapid overview of the borehole lithologies encountered, and the nature of mineralisation.

10.2.3.1 **Geotechnical logging**

Each driller’s run was measured against the actual core length, enabling the calculation of core gain and or loss. The intactness of the core was noted, i.e. was the core solid or fractured. Fractured core pieces less than 10 cm in length were summed and deducted from the total solid core length in order to determine rock quality designation. In addition joints and natural fractures were also measured (angle and spacing).

10.2.3.2 Geological logging

Geological logging only commenced once the core was washed, cleaned, photographed, geotechnically logged and split.

The following procedures were applied during geological logging:

- Core was sprayed with water in order to assist with the identification and description of lithology, mineralization, alteration, colour and texture.
- Different colours were used in the log sheets to indicate different information on the core:
    - Yellow - Comments on the lithology, colour, alteration, veins, mineralogy etc.
    - Red - Utilised to mark ore minerals such as sulphides. Cassiterite is mostly disseminated throughout the core.
    - Blue - Indicated cutting marks, specifically for sampling.
- The core logging process was facilitated by the use of a geological log sheet designed according to standard look-up tables and formats, to guide the geologist through a standard set of logging requirements. Core logging standards were developed by VMIC.

10.2.3.3 Sampling

The objective of core sampling was to provide suitable samples for laboratory analyses of the selected mineralised zones identified during logging. Sample lengths were standardised to 1 m intervals. However, sample lengths in well-mineralized zones or zones with variable mineralization were matched accordingly and these normally varied between 0.15 m to 1.0 m. Sample intervals were chosen at the supervising geologist's discretion.

The following procedure was applied during sampling of the core:

- The median (longitudinal) cut line was marked with a blue waterproof wax pencil (china marker) along the length of the core.
- Sampling intervals were defined by the geologist, who recorded a unique sample number on the core with a blue waterproof wax pencil.
- Once the mineralised zone was identified by the geologist, the zone was split and sampled.

- Core was cut along the median line using a diamond core saw.
- Sampling of core was performed once the ticket and bag preparation were completed.
- Remarking of the split core halves in the core-trays were performed before the remainder of the core was stored.
- Pre-numbered sample ticket books containing a unique sample numbering range with tear off duplicate sample ticket numbers were utilised by the geologists. In order to retain vital information, the from- and to- depths, together with a brief description of the samples, were written in the sample ticket book next to the appropriate sample number. QA/QC samples were also included in the ticket book system.
- Plastic sample bags were prepared and laid out in numerical order with a sample number ticket placed inside each bag, a second ticket rolled in and pinned on the inside of the bag. Each sample bag contained the sample number written on the outside of the sample bag by means of a permanent marker pen.
- Core samples and QA/QC samples were placed and dispatched in the same sample bags.
- Regular checks were performed by the geologists to ensure that the correct sample labelling and numbering was performed,
- Plastic sample bags were sealed by means of triple folding of the top layer of the sample bags and pinned together. The sample bags were then placed into large polyweave bags and sealed with cable ties for dispatch to the laboratory. Each bag was identified by the project name, batch number, number of samples and the sample number interval in permanent black marker pen on the outside of polyweave bag.

10.2.3.4 **Chain of Custody**

Chain of custody of samples is important to show who has accountability for the samples at different stages of the process, and to provide assurance that the samples have not been interfered with. The following procedures were followed:

- Sample details (borehole number, from and to depths, sample length, sample number, brief description, mineralization and where the sample was taken) were recorded in the Mokopane Tin Project sample ledger.

- Sample numbers were presented to the laboratory requesting the required analyses and date of delivery. The responsible person was identified and recorded on each sample submission sheet. Each sample submission sheet contained a specific submission sheet number.

- The samples were delivered by the geologist or designated person to Set Point Laboratories in Mokopane, approximately 800 m from the exploration premises. The sample submission sheets were presented with the samples.

- Set Point Laboratories checked the sample labelling and sample condition and issued a sample reception record with a specific job number emailed to Frontier Resources, confirming the sample details and analyses requirements.

10.2.4 Laboratory

Half core samples were sent to Set Point Laboratories for analyses of Sn, W, Cu and F. Sample preparation and analyses was conducted by Set Point Laboratories, a reputable ISO17025 accredited laboratory.

10.2.4.1 Laboratory sample preparation

The laboratory procedures for sample preparation consist of:

- Checking of received samples for number, labelling, sample bag condition and spillage.

- The moisture content of samples is recorded.

- Receipt report issued to client.

- If the above criteria are met then a Sample Reception Record is generated with a specific job number, date, sample details and analyses requirements which is emailed to the client.

- Samples are dried at 110°C.

- Samples are weighed and recorded.

- Samples are crushed in a jaw crusher and crushed material is placed in new labelled plastic bags. The jaw crusher is cleaned after every sample with crushed quartz and compressed air.

- Crushed material is further reduced in a Rhino Crusher down to <2.8 mm (>80%).

- Sample material is split in a Johnsons Riffle Splitter. The split for analysis is placed in a new labelled bag. The remainder of the sample material is returned to the original bag and to the client as Coarse Reject Split.

- Sample splits to be analysed are milled in a Labtech Essa LM2 mill for 5 minutes to achieve >90% <106 µm. Equipment is cleaned with water and compressed air.

- The milled sample is emptied into a tray or onto a paper sheet and returned to the sample bag.

- The aliquot for assay is taken from the milled sample bag and samples are repacked.

- Sample aliquots are despatched to the Set Point Llaboratory in Isando, Johannesburg for sample analyses 3 times per week using Set Point Laboratory drivers and vehicles.

- Performance of the Rhino Crusher and mill is constantly monitored, with the results of screening being reported and made available to the client upon request.

10.2.4.2 **Laboratory QA/QC**

A Quality Assurance / Quality Control (QA/QC) procedure is followed by Set Point Laboratories to ensure confidence with the sampling and analytical data. This includes:

- The introduction of field blanks, consisting of washed quartz sand, where each batch of samples submitted to the laboratory contained a blank ratio of 1 in 20 samples (5%);

- The laboratory made use of commercial certificated and laboratory prepared standards on a basis of approximately 1 in 20 (5%) samples. The details of the standards used by the laboratory are shown in Table 10-1;

- The laboratory duplicate analysis of the sample aliquot’s were performed on a basis of 1 in every 10 (10%) samples;

- The laboratory introduced a blank sample on a basis of 1 in 20 (5%) samples.

Table 10-1
AMIS 0020 and 0021 certified sample standards

Sample standard		Sn% (XRF)	Sn% (other methods)	Zn ppm (XRF)	Zn ppm (other methods)	Cu ppm (other methods)	Cu ppm (XRF)	Ag ppm (other methods)
AMIS0020	**Certified concentration**	0.68 ± 0.04%	0.698 ± 0.056%	2164 ± 199 ppm	2286 ± 190 ppm	260 ± 23 ppm		
	Provisional concentrations						274 ± 50 ppm	17.6 ± 3.1 ppm
AMIS0021	**Certified concentration**	0.27 ± 0.026%			352 ± 42 ppm			
	Provisional concentrations		0.29 ± 0.043%			54 ± 7.9 ppm		

10.2.5 Specific gravity and bulk tonnage data

The specific gravity of each sample was determined by Set Point Laboratories, an ISO17025 accredited laboratory. Gas pycnometry is the analytical technique used at Set Point Laboratories to measure specific gravity on soils or pulp (already milled) material. This data was incorporated into the mineral resource estimation.

10.3 Future Exploration Targets

In addition to the Groenfontein Target, which is the focus of the recent drilling, 4 targets have been identified regionally in the project area (Figure 10-3). These are the:

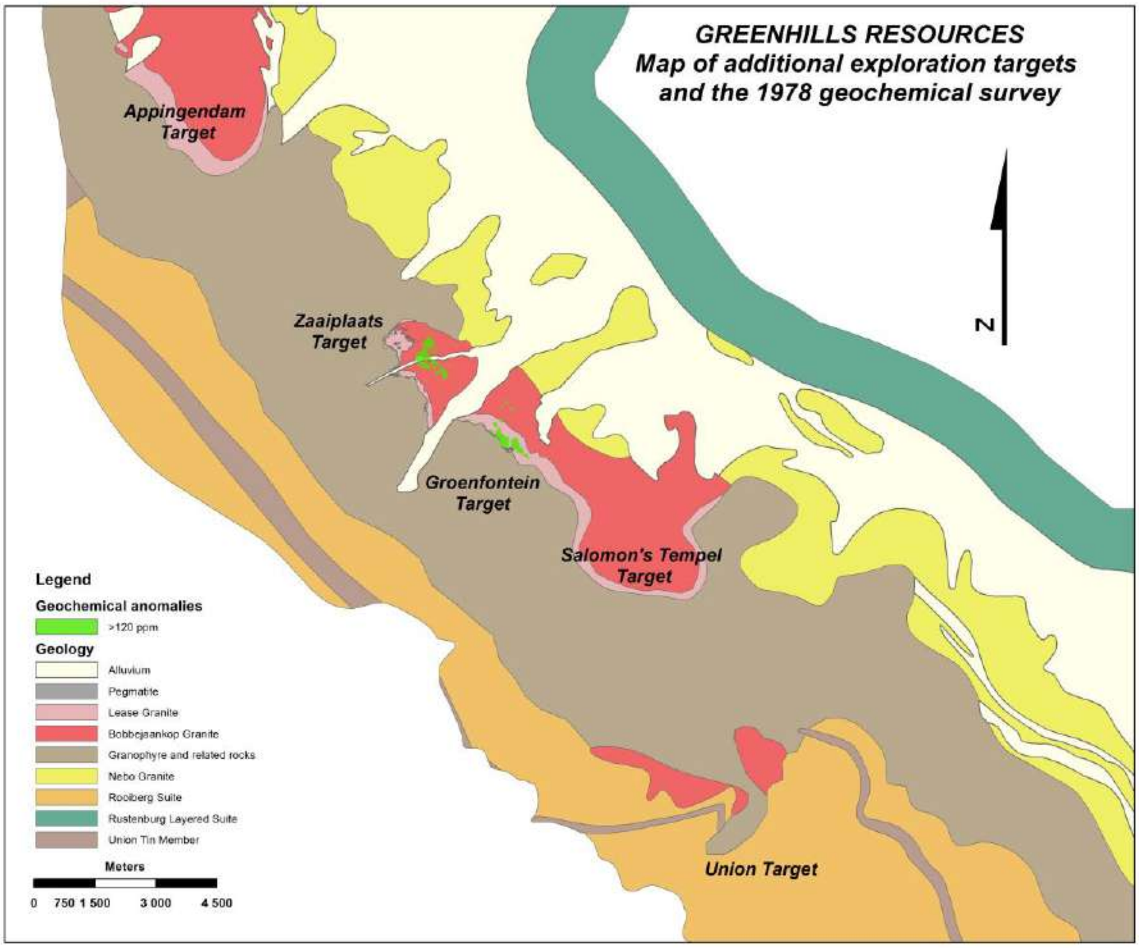
- Zaaiplaats Target – historically mined for tin in both the Bobbjejaankop and Lease Granites, this target was partly covered by the Rand Mines geochemical sampling programme
- Salomon's Tempel Target – historically mined on a limited scale for tin in the Lease Granite

- Appingendam Target – vein systems historically mined for tin, molybdenum and rare earth elements in the Bobbejaankop and Lease Granites

- Union Shale Target – historically mined on a limited scale for tin from breccia bodies and structures associated with the Union Tin Shale unit in the overlying felsites of the Rooiberg Group

Higher-grade parts of each of these targets have been partially mined historically on various scales for tin and other elements. Apart from a portion of the Zaaiplaats Target (covered by the Rand Mines programme), none of these targets have been previously investigated for lower-grade styles of mineralisation. They are therefore key targets for further exploration and expansion of the tin resource in the project area.

Figure 10-3
Map showing additional targets on the property



11 RESULTS OF THE 2011 DRILLING PROGRAMME

The results of the 2011 drilling programme confirm the results of the historical drilling data:

- Low-grade disseminated tin mineralisation is found in the Lease Granite. The zone of mineralisation crops out at surface and extends NE-SW along the strike of the tabular Lease Granite for over 500 m. This forms the bulk of mineralisation identified.

- A second zone of disseminated mineralisation is also found in the Lease Granite immediately below the contact with a pegmatite which is a discontinuous feature in the roof of the Lease Granite close to the contact with the overlying Rashoop Granophyre. This zone of mineralisation is more irregular than the larger disseminated body and does not generally crop out at surface. It has been locally mined in the past.

- Local high-grade pipe-like bodies exist within and below the lower-grade mineralised zones. Although high-grade, they are not voluminous and do not make up a significant resource.

- Locally, drilling has intersected high-grade mineralisation with grades reaching up to 16.86% Sn over 1 m (a probable pipe), 0.46% Sn over 11 m, and 0.41% Sn over 16 m.

A number of cross-sections depicting geology and grade distribution have been constructed along NE-SW lines perpendicular to the strike of the orebody (Appendix 1). On each cross-section, grades have been contoured at 100 ppm, 500 ppm and 1000 ppm levels to add geological constraints to the resource calculation.

12 MINERAL RESOURCE ESTIMATION

The Mineral Resource estimation was undertaken by Mr Dexter Ferreira of IRES, a senior geostatistician with over 20 years' experience in project evaluation internationally, including extensive involvement with mineral projects throughout South America and Africa. He is a member of the South African Council for Natural Scientific Professions, and qualifies as an 'Expert', 'Competent Person' and 'Qualified Person' as defined in National Instrument 43-101 and the JORC Code. MSA has reviewed the estimation undertaken by Mr Ferreira and is satisfied that the Mineral Resources presented are a fair representation of the tin deposit investigated on the property.

12.1 Data Validation

The datasets available for the Mokopane Tin Project consist of current and historical drillholes.

Data verification was carried out by checking whether the 'Froms' and 'Tos' were consistent for each drillhole sample. The data was reviewed to check for zero grades (none in database), and other obviously erroneous data such as negative grades. Drillhole numbering was checked within Datamine™ in order to ensure no duplication of collar identifiers.

The location of each surface drillhole was checked and verified by site staff as well as the lithological and assay tagging within those drillholes. Survey points denoting the locations of the holes were received and plotted in three dimensions using Datamine™ alongside images obtained from the mine site in order to assess whether or not the drillhole collars were in the correct place. No issues were discovered with data location.

12.1.1 Geological Modelling

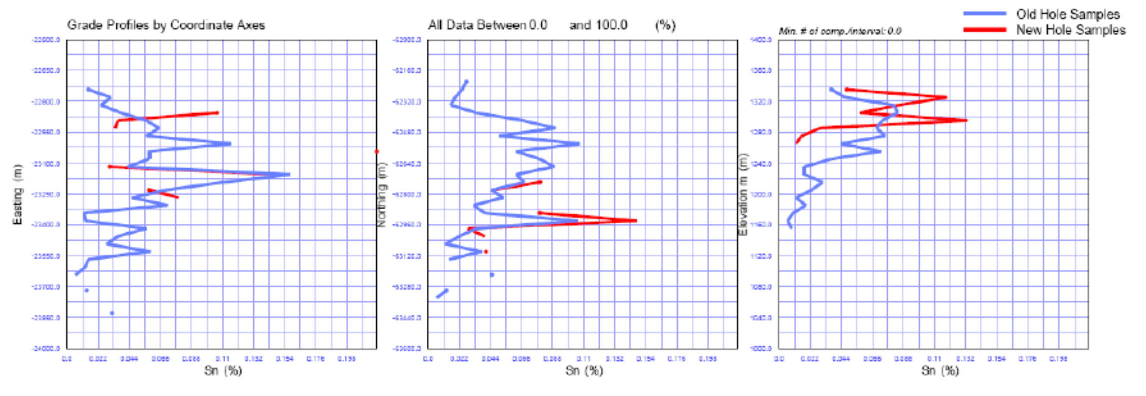
Although the mineralisation occurs within a homogeneous rock type, there are a number of mineralised intersections along the western flank of the project area which occur near the contact of the pegmatitic granite with the lease granite. This mineralisation has been differentiated geologically, and given that the rocktype is identical to that of the main disseminated mineralization, it was decided to differentiate this mineralisation by constructing a digital terrain model ("DTM") which demarked the bottom contact of the pegmatitic granite with the lease granite. This would allow for the separation of mineralization populations and would prevent the smearing of the contact mineralisation with the disseminated mineralisation.

12.1.2 Validation of Historical Data

Since two datasets were used for this study, it was important to compare them using bivariate statistics to ensure that the historical dataset is valid, and that both datasets could be concatenated into one dataset. This was achieved by making swath plots – plotting one dataset against another versus Northings, Eastings and Elevations.

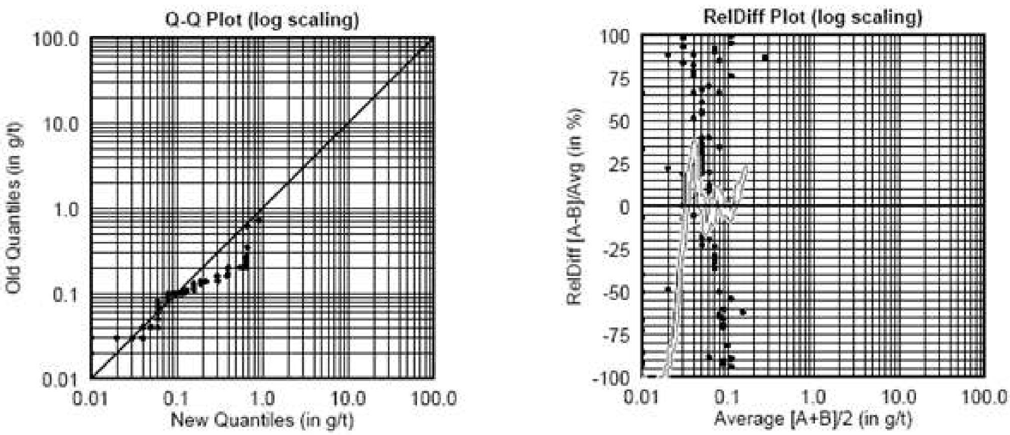
The swath plot reveals that the different datasets appear to be quite similar in all three directions (Figure 12-1).

Figure 12-1
Grade profiles of the historical and current drillhole data



A second validation test was to use the equation of least squares to pair samples from different datasets while computing three dimensional distances between them (i.e. Euclidean spacing). This was done using a FORTRAN routine and the output files sorted on ascending distance from one another then plotted on arithmetic and logarithmic scattergrams, quantile-quantile plots ("QQ"), and relative difference plots. The results for Sn samples from current and historical drillholes are shown in Figure 12-2. Assay A refers to 'New' samples and Assay B refer to 'Old' samples (left plot is in arithmetic scale – right plot is in logarithmic scale).

Figure 12-2
QQ Plot (left) and relative difference plot (right) for Sn values.



Although the QQ plot suggests that at the higher Sn grade thresholds, the current Sn assays are higher than the old assays, the relative difference plot tells us that the there is no bias between the current and historical assay datasets. The main difference between the 2 datasets is that the clustering of the current assays is tighter than the historical data. In addition, the sample lengths of the current data are mostly of uniform lengths, whilst that of the historical data varies considerably. In summary, the comparative statistics suggested that both datasets can be combined into one dataset for statistical and estimation purposes.

12.2 Statistical Analysis - Naïve Statistics

A complete set of naïve statistics was performed on the drillhole database that was contained within the following limits: -24100N and -22400NS, -2664000E to -2662100E, and 1000 m elevation to 1400 m elevation. These statistics examine the characteristics of Sn grade values as original samples, and as sample composites. Table 12-1 indicates the naïve statistics for samples contained within the project limits.

Table 12-1
Naïve statistics of uncut samples (Sn)

STATISTIC	Current Drillholes	Historical Drillholes
Number of Data	263	1778
Mean (%)	0.059	0.066
Standard Deviation	0.087	0.200
Coeff. Of Variation	1.475	3.012
Maximum (%t)	0.718	3.807
Upper Quartile (%)	0.063	0.050
Median (g/t)	0.035	0.017
Lower Quartile (%)	0.014	0.004
Minimum (%)	0.002	0.001
Number of Holes	202	53

Table 12-1 reveals a higher mean Sn grade for the current samples compared to the historical ones.

12.3 Sample Compositing

Statistics were compiled on the sample lengths of drillhole data (Table 12-2).

Sample length statistics for the drillholes reveal median values around 1.0m for the current holes, whilst the historical holes reveal a much broader range resulting in a higher mean of ~15.0m. A detailed look at the historical drillhole database shows us that the only well-defined samples (i.e. the From and To intervals specified) are the composite assays. However, within these larger composite values are notes referring to high and low Sn grades and their respective sample lengths. The problem with the latter is that nowhere in the database does it reveal where these "selected" lengths fit in within the longer composite lengths.

Table 12-2
Naïve statistics of sample lengths (Sn)

STATISTIC	Historical Drillholes	Current Drillholes
Number of Data	555	1796
Mean (m)	14.941	0.956
Standard Deviation	20.613	1.136
Coeff. Of Variation	1.379	1.188
Maximum (m)	124.000	47.000
Upper Quartile (m)	17.000	1.000
Median (m)	8.000	1.000
Lower Quartile (m)	3.785	1.000
Minimum (m)	0.020	0.040

It is obvious that an original database that reveals every smaller sample length exists and was then used to generate the broader historical database received for this study. Given the limitations regarding these selected samples, only the larger composite assays could be used in this study.

The samples were thus composited at 1 m lengths beginning at the collar of the drillhole. The results are shown in Table 12-3 below for composites (composited within the wireframes). The composite statistics were done in order to assess whether the compositing has maintained the distribution characteristics of the original samples.

Table 12-3
Naïve statistics of uncut 1 m composites (Sn)

STATISTIC	Historical Drillholes	Current Drillholes
Number of Data	3239	1647
Mean (%)	0.052	0.062
Standard Deviation	0.079	0.161
Coeff. Of Variation	1.527	2.608
Maximum (%t)	0.718	2.393
Upper Quartile (%)	0.062	0.050
Median (g/t)	0.027	0.017
Lower Quartile (%)	0.010	0.004
Minimum (%)	0.002	0.001
Number of Holes	202	53

The naïve statistics reveal a strong coefficient of variation which tells us that there is significant variability within the grade population. This is expected in this kind of mineral deposit.

12.4 Sample Spacing

The Euclidean spacing between samples was examined. Overall, the distances are typically 21 m to 38 m (averages). Table 12-4 shows the spacing between samples in three-dimensional space for all types of composited surface drillholes.

A block size of 10 m x 10 m x 2 m was chosen to discretise the block model. This dimension is based on not having more than 2 unsupported blocks in between 3 supported blocks (i.e. blocks pierced by drillholes). Therefore, since the median distance between drillhole samples is approximately 14 m, which would imply no blocks in between drillhole pierce points. The smaller Z dimension used was based on the grade variability down each hole. A consistent block size was utilized throughout.

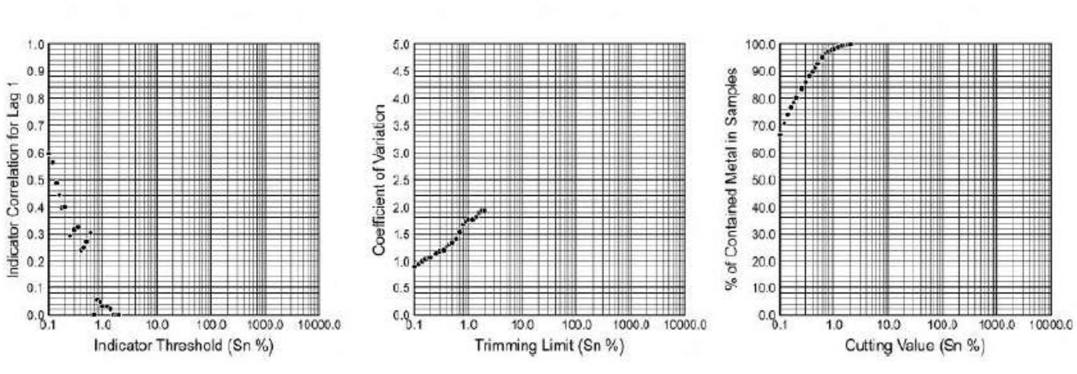
Table 12-4
Euclidean Spacing – 1 m Composites

Data Type	Average Metres	Maximum Metres	Lower Quart. Metres	Median Metres	Upper Quart. Metres
Historical	38.39	461.13	20.79	27.18	33.77
Current	21.10	41.37	15.59	20.80	26.28
ALL	**16.66**	**461.13**	**9.14**	**14.08**	**19.98**

12.5 Cutting Limits

Cutting statistics were performed with the help of cumulative log probability plots, indicator correlation for lag 1 plots, coefficient of variation plots and finally percent metal contained plots. These plots are found in Figure 12-3. It should be noted that these are merely guidelines and that ultimately, the cutting limit chosen is a grade limit suggested by these plots.

Figure 12-3
Cutting statistics for all 1m composites



The indicator correlation for lag 1 plots show the correlation between samples for the first lag set. Plotting this indicator against increasing minimum thresholds for Sn grades leads to a line tending closer towards zero. In other words, at ever increasing thresholds of Sn grades, there are fewer and fewer samples of similar grade. At this point, it indicates a lack of correlation between samples within the first lag set, and suggests an ideal cutting limit for assay values.

The coefficient of variation plots shows the change in this coefficient with increasing Sn values. A rapid change in this coefficient indicates a rapid change in the standard deviation and/or a change in the mean. This suggests an ideal cutting limit for Sn grades.

Kinks, plateaus and/or changes in the cumulative log probability plots also suggest changes in populations (perhaps subpopulations) and serve as a good indicator of cutting limits for Sn values. A slightly different plot is the percent of contained metal in samples versus increasing trimming levels for metal grades. This plot enables one to check how much metal is being lost to cutting at a certain Sn grade thresholds.

Table 12-5 lists the all the final cutting thresholds suggested by all methodologies described, and their impact on the overall database. The reasons for choosing one methodology over another is primarily based on how well defined that limit is depicted on the appropriate plot.

Table 12-5
Euclidean Spacing – 1 m Composites

Sn Grade Limit	# of Original Data	# of Comps cut	% of Data
0.70%	4886	38	0.78

12.6 Estimation Parameters

12.6.1 Variography

The models were estimated using data only contained within the defined limits. Pairwise relative variograms were used in this study; therefore no data transformation was necessary. Variography was done on the entire dataset beginning at 0° and calculating clockwise in 20° increments using a horizontal and vertical tolerance of ±12.5° at 50m lags; also for a maximum of 30 lags. An additional series of runs were done with a wider tolerance set at ±22.5°. Nugget contribution was taken from downhole variograms.

Directional variography revealed relatively strong continuity at 140° and weaker anisotropism in the 50° direction. No visible anisotropism was seen for plunges or dips.

Once the major direction of anisotropism was selected, a final plot revealing all three directions was generated; referred to as a triplet. A double spherical model was fitted for all three directions while maintaining 3D consistency and the contributions of each range were used in the estimation process.

12.6.2 Interpolation

Ordinary kriging was selected as the final estimation method of interpolating Sn grades into a three-dimensional block model. The block size chosen was identical to that discretizing the geological model for both models, 10 m x 10 m x 2 m (Northing x Easting x Elevation). Within the project area there were 150 rows of blocks in the X direction, 160 rows of blocks in the Y direction and 201 columns of blocks in the Z direction, for a total of 4 824 000 blocks. The project area consists of an area from: -2663600N and -2662000N, 24000E to 22500E, and 1 000 m to 1 400 m elevation.

A minimum of three and a maximum of ten composites were utilized for an estimate. Ordinary kriging was performed with a discretisation of 5 x 5 x 1 (XYZ). The search radii used approximately equaled the variogram ranges in the plane of the deposit. The search strategies utilized in the ordinary kriging runs are shown in Table 12-6; the radii shown relate to ellipse dimensions used.

Table 12-6
Estimation search strategy

Metal	Principal Direction		Minor Direction		Vertical Direction	
	Radius Meters	Azimuth/Dip Degrees	Radius Meters	Azimuth/Dip Degrees	Radius Meters	Azimuth/Dip Degrees
Sn	120.0	140°/0°	60.0	50°/0°	2.0	50°/90°

Tests were previously performed to investigate the effects of certain interpolation parameters on the variability of the estimates. Firstly, the maximum number of samples utilized for an estimate was examined. In this estimation model, the maximum is set to 10 composites, with an average of 8 composites used. A number of ordinary kriging runs with various maximum sample values were done, and the average variance of each run was compared to the maximum number of samples utilized. As the maximum number of samples is increased, the change in the variance decreased. The maximum number of samples is then selected from the area where a change in slope (becomes flatter) occurs, which is in this case, anything more than 10 samples. At this point, the addition of more samples does not significantly change the variance at all. Thus, a maximum of 10 samples was chosen in order to generate an estimate.

Another series of estimation runs were done, but with a more relaxed search ellipsoid size. The ranges were increased to 200 m in the 140° direction, 90 m in the 50° direction and 3 m in the vertical direction - and the model re-estimated. The minimum and maximum number of composites required to inform a block were kept the same but with the added restriction that no more than two composites could be taken from the same drillhole. These blocks were given a special code since they would be denoted as Inferred Mineral Resources.

Another series of estimation runs were done, but with a much more restrictive search ellipsoid size. The ranges were decreased to 50 m in the 140° direction, 25 m in the 50° direction and 1 m in the vertical direction - and the model re-estimated. The estimates were given the additional restriction of not sourcing more than two composites from any one drillhole. These blocks were given a special code since they would be denoted as Measured Mineral Resources.

12.7 Validation

12.7.1 Cross Validation

Cross validation tests were performed on the model. Naïve cross-validation consists of removing one sample and using the parameters to estimate it, and then comparing it to the original sample. This was done systematically for all samples. Overall, the correlation for the entire project area has a correlation coefficient of 0.763 for Sn, which indicates an acceptable amount of variability.

Simple cross validation takes all the samples that contribute to an estimated block, weighs them by length and then compares them to the estimated block. This test is done to examine the smoothing of the estimate. Samples occurring within an estimated block should have a grade similar to the block estimate itself. This test was done for all the segregated geological sub-units. The result was a correlation coefficient of 0.94, which demonstrates that little smoothing has taken place within the estimates.

12.7.2 Residuals

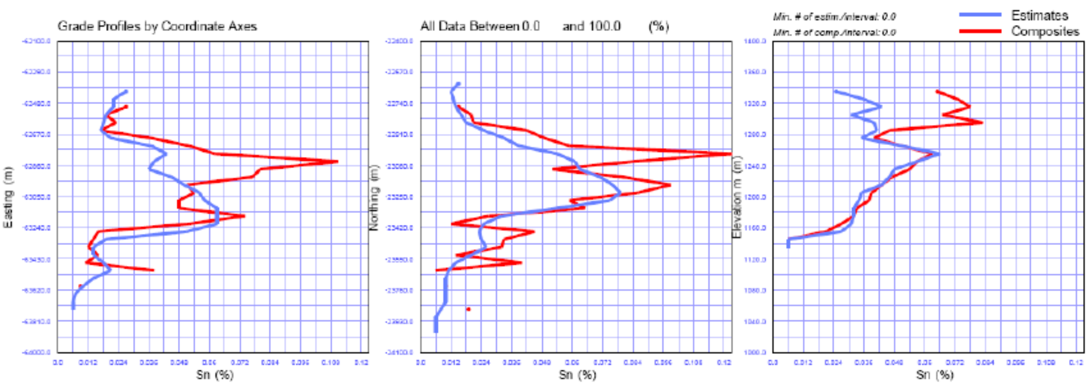
Residual bias was studied by determining the difference between the actual grade and the estimated grade; a test done via naïve cross-validation. These differences are then plotted on a frequency distribution plot and the mean established. An unbiased estimate would have a mean of zero. The model has a mean of -0.0006% Sn, which indicates negligible bias.

12.7.3 Trend Analysis

Trend analysis was undertaken on the block model. This examines the composites used in the estimation process by comparing them to the final block model. Northings, Eastings and Elevation versus Sn grades are all analysed (Figure 12-4). This is done to ensure that any trends present within the dataset are reflected in the final block model.

The trend analysis indicates that the estimated block model closely follows the trends as present in the composites – in all three directions.

Figure 12-4
Trend analysis for the block model (%Sn)



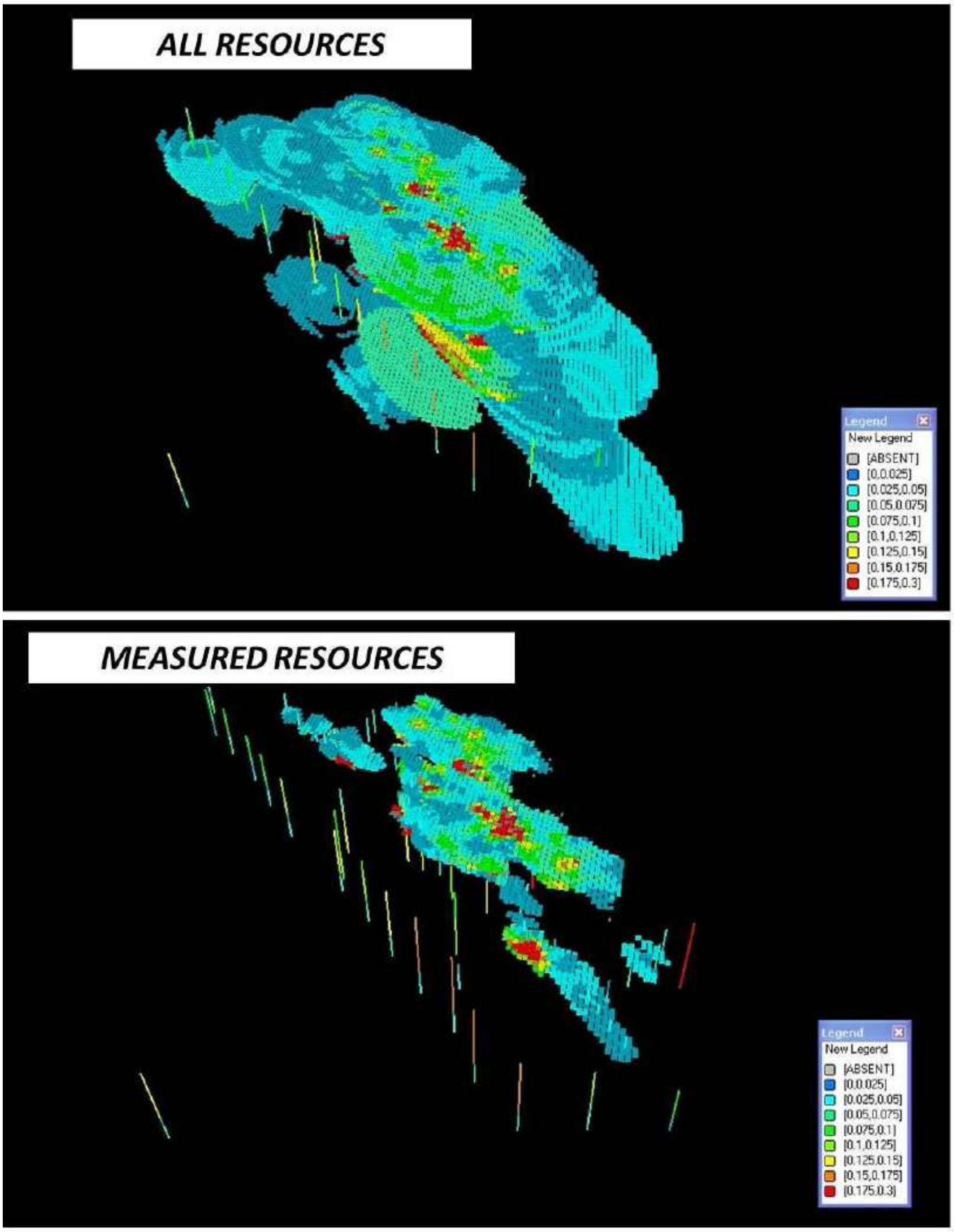
12.8 Specific Gravity

A specific gravity value of 2.65 was applied on a per block basis in order to convert block volumes into tonnages. This figure is based on the gas pycnometry data derived from the sample pulps (Section 10.2.5).

12.9 Geological Block Model

Images of the Mokopane Tin Project block model are shown below (Figure 12-5).

Figure 12-5
Geological Block Model



12.10 Mineral Resource Statement

The Mineral Resources estimated within the Mokopane Tin Project are classified as Measured, Indicated and Inferred by applying different variogram ranges to the double structure spherical models. The criteria utilized were as follows: block estimates estimated within the first variogram range of the double structure spherical models were classified as being within the measured category. This principle range of 50m approximately represents two thirds of the total variance. Visual inspection of these blocks will reveal that they are quite contiguous along strike throughout the deposit, and not prevalent in isolated clusters.

Mineral Resources estimated via the second structure of the double spherical model were classified as indicated whilst resources estimated at about one and half times the longest variogram ranges were classified as inferred. The Mineral Resources tabulated (Table 12-7) are for estimates occurring below the rock/overburden surface and are shown for a range of Sn cut-off grades.

In the Lease Granite on Groenfontein 227KR (the Groenfontein target), an Indicated + Measured Mineral Resource of 3 095 000 tonnes, containing 4 792 tonnes of tin (at 0.1% Sn cut-off) has been estimated, with a further 898 000 tonnes, containing 1 203 tonnes of tin (at 0.1% Sn cut-off), in the inferred category. This Mineral Resource represents only one of five targets identified, and may be significantly increased through further exploration on these targets.

A preferred cut-off of 0.1% tin has been applied by benchmarking the project against other projects worldwide, and by applying an average cash buyer (London Metal Exchange) tin value over the past three years (~USD 17 800). However, there is upside to the resource should the tin price remains high.

Table 12-7

Mineral Resources for the Mokopane Tin Project

Measured

Cut-off Grade Sn (%)	Tonnes	Sn Grade (%)	Sn Tonnes
0	10,289,000	0.052	5,350
0.01	8,459,000	0.062	5,245
0.02	7,359,000	0.069	5,078
0.03	6,153,000	0.078	4,799
0.04	4,802,000	0.090	4,322
0.05	3,722,000	0.104	3,871
0.06	2,884,000	0.118	3,403
0.07	2,267,000	0.132	2,992
0.08	1,817,000	0.147	2,671
0.09	1,434,000	0.163	2,337
0.1	1,177,000	0.179	2,107
0.11	1,001,000	0.192	1,922
0.12	840,000	0.206	1,730
0.13	717,000	0.221	1,585
0.14	632,000	0.232	1,466
0.15	561,000	0.243	1,363
0.16	496,000	0.255	1,265
0.17	430,000	0.269	1,157
0.18	391,000	0.278	1,087
0.19	357,000	0.287	1,025
0.2	322,000	0.297	956

Indicated

Cut-off Grade Sn (%)	Tonnes	Sn Grade (%)	Sn Tonnes
0	85,384,000	0.018	15,369
0.01	61,591,000	0.023	14,166
0.02	18,954,000	0.050	9,477
0.03	12,169,000	0.064	7,788
0.04	8,451,000	0.078	6,592
0.05	6,550,000	0.088	5,764
0.06	4,683,000	0.101	4,730
0.07	3,508,000	0.114	3,999
0.08	2,798,000	0.124	3,470
0.09	2,290,000	0.132	3,023
0.1	1,918,000	0.140	2,685
0.11	1,247,000	0.160	1,995
0.12	1,058,000	0.168	1,777
0.13	880,000	0.177	1,558
0.14	731,000	0.186	1,360
0.15	591,000	0.196	1,158
0.16	472,000	0.206	972
0.17	387,000	0.215	832
0.18	313,000	0.225	704
0.19	245,000	0.236	578
0.2	193,000	0.248	479

Inferred

Cut-off Grade Sn (%)	Tonnes	Sn Grade (%)	Sn Tonnes
0	49,073,000	0.017	8,342
0.01	35,681,000	0.021	7,493
0.02	9,843,000	0.046	4,528
0.03	5,745,000	0.062	3,562
0.04	3,901,000	0.075	2,926
0.05	2,990,000	0.085	2,542
0.06	2,078,000	0.099	2,057
0.07	1,442,000	0.115	1,658
0.08	1,203,000	0.123	1,480
0.09	1,027,000	0.129	1,325
0.1	898,000	0.134	1,203
0.11	536,000	0.157	842
0.12	467,000	0.163	761
0.13	352,000	0.176	620
0.14	271,000	0.188	509
0.15	244,000	0.193	471
0.16	206,000	0.201	414
0.17	174,000	0.207	360
0.18	111,000	0.225	250
0.19	75,000	0.246	185
0.2	68,000	0.251	171

13 MINERAL PROCESSING AND METALLURGICAL TESTING

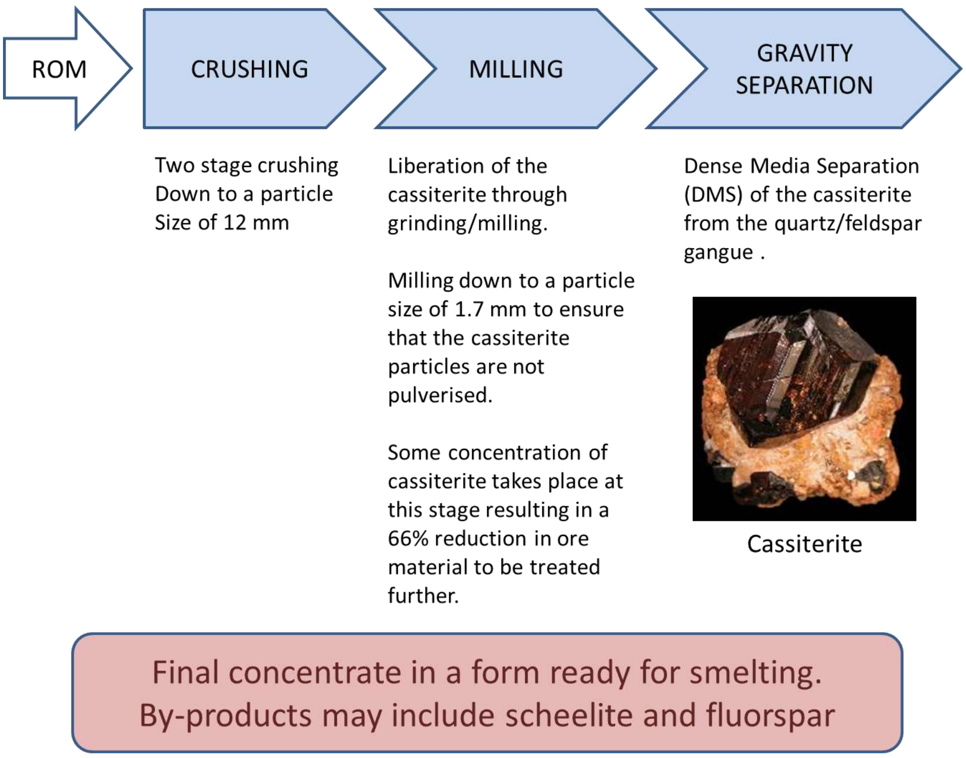
No metallurgical studies have been undertaken on the project to date.

Cassiterite has a high relative density and is thus recoverable using gravity separation techniques. However, it is also relatively hard and very brittle, which must be allowed for during crushing and grinding operations prior to gravity concentration. Furthermore, cassiterite is often strongly intergrown with other minerals, and the accompanying minerals behave similarly to cassiterite during processing.

13.1 Gravity Concentration

Current technologies are characterized by controlled multistage size reduction of the ores and separation of the cassiterite released after each size reduction stage using sorting methods based on density. For the best recovery, cassiterite grains should be recovered at the earliest possible stage and at their largest size. The efficiency of gravity concentration processes decreases markedly once the size of the particles is reduced to below about 30 µm.

Figure 13-1
Conventional process diagram of cassiterite recovery from ore



Conventional crushing and grinding methods can be used to liberate cassiterite from associated gangue materials (Figure 13-1). Different combinations of crushing and milling equipment, followed by a wide variety of gravity concentration devices for further beneficiation are used in most hard rock tin concentrators. The process would need to be tailored to the ore at Mokopane.

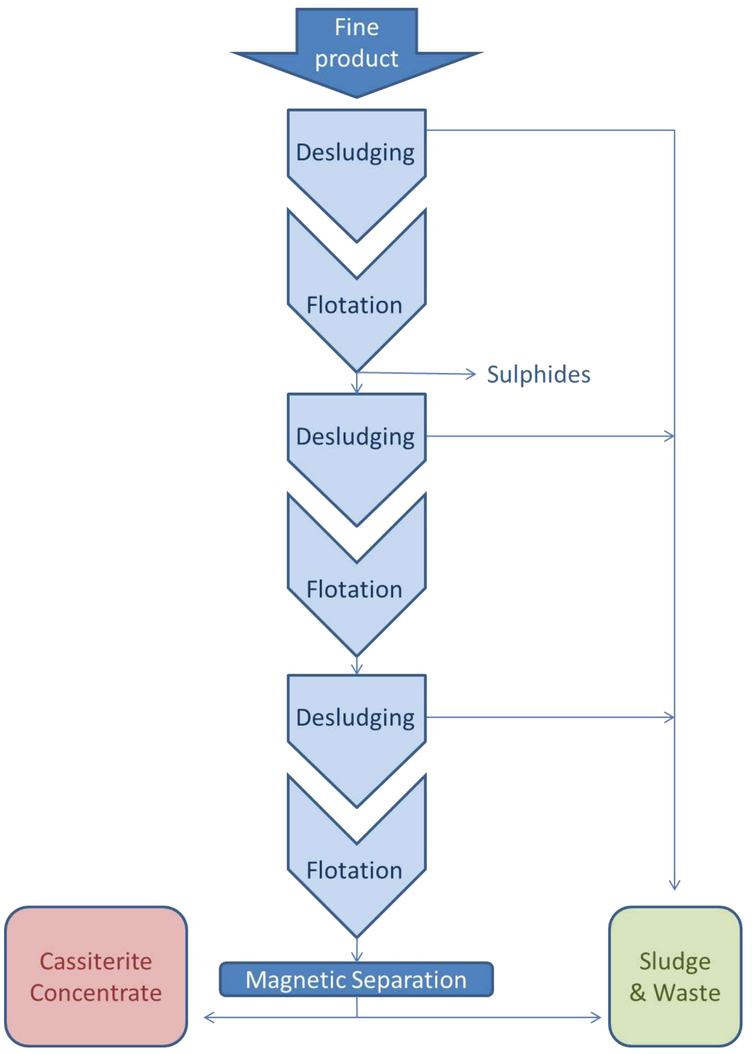
13.2 Froth Flotation of Fine Particles

Very small particles (< 30 µm) cannot be processed to give satisfactory yields and production rates. If the degree of intergrowth of the ores requires finer grinding, the flotation method for sorting particles < 100 µm is sometimes used. Due to its extreme brittleness, a significant amount of very fine cassiterite particles can be produced resulting in losses of tin in succeeding processing stages. Froth flotation can be used to upgrade particles less than 30 µm but cannot treat particles less than 6 µm in size. The less than 6 µm particles can account for a significant proportion of the metallic tin entering the plant.

Flotation is increasingly used to sort fine-grained material and ground middlings obtained by the density-based sorting process, and has now become the preferred method for treating the most finely intergrown, complex tin ores. Flotation of cassiterite with particle sizes between 40 and 10 µm is mainly carried out with arsenic acids.

The flow diagram (Figure 13-2) shows the flotation of primary tin concentrates to remove sulphides of similar paragenesis, followed by flotation of cassiterite from the pre-concentrate and magnetic separation of paramagnetic minerals from the flotation product.

Figure 13-2
Conventional process of froth flotation to recover fine cassiterite



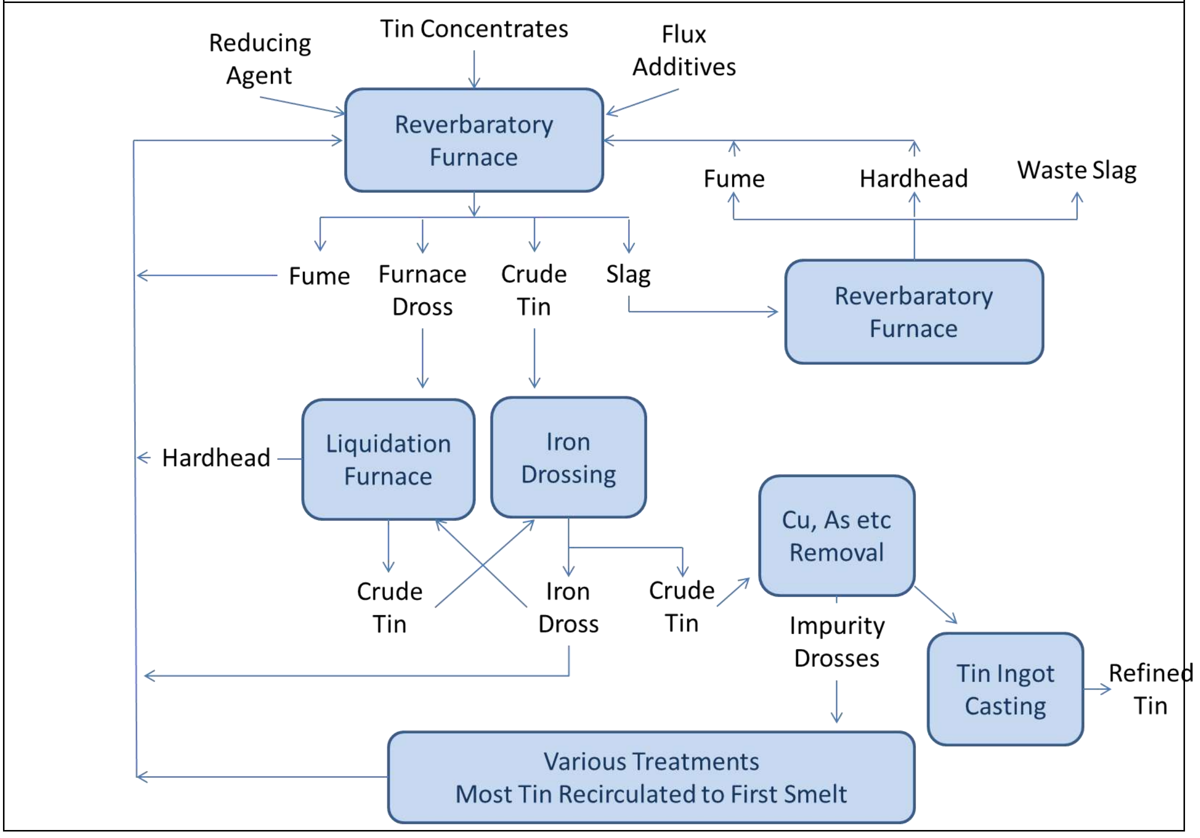
13.3 Smelting

Cassiterite is smelted to metal by reduction with carbon using the carbothermic reaction:

$SnO_2 + 2\ CO = Sn + 2\ CO_2$

This is most commonly achieved in a reverberatory furnace (Figure 13-3). Temperatures in excess of 1200°C are required. The difficulty is that cassiterite is hardly ever produced entirely free from other minerals and many of these are reduced to metal at the same time forming alloys with the tin. It is therefore necessary to refine the tin to make it commercially useful. Fire refining involves various procedures on the molten metal. Iron is removed by passing steam through the molten metal, arsenic and antimony are removed by additions of aluminium alloy and copper is removed with sulphur. Very impure tin can be refined by electrolysis to very high purity.

Figure 13-3
Conventional reverbaratory circuit for tin smelting



13.4 Characterisation of the Mokopane Ores

No testwork has been undertaken on the low grade disseminated ore and it is recommended that an ore characterisation programme be conducted on which to base a conceptual process flow sheet to recover the cassiterite. This testwork should include the following:

- Mineralogical analysis
- Geochemical analysis
- Heavy Mineral analysis
- Sieve analysis to determine the mineral sizes
- Densimetric analysis

14 MARKET ANALYSIS

The name tin is derived from the Old High German *zin* and the Norse *tin*. The symbol Sn comes from the Latin *stannum*. Historically tin is of major cultural importance, being an essential component of the copper alloy bronze which gave its name to the Bronze Age. The first bronze objects appeared in Egyptian tombs dating from the end of the 4th millennium BC.

Tin was one of the first metals mined and its qualities and shiny finish made it a highly sought after commodity which was traded in many parts of the world. Today it is mainly used for the production of solders (53%), for tin plating of iron and steel products (16%), in the chemicals industry (14%), whilst only 6% is used in the production of brass and bronze.

14.1 Tin Demand

Key issues that have affected tin demand in recent years were the ban on using lead in certain types of solder in 2006, and the local demand in China in recent years far exceeding local supply.

Tin demand saw a significant growth of approximately 10% during 2010 to a total of approximately 350 000 tonnes (Economist Intelligence Unit). Forecasts for growth in tin demand going forward remain positive in the short to medium term. According to the EIU, growth in global tin consumption will continue to increase in 2011 (3.1%) and 2012 (3.7%). Deleveraging of over-indebted consumers in Europe and the US, coupled with weak labour markets, are likely to act as a brake on the rate of growth in consumer spending, which is the key driver of tin demand. As a result, tin demand is likely level out in the medium term.

14.2 Tin Supply

Tin production is mainly from underground mines (56%) as secondary eluvial and alluvial resources (38%) have been depleted over the past 30 years. Only 6% of production is currently from open cast mines. China (45%) and Indonesia (30%) are the major producers, with South American countries accounting for most of the balance (Peru, 11%; Bolivia, 5%; and Brazil, 4%) and the Democratic Republic of Congo the balance (5%).

Issues that have impacted tin supply recently include the introduction of new environmental legislation in Indonesia, dwindling high grade resources and political risk in countries that do have high grade ore (e.g. DRC), and mine output falling sharply in Brazil.

The increased environmental regulatory environment in Indonesia has resulted in the closure of 18 out 31 exporting smelters, whilst the largest producer, PT Timah, has reduced output by 20%.

Whilst DRC has the resource potential to fill a global supply deficit, tin is included in a group of ‘conflict minerals’ which are produced there. A new set of rules for mineral suppliers in Central Africa backed by the world’s leading electronics companies came into effect on 1 April 2011 to end the trade’s contribution to violence in the DRC. Mineral trade in the DRC has been a central feature of conflict in the country, with combatant groups fighting for control of mines, perpetrating abuses against local populations to ensure control, and using profits from the trade to obtain weapons and drive armed conflict. The “Conflict-Free Smelter Program” requires participating mineral processing players in the DRC and neighbouring countries to provide proof that their supply purchases do not contribute to conflict in the country by funding militia groups. The programme covers tin, tungsten, gold and coltan.

New tin mine projects are scheduled to come on stream in late 2012 and 2013, with total mineral resources of over 1 Mt of tin metal. However, assuming the world does not experience a double-dip recession and short term demand continues to grow, global tin supply is likely to remain stressed.

Despite the apparent global shortfall in supply, tin stocks on the LME have risen over the 10 months to April 2011 to approximately 19 000 tonnes.

14.3 Tin price

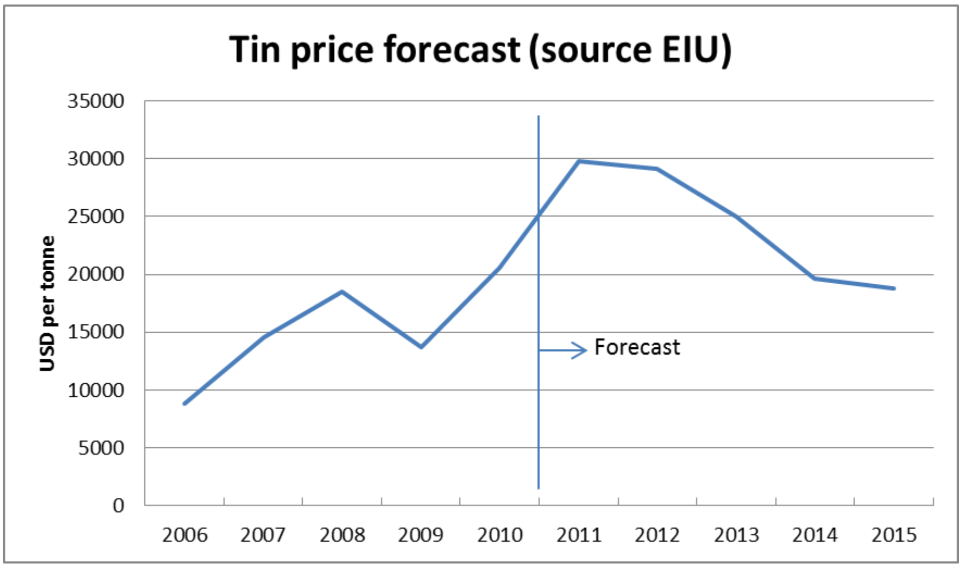
The price of tin on the LME rose from the region of USD 8 000 per tonne in 2006 to approximately USD 19 000 per tonne at the beginning of the global recession. Prices have recovered from below USD 14 000 in 2009 to over USD 33 000 per tonne in the first quarter of 2011 (Figure 14-1). This rise in price has been driven by an increased demand for solder in the electronics industry, and supply side limitations described above.

Divergent forecasts exist for the tin price going forward. Lars Steffensen, managing partner at Ebullio, is quoted as saying the metal could reach USD 50 000 a ton. “There is going to be less and less available. People will have to pay higher prices,” he added. “On the supply side you have output problems, (while) consumption is strong.”

The main driver for capping prices would be a slowdown in demand. Currently, only the power problems following Japan’s earthquake and tsunami are expected to have any significant impact on slowing electronics production. It is possible that China will experience a disruption to the component supply chain, which could hinder tin solder demand over the coming months.

Figure 14-1

Chart of tin price with medium term forecast (source, Economist Intelligence Unit)



Another block to higher prices would be a drop-off in investor appetite for the metal. Exchange open interest on the number of outstanding contracts on LME tin futures has risen to 20 795 lots, or 103 975 tons, from 15 992 lots, or 79 960 tons, in early September when the current price surge started. There are commodity trading funds and hedge funds with long positions, which will want to sell at some point. Their sales volumes cannot be absorbed by the market over a short period without a significant price correction to the downside.

On balance, the tin price is likely to remain at or near current levels over the next two years, beyond which, new production is likely to bring prices down slightly. Figure 14-1 shows the forecast tin prices for 2011 and 2012 according to the EIU.

15 ENVIRONMENTAL CONSIDERATIONS

Greenhills submitted an Environmental Impact Assessment (EIA) and an Environmental Management Plan (EMP) as part of the application process for their Prospecting Right. These were accepted by the Department of Minerals and Energy.

The property has a history of mining and MSA is not aware of any environmental risks associated with the project. However, MSA has not undertaken an independent environmental assessment of the property.

16 INTERPRETATION AND CONCLUSIONS

The Mokopane Tin Project is a property comprising six farms, four of which report significant historical tin mining with a total of nearly 22 000 tonnes of tin metal produced from a series of high grade mineralised pipes and areas of lower grade disseminated mineralisation.

The high grade mineralisation has mostly been mined out. However, at least two areas of lower grade disseminated tin mineralisation remain on the farms Groendoorn 225KR and Groenfontein 227KR. One of these deposits occurs in the Bobbejaankop Granite and has not yet been investigated in detail. The second occurs in the overlying Lease Granite and has been effectively sampled during drilling campaigns undertaken during the 1970s, and verified and enhanced during 2011. Measured, Indicated and Inferred Mineral Resources have been defined in the Lease Granite occurrence.

16.1 Project Risks

Because this project is situated in South Africa, it would be subject to exchange risk as the Rand / US Dollar exchange rate fluctuates. Operating costs would be in Rand, but the sales revenue for tin produced would be based on an international pricing model.

The deposit that has been defined is relatively small and low grade. This provides little margin should negative factors impact a future mine.

16.2 Project Opportunities

The tin price is at an all-time high and the fundamentals suggest that the price will remain strong in at least the medium term. The Mineral Resource that has been defined occurs at shallow depth. The stripping ratio and mining costs would therefore be relatively low. Further targets have been identified on the property that have the potential to enhance the Mineral Resource base.

16.3 Recommendations

The 2011 drilling programme was successful in determining Measured and Indicated Mineral Resources. It is recommended that a scoping study is undertaken on the Mineral Resource to determine whether a proportion of the Mineral Resources can be mined economically. A preliminary metallurgical study should be undertaken to establish the grain size of the cassiterite and its recoverability.

There is potential to increase the defined Mineral Resources by drilling the low grade disseminated deposit that occurs in the Bobbejaankop Granite on the farm Groendoorn 225KR on the boundary with the farm Zaaiplaats 223KR.

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18 DATE AND SIGNATURE PAGE

The undersigned, Dr Leon Liebenberg, contributed to sections 1-19 of this technical report, titled Independent Technical Report on the Mokopane Tin Project, South Africa, with an effective date of 26 September 2011, in support of the public disclosure of technical aspects of the Mokopane Tin Property. The format and content of this report are intended to conform to the JORC Code.

I consent to the filing of this Technical Report with any stock exchange and other regulatory authority and any publication by them, including electronic publication in the public company files on their websites accessible by the public, of this Technical Report.

Signed,

……………………………………….

Name: Dr Leon Liebenberg

Date: 26 September 2011

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19 GLOSSARY OF TECHNICAL TERMS

alkaline rock	an igneous rock containing an excess of sodium and or potassium
alluvial	Transported and deposited in a river system, e.g. diamonds eroded from kimberlites and deposited in river gravel.
Archaean	The oldest rocks of the Precambrian era, older than about 2 500 Ma.
basement	The igneous and metamorphic crust of the earth, underlying sedimentary deposits.
bedrock	the first hard and solid rock underlying soil or unconsolidated overburden
core drilling	Method of obtaining cylindrical core of rock by drilling with a diamond set or diamond impregnated bit.
colluvium	sediment transported downslope by gravity; usually proximal to its source
diamond drilling	synonymous with *core drilling*
dyke	A vertical or near vertical sheet of igneous rock, the widths of which may range from centimeters to hundreds of meters. One of the typical modes of occurrence of kimberlite, in the case of which widths are usually narrow, less than 2 m.
EIA	Environmental Impact Assessment.
eluvium	sediment derived from the physical and/or chemical decomposition of the underlying bedrock.
EMP	Environmental Management Plan.
Equator Principles	A set of voluntary governance rules for managing social and environmental risk in project finance (see www.equator-principles.com).
facies	The sum of the lithological (and palaeontological) characters of a particular rock.
fault	A fracture or fracture zone, along which displacement of

	opposing sides has occurred.
Ga	Giga years (1 Ga = 1,000 million years)
geophysical surveys	Instrumental surveys measuring small variations in the earth's magnetic field, gravity field or electrical conductivity (in addition to some other properties) related to local variations in rock type. Widely used to discover kimberlite pipes. Magnetic and some electrical methods can be carried out from an aircraft.
gneiss	A coarse grained, banded, high grade metamorphic rock.
GPS	Global Positioning System. A satellite based navigation system able to give real time positions to approx ±5 m in X and Y using simple hand held instruments.
ha	Hectare = 10,000 m^2. A common unit for expressing the surface area of a kimberlite pipe.
Indicated Resource *(Indicated Mineral Resource)*	An Indicated Mineral Resource is that part of a mineral resource for which quantity, grade or quality, densities, shape and physical characteristics, can be estimated with a level of confidence sufficient to allow the appropriate application of technical and economic parameters, to support mine planning and evaluation of the economic viability of the deposit. The estimate is based on detailed and reliable exploration and testing information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes that are spaced closely enough for geological and grade continuity to be reasonably assumed. (CIM definition).
Inferred Resource *(Inferred Mineral Resource)*	An Inferred Mineral Resource is that part of a mineral resource for which quantity and grade or quality can be estimated on the basis of geological evidence and limited sampling and reasonably assumed, but not verified, geological and grade continuity. The estimate is based on limited information and sampling gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes. (CIM definition).
isotope dating	A method of dating rocks by quantifying the relative ratio of isotopes.
joints	Regular planar fractures or fracture sets in massive rocks, usually created by unloading, along which no

	relative displacement has occurred.
kriging	A mathematical technique which uses spatial statistics to calculate estimations of mineral resources.
limestone	A sedimentary rock containing at least 50% calcium or calcium-magnesium carbonates.
lineament	A significant linear feature of the earth's crust.
loam sampling	Sampling the soil profile to recover resistant minerals. In the case of diamond exploration, loam sampling is intended to recover kimberlite indicator minerals.
Ma	Million years.
mafic	Descriptive of rocks composed dominantly of magnesium and iron rock-forming silicates.
magmatic	Rock formed from crystallization of molten magma; an igneous rock. A descriptive of some kimberlite types which have crystallized without exploding. (Compare *volcaniclastic* kimberlite).
magnetic survey	A geophysical survey which measures variations in the earth's magnetic field caused by differences in the magnetic susceptibilities of underlying rock. Kimberlite may be detected by this method, as its susceptibility may be higher or lower than surrounding rock types.
Measured Resource *(Measured Mineral Resource)*	A Measured Mineral Resource is that part of a mineral resource for which quantity, grade or quality, densities, shape and physical characteristics are so well established that they can be estimated with confidence sufficient to allow appropriate application of technical and economic parameters, to support production planning and evaluation of the economic viability of the deposit. The estimate is based on detailed and reliable exploration, sampling and testing information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes that are spaced closely enough to confirm both geological and grade continuity. (CIM definition).
metamorphism	Alteration of rock and changes in mineral composition,

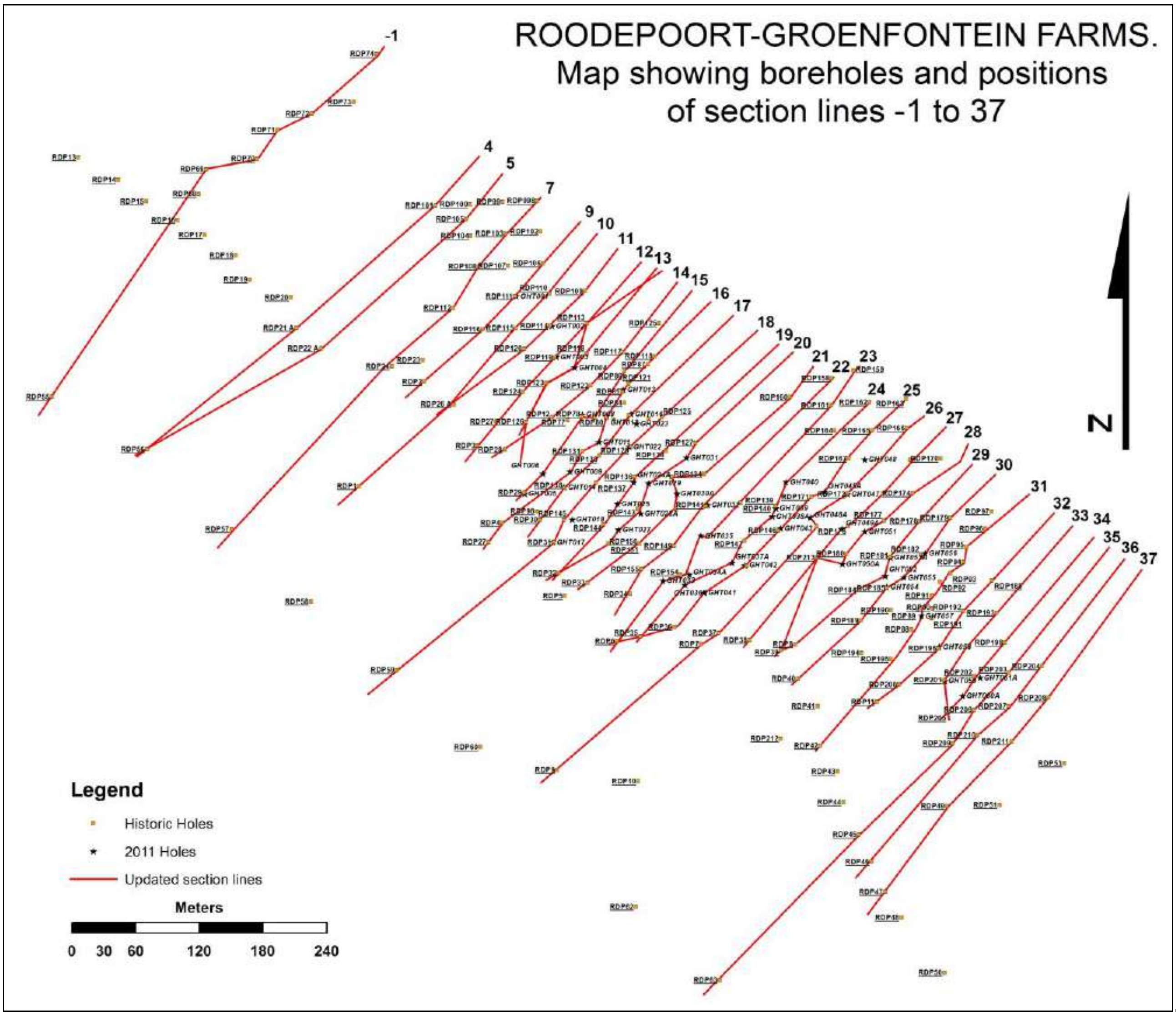
	most generally due to increase in pressure and/or temperature.
mobile belt	An elongate belt in the earth's crust, usually occurring at the collision zone between two crustal blocks, within which major deformation, igneous activity and metamorphism has occurred.
orogeny	A deformation and/or magmatic event in the earth's crust, usually caused by collision between tectonic plates.
Percussion drilling	Drilling by means of an air hammer which breaks the rock into chips which are brought to surface by air circulation.
Probable Reserve *(Probable Mineral Reserve)*	A Probable Mineral Reserve is the economically mineable part of an Indicated, and in some circumstances a Measured Mineral Resource, demonstrated by at least a Preliminary Feasibility Study. This study must include adequate information on mining, processing, metallurgical, economic and other relevant factors that demonstrate, at the time of reporting, that economic extraction can be justified. (CIM Definition)
Proven Reserve *(Proven Mineral Reserve)*	A Proven Mineral Reserve is the economically mineable part of a Measured Mineral Resource demonstrated by at least a Preliminary Feasibility Study. This study must include adequate information on mining, processing, metallurgical, economic and other relevant factors that demonstrate, at the time of reporting, that economic extraction is justified. (CIM Definition).
Proterozoic	An era of geological time spanning the period from 2 500 Ma to 545 Ma before present.
PL	Prospecting Licence
RC drilling	Reverse circulation drilling. A percussion drilling technique in which the sample is brought to surface by air and/or water through the centre of the drill pipe. Used when accurate sampling is required as the method minimizes cross contamination of samples.
schist	A crystalline metamorphic rock having a foliated or parallel structure due to the recrystallisation of constituent minerals.

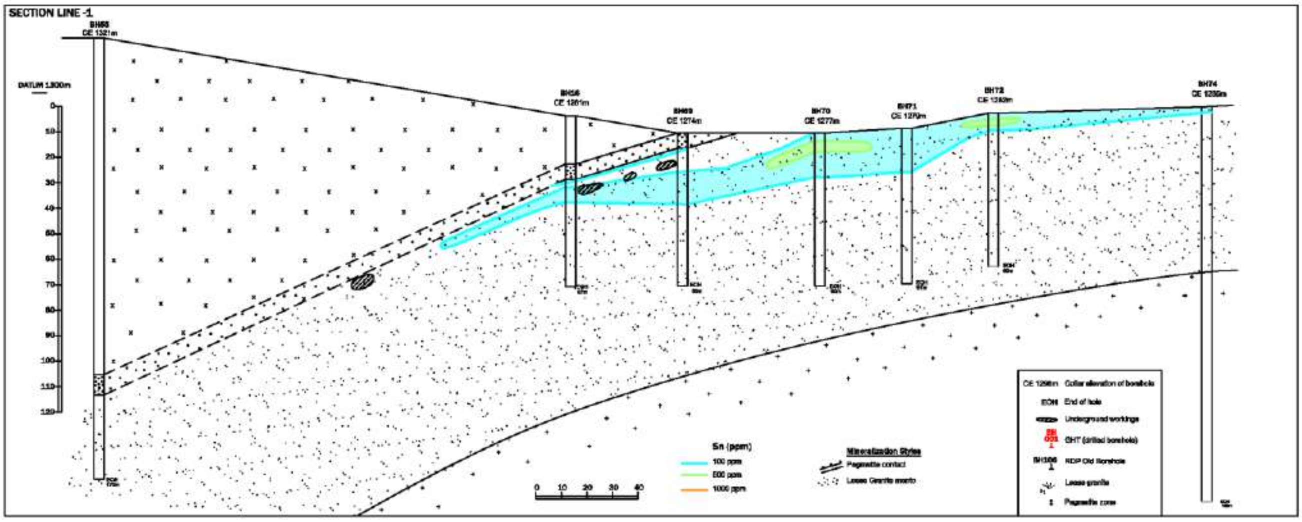
SAMREC	The South African code for the reporting of exploration results committee
strike	Horizontal direction or trend of a geological structure.
tonne	A metric tonne, 1,000 kg
tectonic	Pertaining to the forces involved in, or the resulting structures of, movement in the earth's crust.
ultramafic	Igneous rocks consisting essentially of ferromagnesian minerals with trace quartz and feldspar.
variogram	In spatial statistics, a graph which relates the variance of the difference in value between pairs of samples to the distance between them. Allows the weighting of a sample value in terms of its distance from the point where an estimate of sample value is required.

THE MSA GROUP

APPENDIX 1:

Geological sections of the Mokopane Tin Project Groenfontein mineral resource

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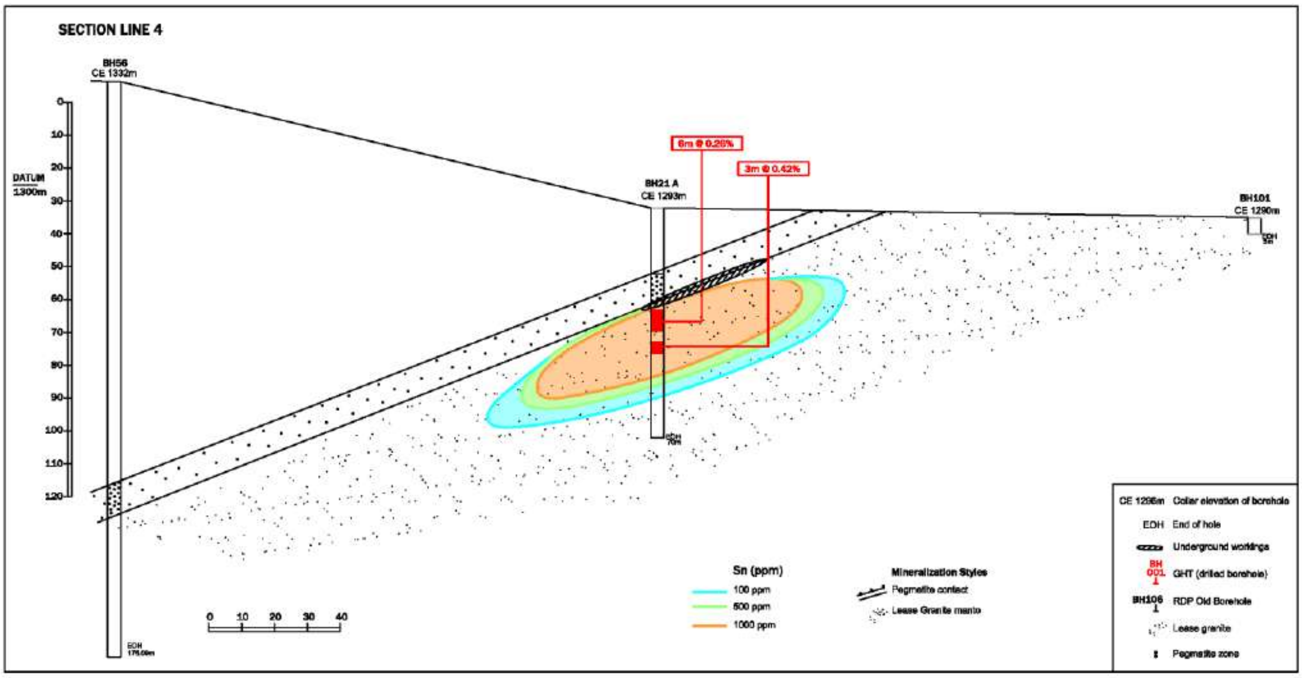
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3m @ 0.42%
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CE 1290m
EDH
175.09m
Sn (ppm)
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500 ppm
1000 ppm
Mineralization Styles
Pegmatite contact
Lease Granite manto
0 10 20 30 40
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EDH End of hole
Underground workings
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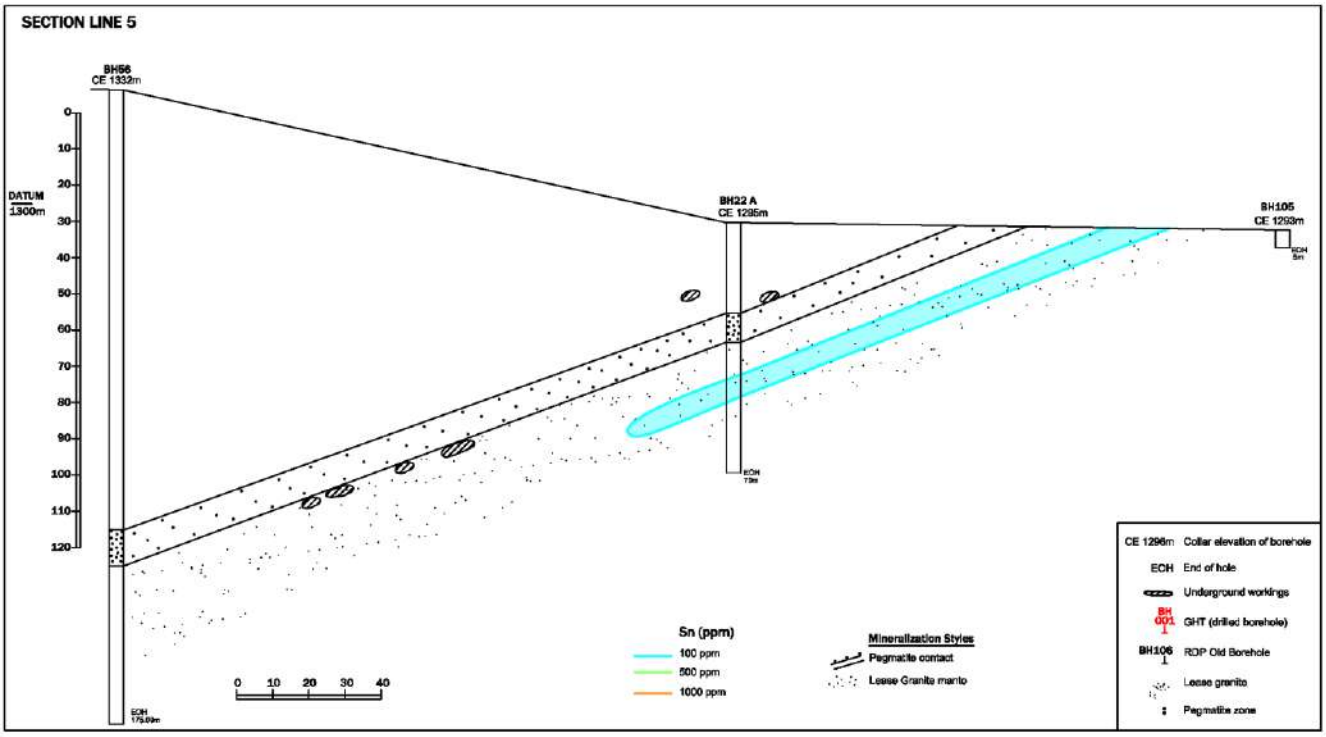
BH106 RDP Old Borehole
Lease granite
Pegmatite zone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CE 1295m
BH105
CE 1293m
Sn (ppm)
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500 ppm
1000 ppm
Mineralization Styles
Pegmatite contact
Lease Granite manto
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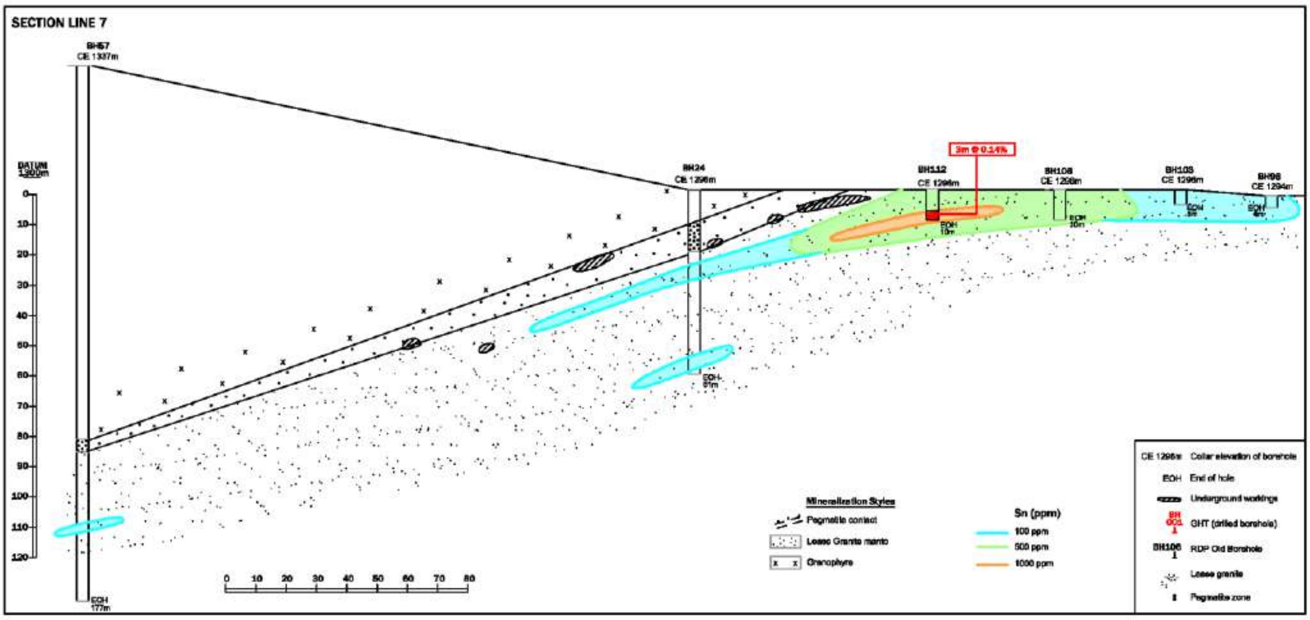
EOH End of hole
Underground workings
GHT (drilled borehole)
BH106 RDP Old Borehole
Lease granite
Pegmatite zone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BH112
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BH103
BH98
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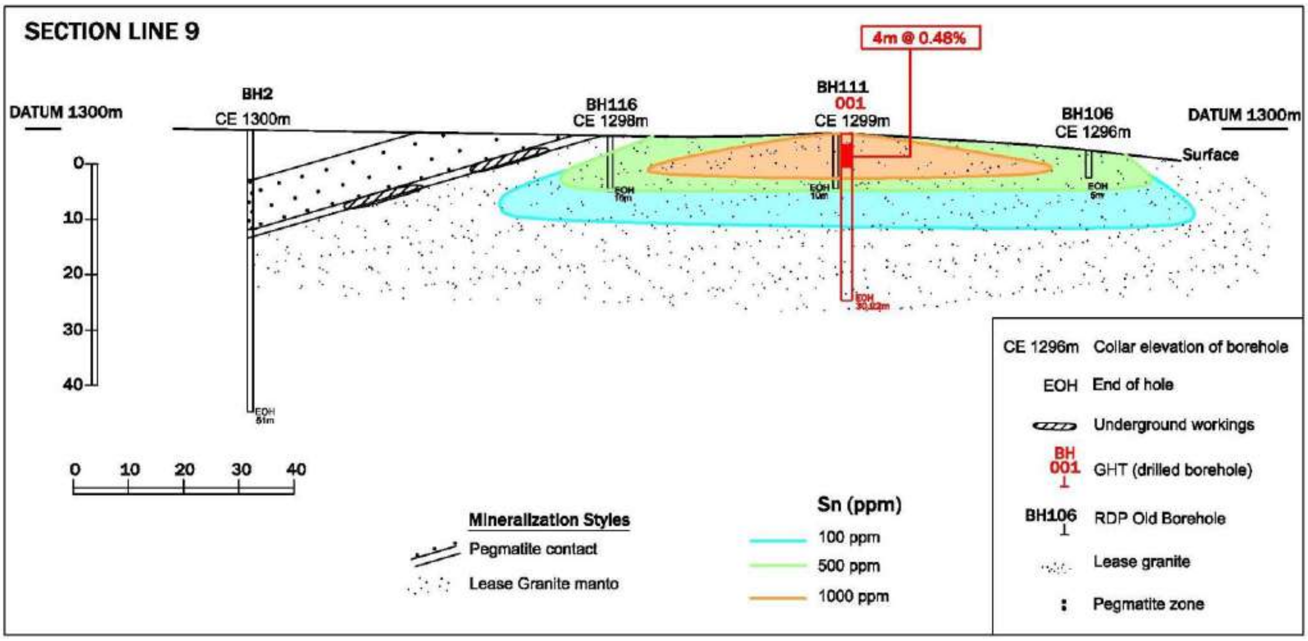
Pegmatite contact
Lease Granite manto
Granophyre
Sn (ppm)
100 ppm
500 ppm
1000 ppm
Collar elevation of borehole
EOH End of hole
Underground workings
GHT (drilled borehole)
RDP Old Borehole
Lease granite
Pegmatite zone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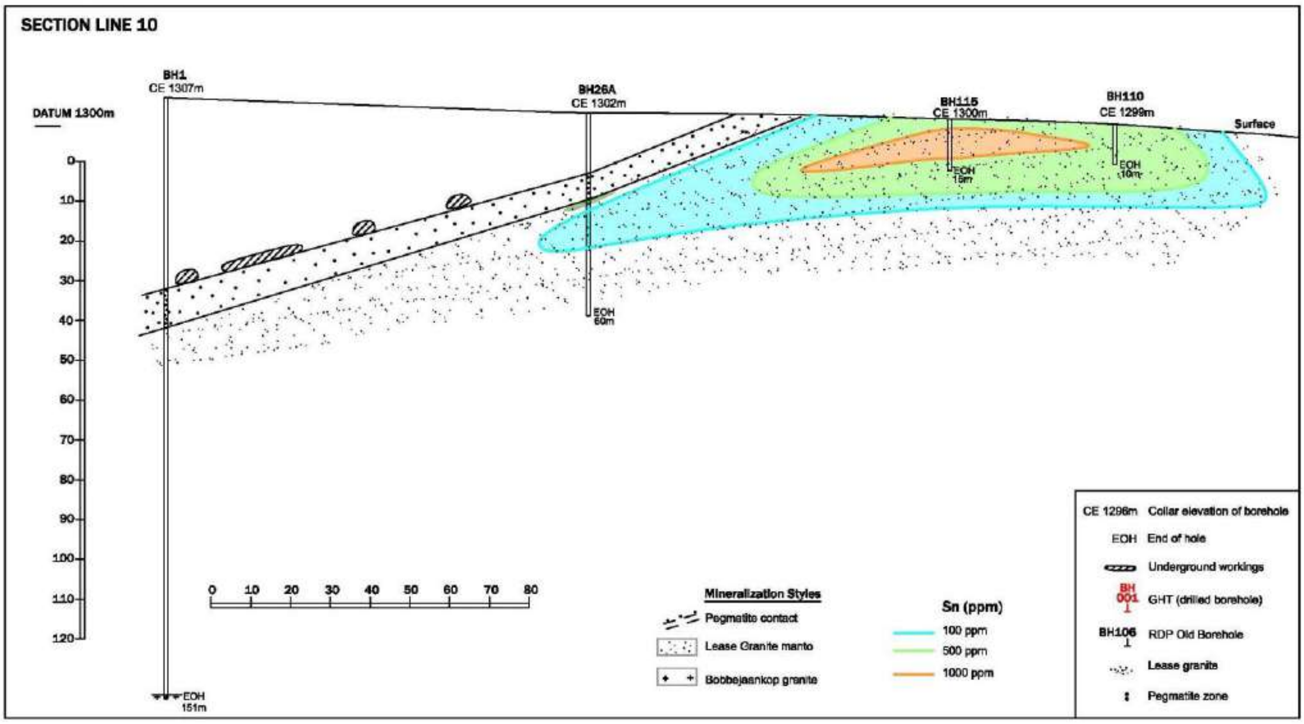
BH116
CE 1298m
BH111
001
CE 1299m
BH106
CE 1296m
DATUM 1300m
Surface
0
10
20
30
40
0 10 20 30 40
Mineralization Styles
Pegmatite contact
Lease Granite manto
Sn (ppm)
100 ppm
500 ppm
1000 ppm
CE 1296m Collar elevation of borehole
EOH End of hole
Underground workings
BH 001 GHT (drilled borehole)
BH106 RDP Old Borehole
Lease granite
Pegmatite zone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BH115
CE 1300m
BH110
CE 1299m
Surface
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0 10 20 30 40 50 60 70 80
Mineralization Styles
Pegmatite contact
Lease Granite manto
Bobbejaankop granite
Sn (ppm)
100 ppm
500 ppm
1000 ppm
CE 1296m Collar elevation of borehole
EOH End of hole
Underground workings
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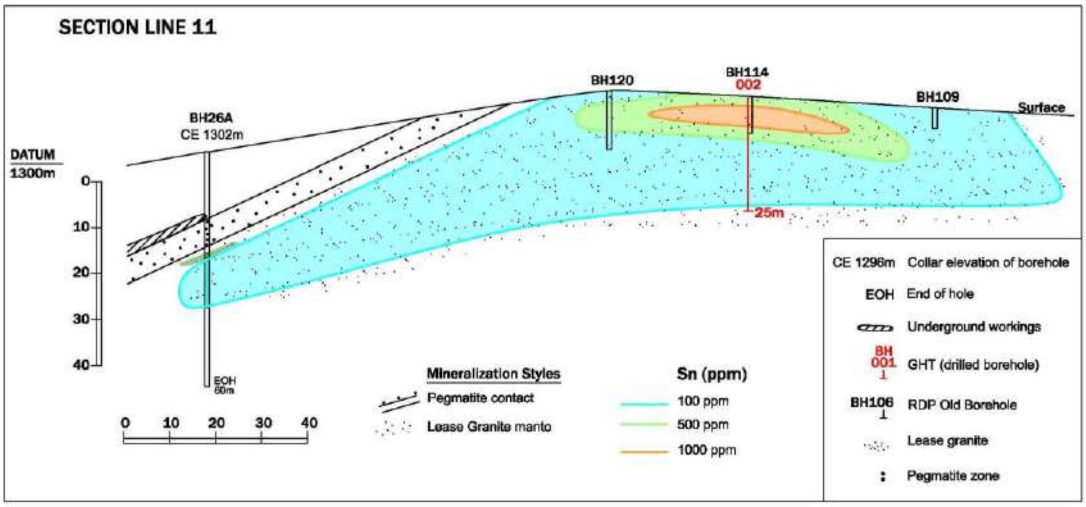
BH106 RDP Old Borehole
Lease granite
Pegmatite zone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40
25m
EOH
60m
Mineralization Styles
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Lease Granite manto
Sn (ppm)
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500 ppm
1000 ppm
0 10 20 30 40
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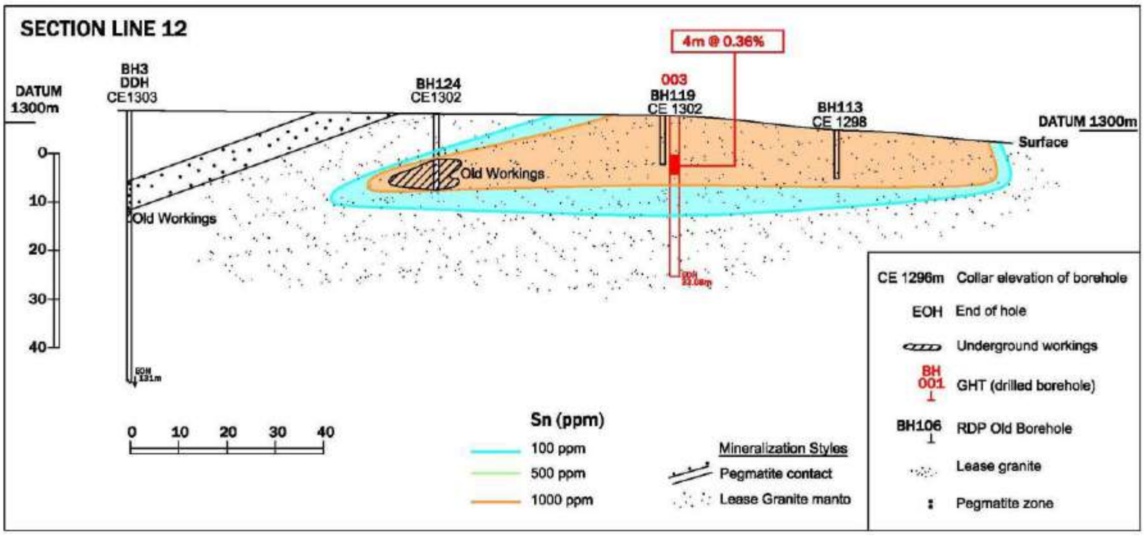
Lease granite
Pegmatite zone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003
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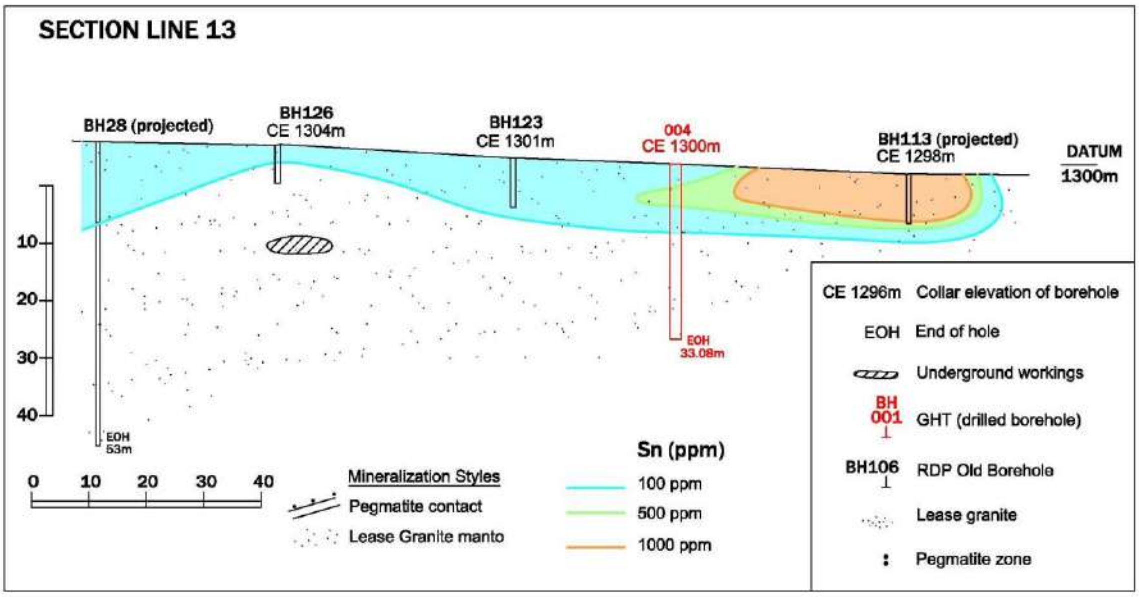
BH113
CE 1298
DATUM 1300m
Surface
Old Workings
Old Workings
0
10
20
30
40
0 10 20 30 40
Sn (ppm)
100 ppm
500 ppm
1000 ppm
Mineralization Styles
Pegmatite contact
Lease Granite manto
CE 1296m Collar elevation of borehole
EOH End of hole
Underground workings
BH 001 GHT (drilled borehole)
BH106 RDP Old Borehole
Lease granite
Pegmatite zone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BH123
CE 1301m
004
CE 1300m
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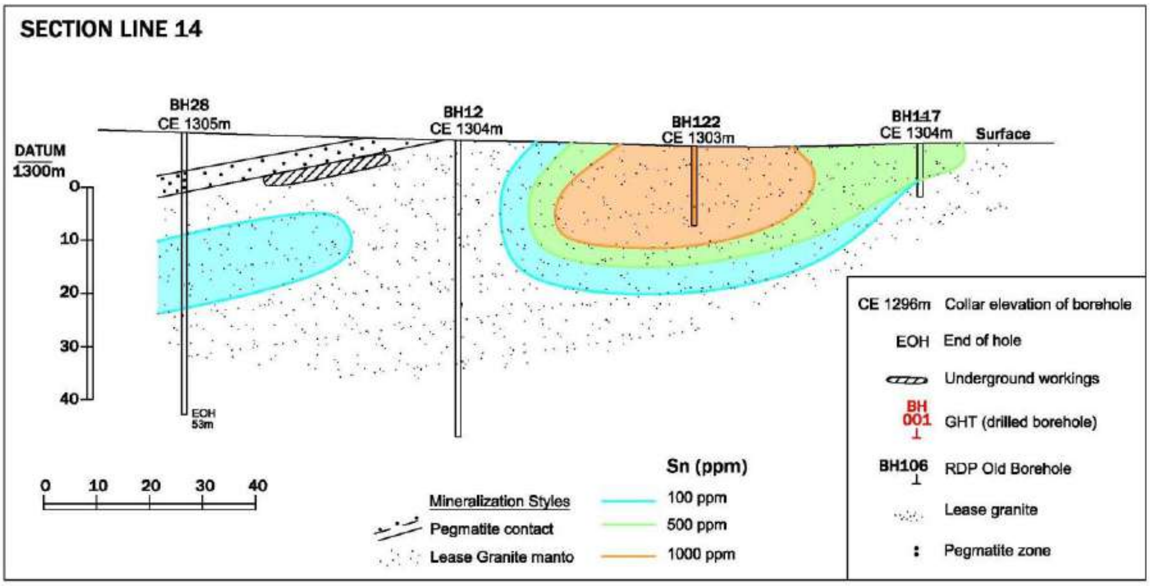
CE 1298m
DATUM
1300m
10
20
30
40
EOH
33.08m
EOH
53m
0 10 20 30 40
Mineralization Styles
Pegmatite contact
Lease Granite manto
Sn (ppm)
100 ppm
500 ppm
1000 ppm
CE 1296m Collar elevation of borehole
EOH End of hole
Underground workings
BH 001 GHT (drilled borehole)
BH106 RDP Old Borehole
Lease granite
Pegmatite zone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BH12
CE 1304m
BH122
CE 1303m
BH117
CE 1304m
Surface
DATUM
1300m
0
10
20
30
40
EOH
53m
0 10 20 30 40
Mineralization Styles
Pegmatite contact
Lease Granite manto
Sn (ppm)
100 ppm
500 ppm
1000 ppm
CE 1296m Collar elevation of borehole
EOH End of hole
Underground workings
BH 001 GHT (drilled borehole)
BH106 RDP Old Borehole
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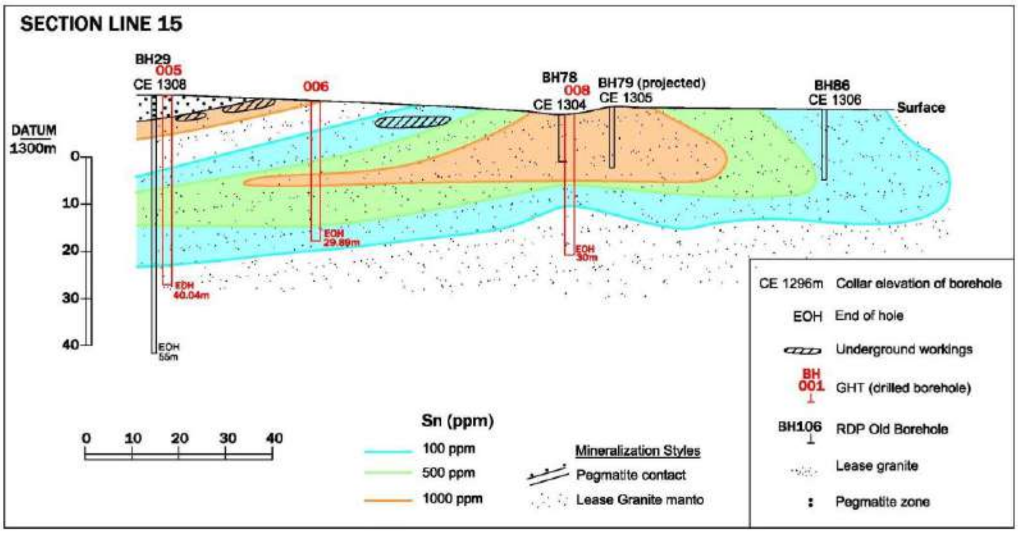
Pegmatite zone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BH78
008
CE 1304
BH79 (projected)
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BH86
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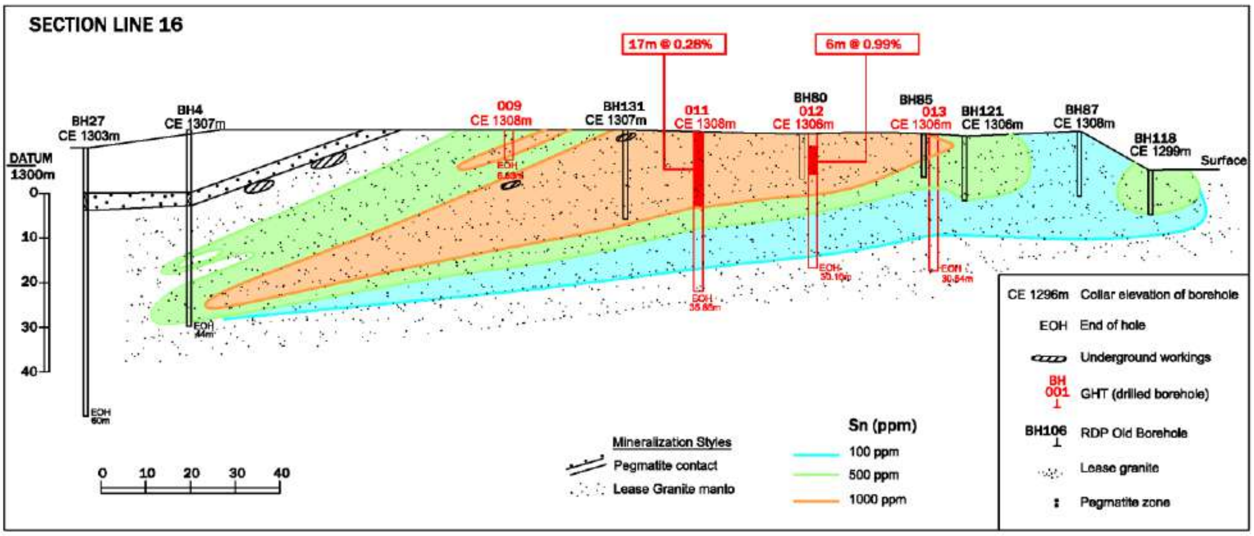
10
20
30
40
EOH 29.89m
EOH 30m
EOH 40.04m
EOH 55m
0 10 20 30 40
Sn (ppm)
100 ppm
500 ppm
1000 ppm
Mineralization Styles
Pegmatite contact
Lease Granite manto
CE 1296m Collar elevation of borehole
EOH End of hole
Underground workings
BH 001 GHT (drilled borehole)
BH106 RDP Old Borehole
Lease granite
Pegmatite zone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009
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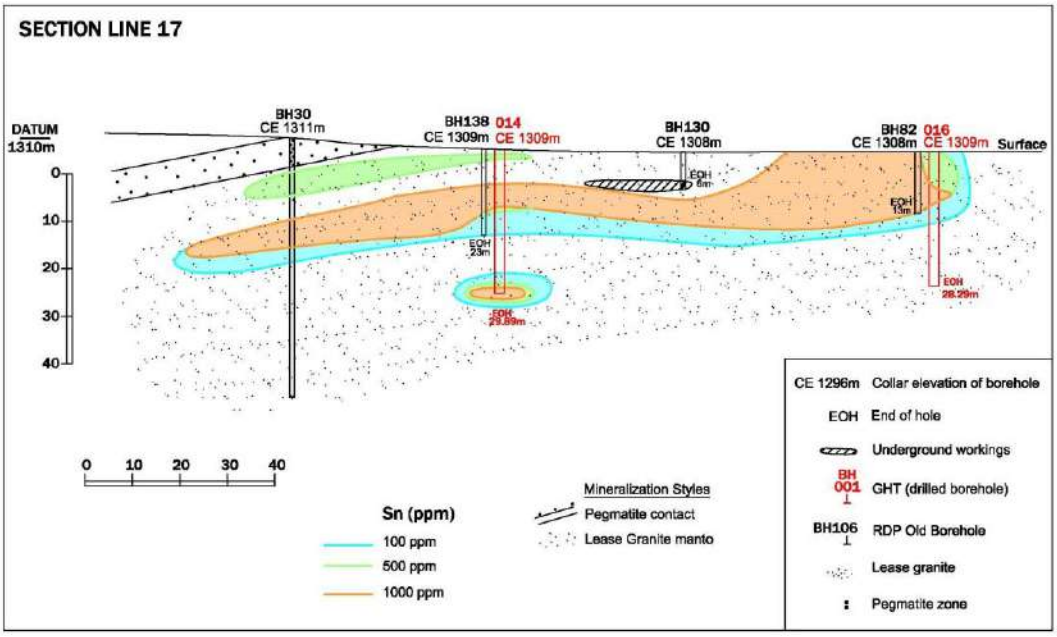
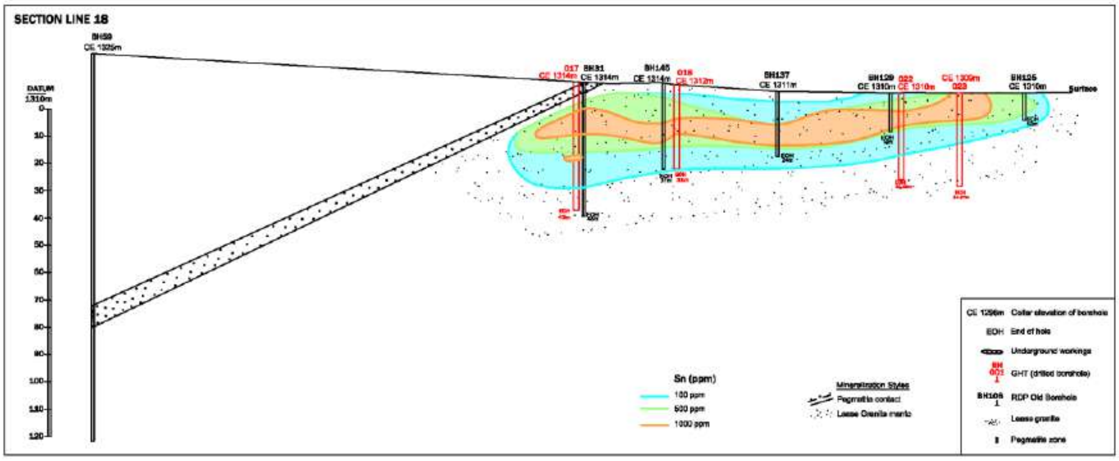
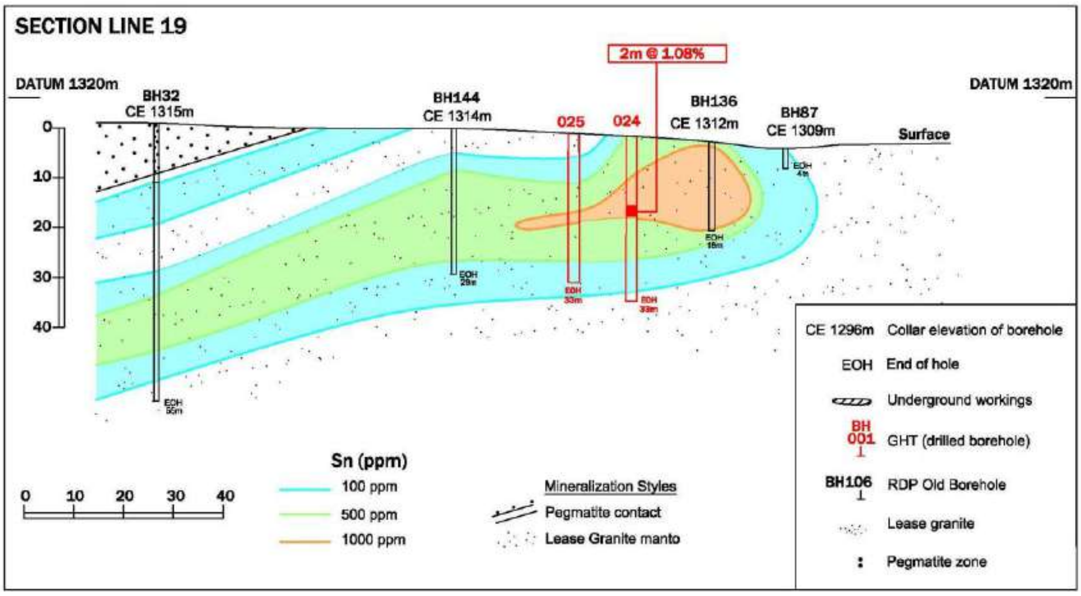
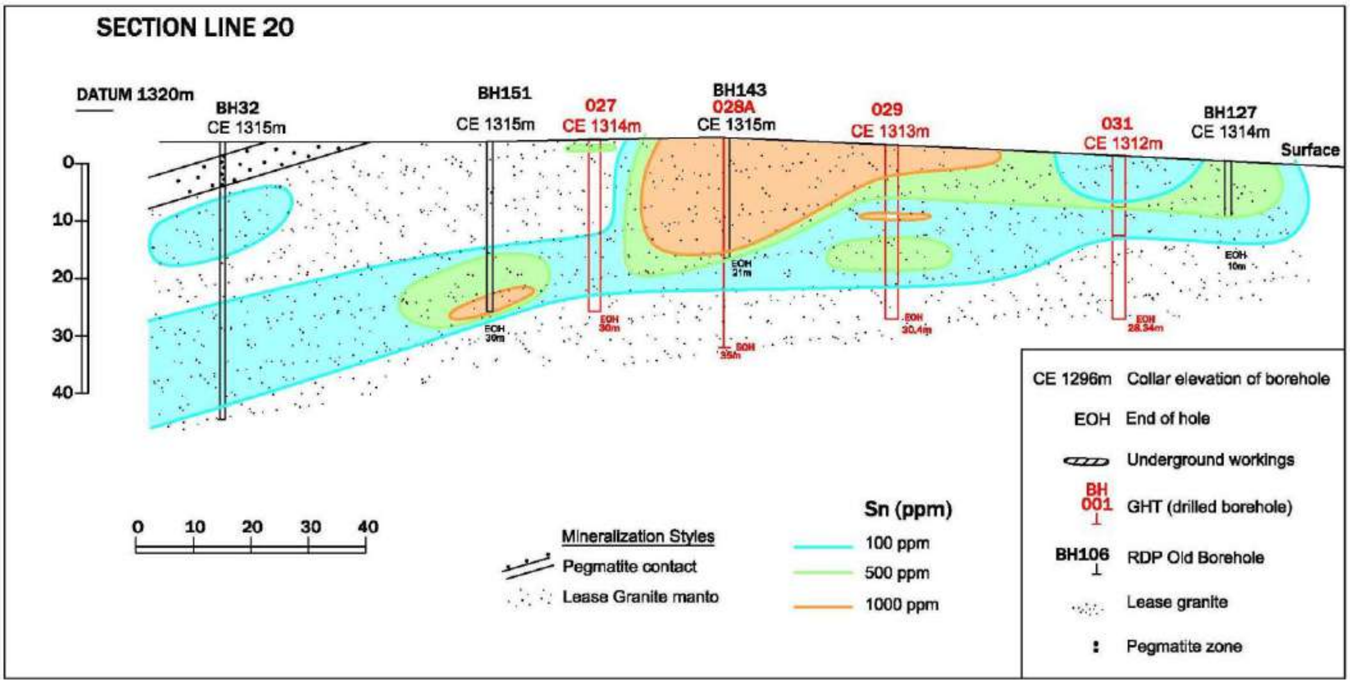
BH80
012
CE 1306m
BH85
013
CE 1306m
BH121
CE 1306m
BH87
CE 1308m
BH118
CE 1299m
Surface
DATUM
1300m
0
10
20
30
40
EOH 44m
EOH 60m
EOH 35.85m
EOH 30.10m
EOH 30.54m
0 10 20 30 40
Mineralization Styles
Pegmatite contact
Lease Granite manto
Sn (ppm)
100 ppm
500 ppm
1000 ppm
CE 1296m Collar elevation of borehole
EOH End of hole
Underground workings
BH 001 GHT (drilled borehole)
BH106 RDP Old Borehole
Lease granite
Pegmatite zone

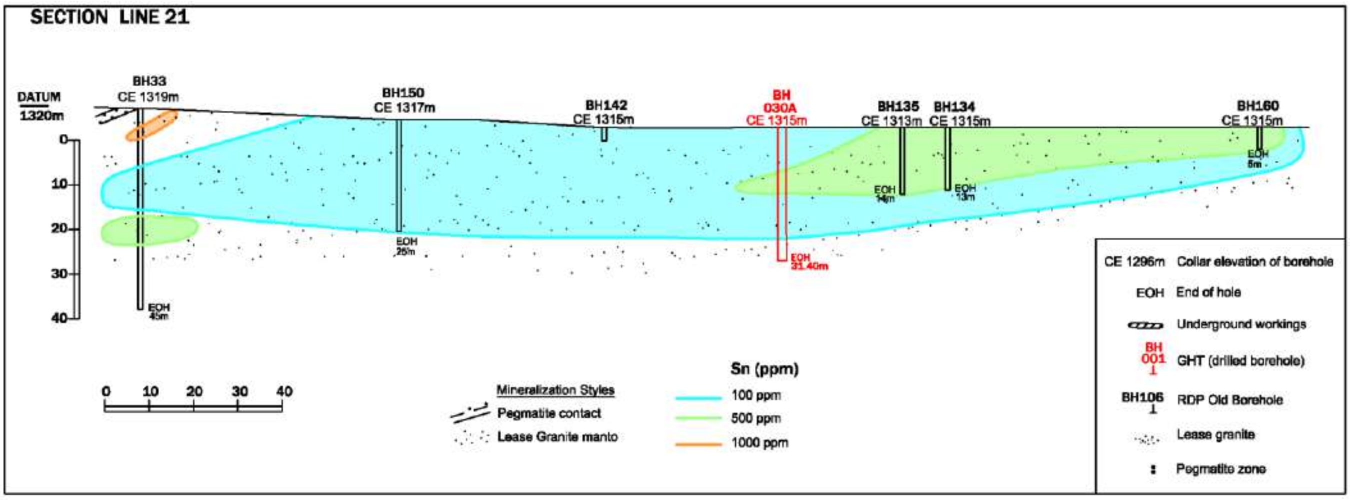

SECTION LINE 17
DATUM 1310m
BH30 CE 1311m
BH138 CE 1309m
014 CE 1309m
BH130 CE 1308m
BH82 CE 1308m
016 CE 1309m
Surface
EOH 23m
EOH 29.89m
EOH 6m
EOH 13m
EOH 28.29m
0
10
20
30
40
0 10 20 30 40
Sn (ppm)
100 ppm
500 ppm
1000 ppm
Mineralization Styles
Pegmatite contact
Lease Granite manto
CE 1296m Collar elevation of borehole
EOH End of hole
Underground workings
BH 001 GHT (drilled borehole)
BH106 RDP Old Borehole
Lease granite
Pegmatite zone


SECTION LINE 18
DATUM 1310m
Surface
Sn (ppm)
100 ppm
500 ppm
1000 ppm
Mineralization Styles
Pegmatite contact
Lease Granite manto
CE 1296m Collar elevation of borehole
EOH End of hole
Underground workings
GHT (drilled borehole)
RDP Old Borehole
Lease granite
Pegmatite zone

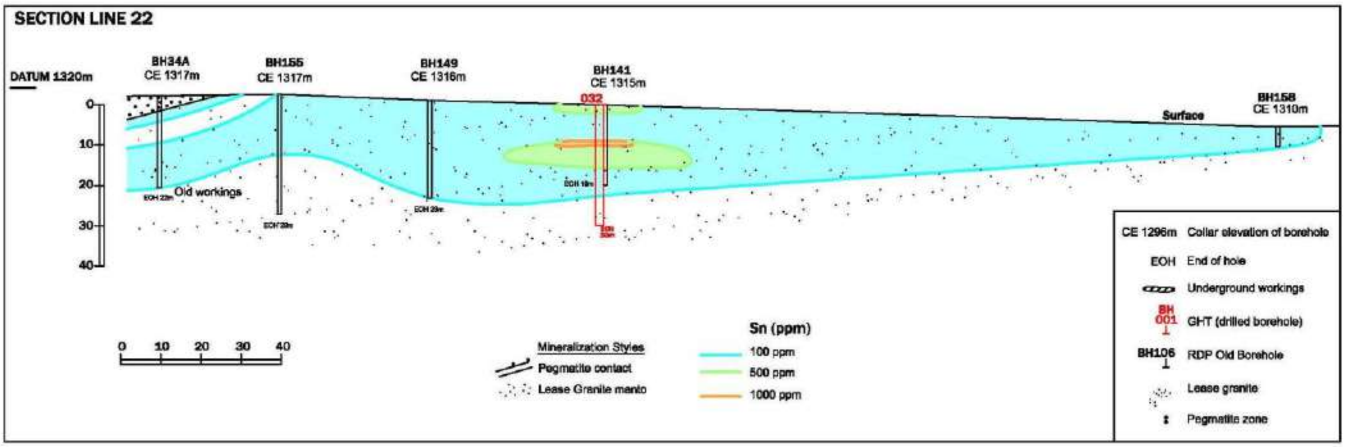

SECTION LINE 19
2m @ 1.08%
DATUM 1320m
DATUM 1320m
BH32 CE 1315m
BH144 CE 1314m
025
024
BH136 CE 1312m
BH87 CE 1309m
Surface
EOH 4m
EOH 18m
EOH 29m
EOH 33m
EOH 33m
EOH 95m
0
10
20
30
40
0 10 20 30 40
Sn (ppm)
100 ppm
500 ppm
1000 ppm
Mineralization Styles
Pegmatite contact
Lease Granite manto
CE 1296m Collar elevation of borehole
EOH End of hole
Underground workings
BH 001 GHT (drilled borehole)
BH106 RDP Old Borehole
Lease granite
Pegmatite zone



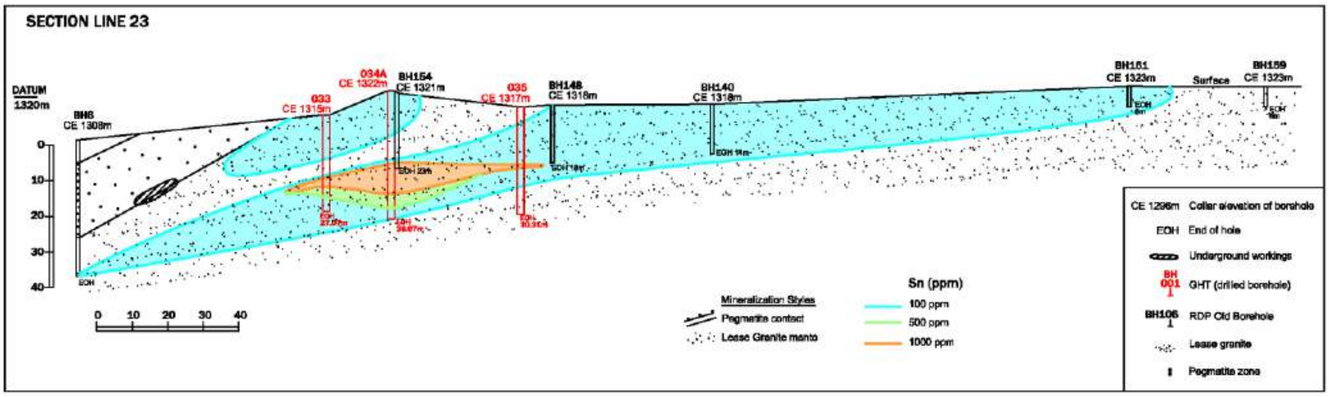
SECTION LINE 20
DATUM 1320m
BH32
CE 1315m
BH151
CE 1315m
027
CE 1314m
BH143
028A
CE 1315m
029
CE 1313m
031
CE 1312m
BH127
CE 1314m
Surface
0
10
20
30
40
EOH 30m
EOH 30m
EOH 21m
EOH 35m
EOH 30.4m
EOH 28.34m
EOH 10m
0 10 20 30 40
Mineralization Styles
Pegmatite contact
Lease Granite manto
Sn (ppm)
100 ppm
500 ppm
1000 ppm
CE 1296m Collar elevation of borehole
EOH End of hole
Underground workings
BH 001 GHT (drilled borehole)
BH106 RDP Old Borehole
Lease granite
Pegmatite zone

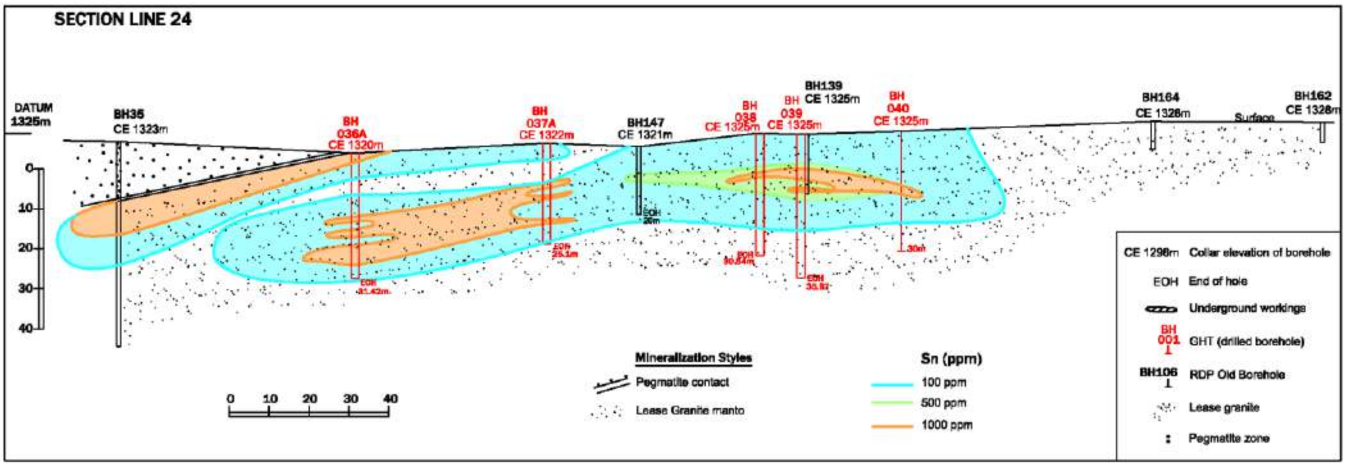


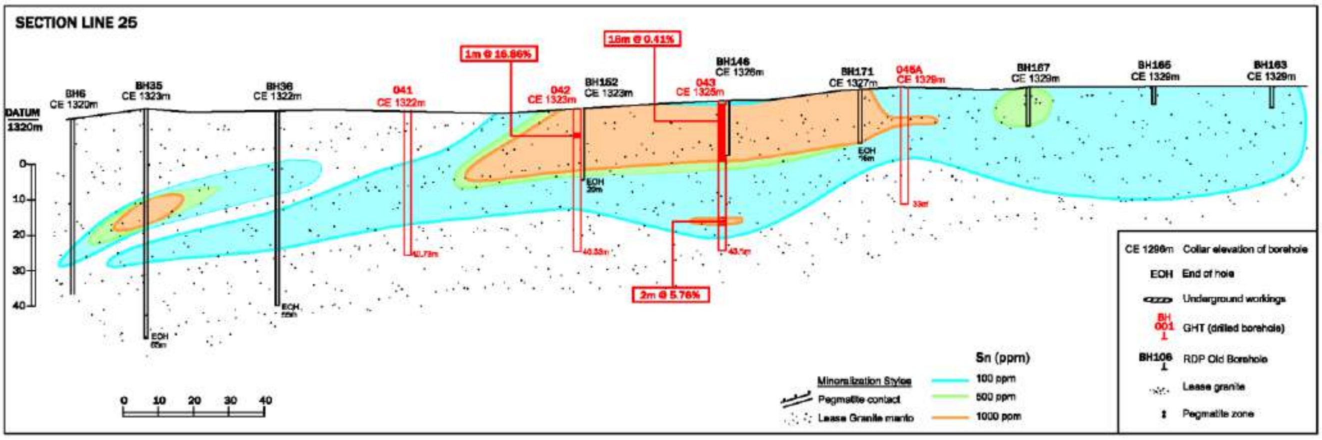
SECTION LINE 21
DATUM 1320m
BH33
CE 1319m
BH150
CE 1317m
BH142
CE 1315m
BH 030A
CE 1315m
BH135
CE 1313m
BH134
CE 1315m
BH160
CE 1315m
0
10
20
30
40
EOH 45m
EOH 25m
EOH 31.40m
EOH 5m
0 10 20 30 40
Mineralization Styles
Pegmatite contact
Lease Granite manto
Sn (ppm)
100 ppm
500 ppm
1000 ppm
CE 1296m Collar elevation of borehole
EOH End of hole
Underground workings
BH 001 GHT (drilled borehole)
BH106 RDP Old Borehole
Lease granite
Pegmatite zone

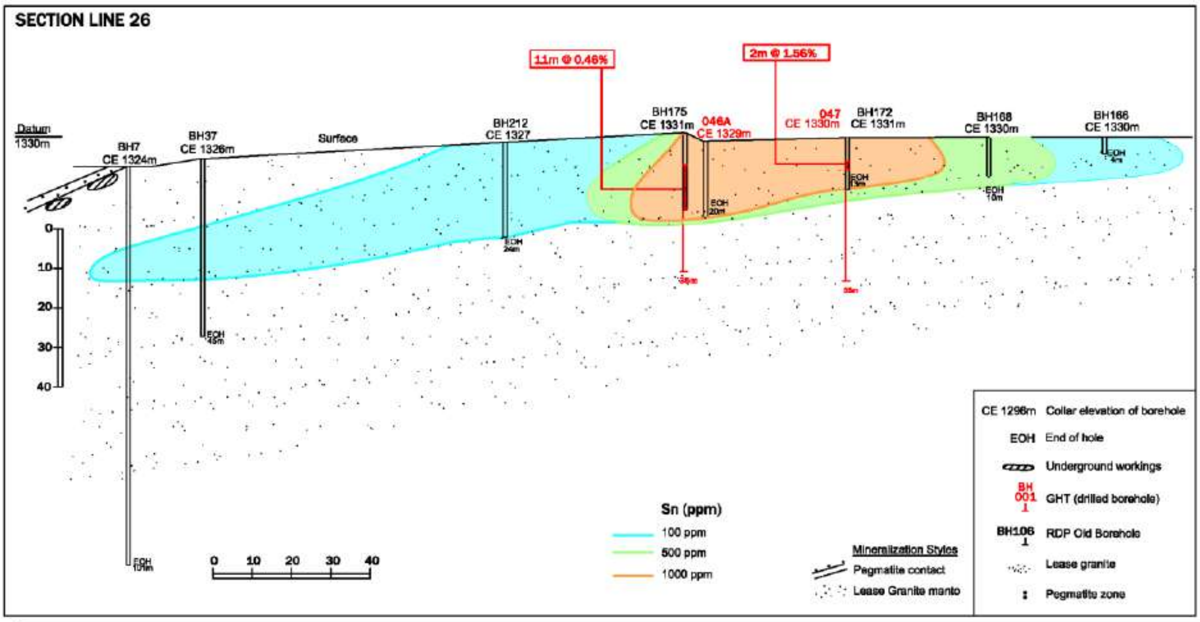


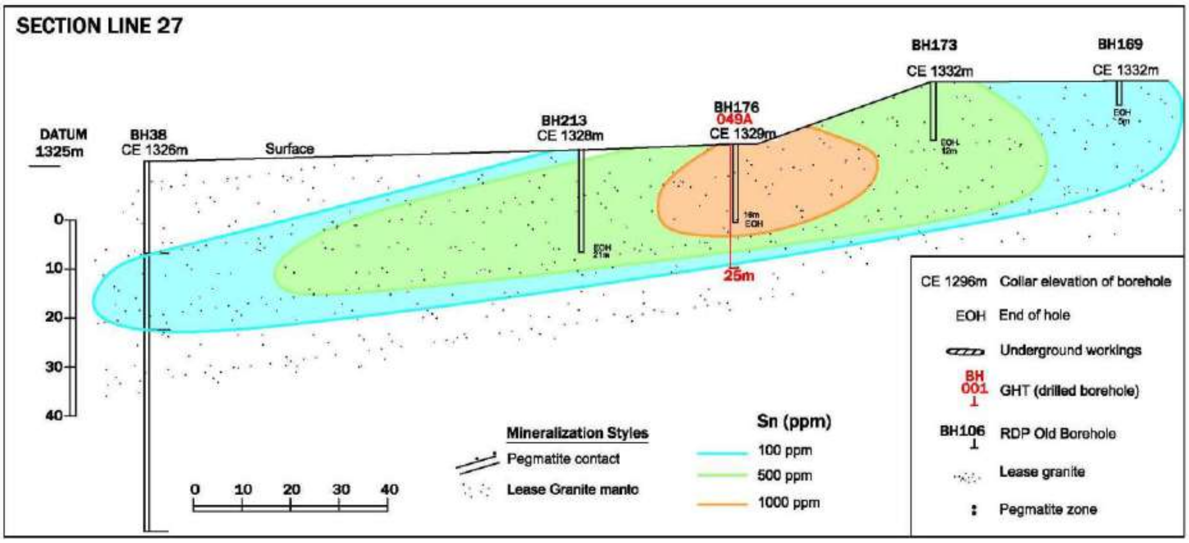
SECTION LINE 22
DATUM 1320m
BH34A
CE 1317m
BH155
CE 1317m
BH149
CE 1316m
BH141
CE 1315m
032
BH158
CE 1310m
Surface
0
10
20
30
40
Old workings
0 10 20 30 40
Mineralization Styles
Pegmatite contact
Lease Granite manto
Sn (ppm)
100 ppm
500 ppm
1000 ppm
CE 1296m Collar elevation of borehole
EOH End of hole
Underground workings
BH 001 GHT (drilled borehole)
BH106 RDP Old Borehole
Lease granite
Pegmatite zone

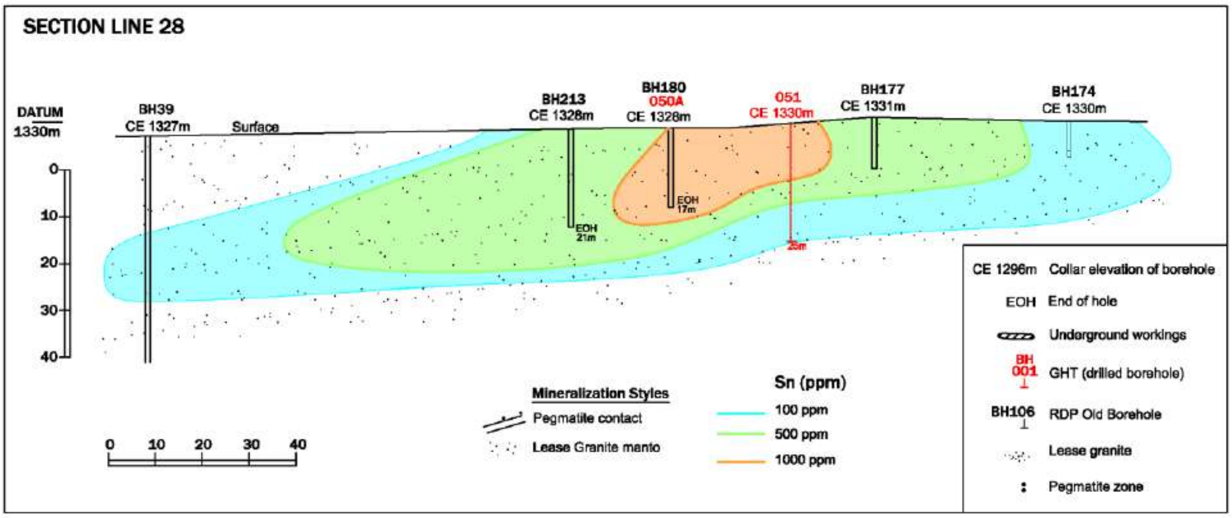

SECTION LINE 23
DATUM 1320m
BH6 CE 1308m
033 CE 1315m
034A CE 1322m
BH154 CE 1321m
035 CE 1317m
BH148 CE 1318m
BH140 CE 1318m
BH161 CE 1323m
Surface
BH159 CE 1323m
Mineralization Styles
Pegmatite contact
Lease Granite manto
Sn (ppm)
100 ppm
500 ppm
1000 ppm
CE 1296m Collar elevation of borehole
EOH End of hole
Underground workings
GHT (drilled borehole)
BH106 RDP Old Borehole
Lease granite
Pegmatite zone

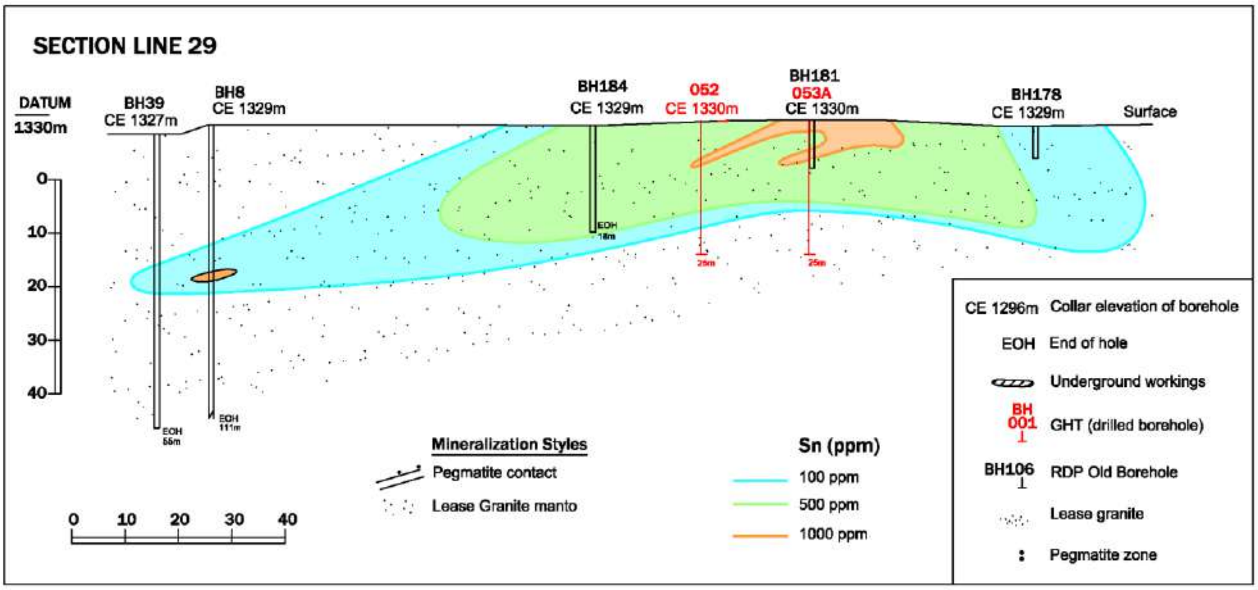

SECTION LINE 24
DATUM 1325m
BH35 CE 1323m
BH 036A CE 1320m
BH 037A CE 1322m
BH147 CE 1321m
BH 038 CE 1325m
BH 039 CE 1325m
BH139 CE 1325m
BH 040 CE 1325m
BH164 CE 1326m
Surface
BH162 CE 1328m
Mineralization Styles
Pegmatite contact
Lease Granite manto
Sn (ppm)
100 ppm
500 ppm
1000 ppm
CE 1296m Collar elevation of borehole
EOH End of hole
Underground workings
GHT (drilled borehole)
BH106 RDP Old Borehole
Lease granite
Pegmatite zone

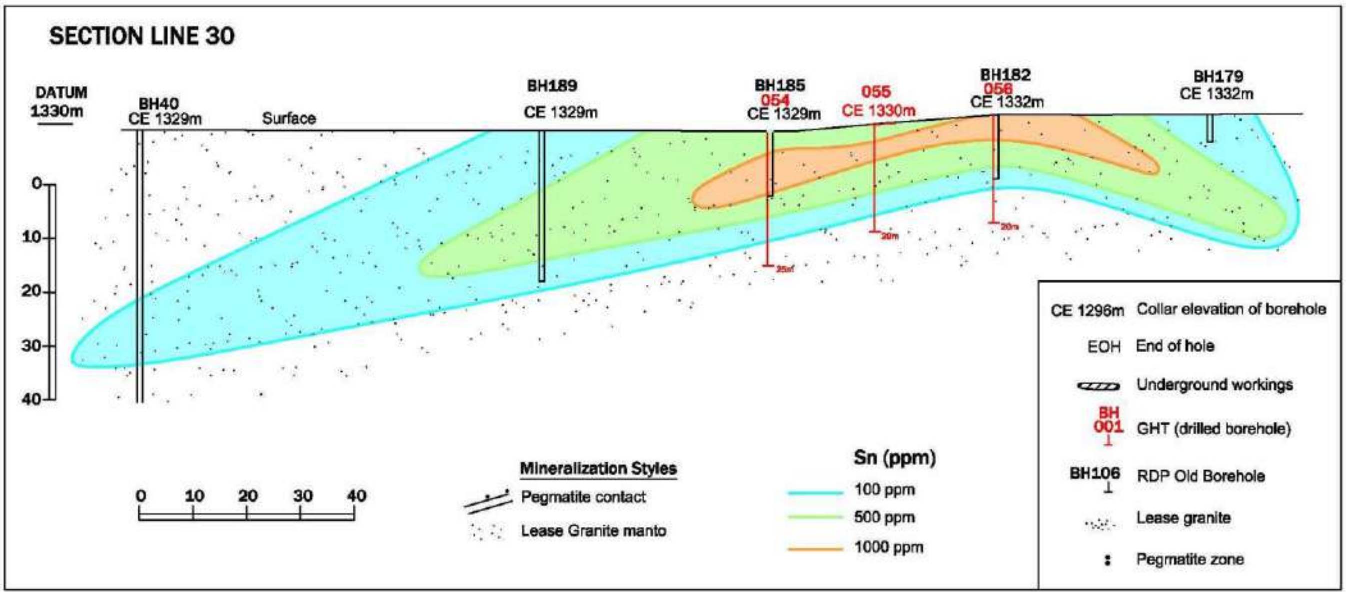

SECTION LINE 25
DATUM 1320m
BH6 CE 1320m
BH35 CE 1323m
BH36 CE 1322m
041 CE 1322m
1m @ 16.86%
042 CE 1323m
BH152 CE 1323m
18m @ 0.41%
043 CE 1325m
BH146 CE 1326m
BH171 CE 1327m
045A CE 1329m
BH167 CE 1329m
BH165 CE 1329m
BH163 CE 1329m
2m @ 5.76%
Mineralization Styles
Pegmatite contact
Lease Granite manto
Sn (ppm)
100 ppm
500 ppm
1000 ppm
CE 1296m Collar elevation of borehole
EOH End of hole
Underground workings
GHT (drilled borehole)
BH106 RDP Old Borehole
Lease granite
Pegmatite zone

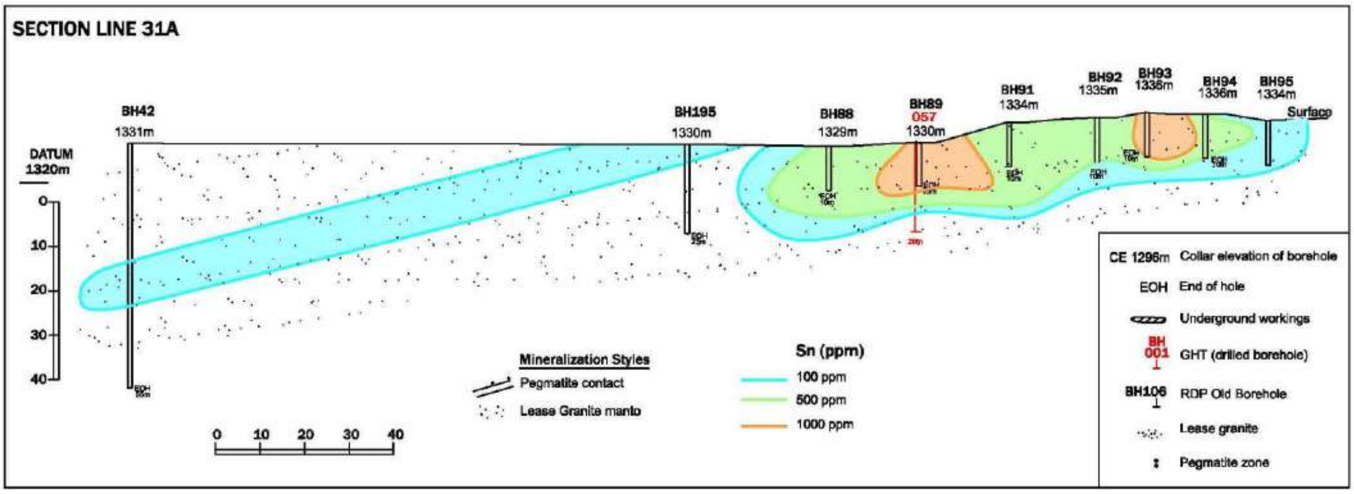

SECTION LINE 26
11m @ 0.46%
2m @ 1.56%
Datum
1330m
BH7
CE 1324m
BH37
CE 1326m
Surface
BH212
CE 1327
BH175
CE 1331m
046A
CE 1329m
047
CE 1330m
BH172
CE 1331m
BH168
CE 1330m
BH166
CE 1330m
0
10
20
30
40
Sn (ppm)
100 ppm
500 ppm
1000 ppm
Mineralization Styles
Pegmatite contact
Lease Granite manto
CE 1296m Collar elevation of borehole
EOH End of hole
Underground workings
BH 001 GHT (drilled borehole)
BH106 RDP Old Borehole
Lease granite
Pegmatite zone

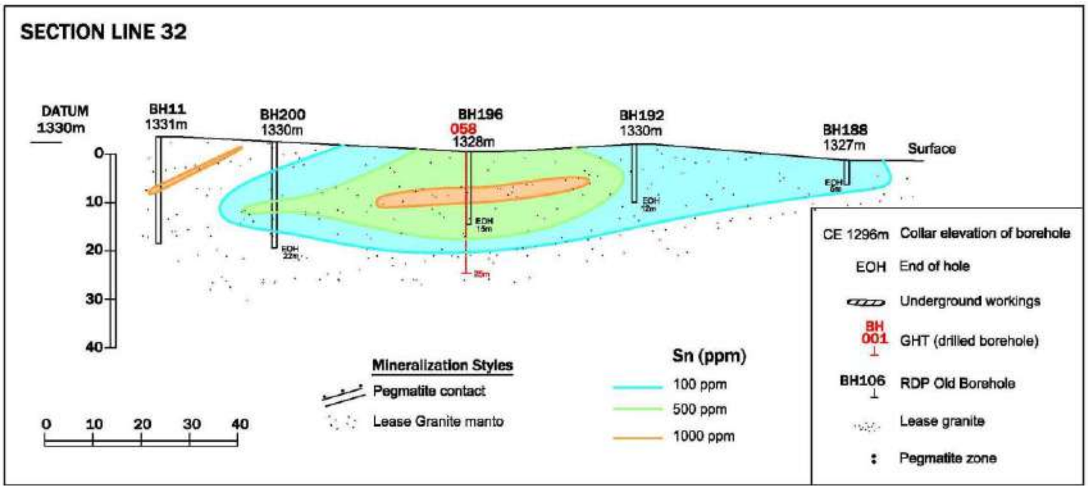

SECTION LINE 27
BH173
CE 1332m
BH169
CE 1332m
BH176
049A
CE 1329m
BH213
CE 1328m
DATUM
1325m
BH38
CE 1326m
Surface
25m
0
10
20
30
40
Mineralization Styles
Pegmatite contact
Lease Granite manto
Sn (ppm)
100 ppm
500 ppm
1000 ppm
CE 1296m Collar elevation of borehole
EOH End of hole
Underground workings
BH 001 GHT (drilled borehole)
BH106 RDP Old Borehole
Lease granite
Pegmatite zone

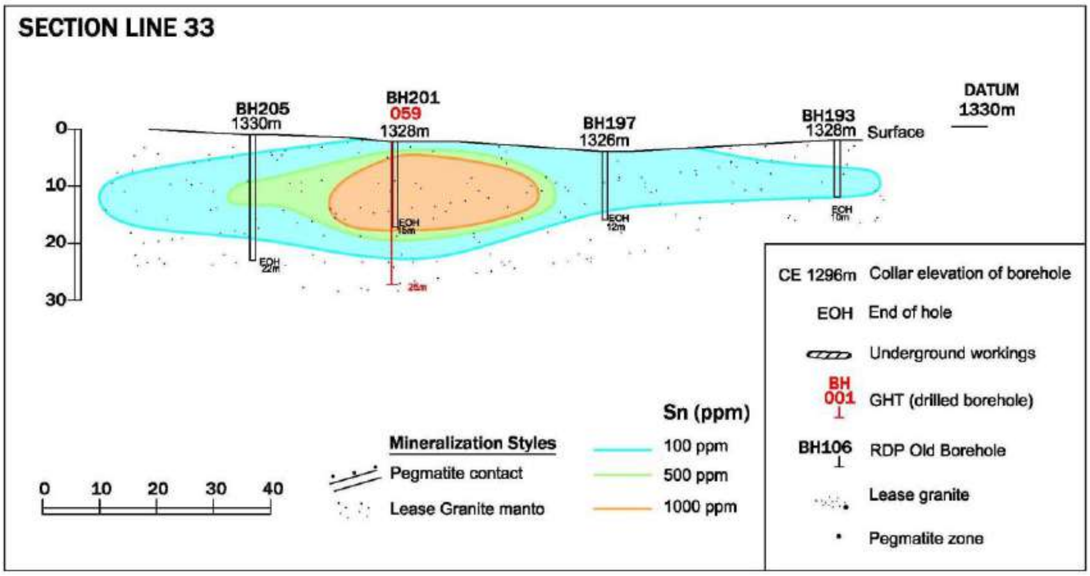

SECTION LINE 28
DATUM
1330m
BH39
CE 1327m
Surface
BH213
CE 1328m
BH180
050A
CE 1328m
051
CE 1330m
BH177
CE 1331m
BH174
CE 1330m
EOH
17m
EOH
21m
0
10
20
30
40
Mineralization Styles
Pegmatite contact
Lease Granite manto
Sn (ppm)
100 ppm
500 ppm
1000 ppm
CE 1296m Collar elevation of borehole
EOH End of hole
Underground workings
BH 001 GHT (drilled borehole)
BH106 RDP Old Borehole
Lease granite
Pegmatite zone

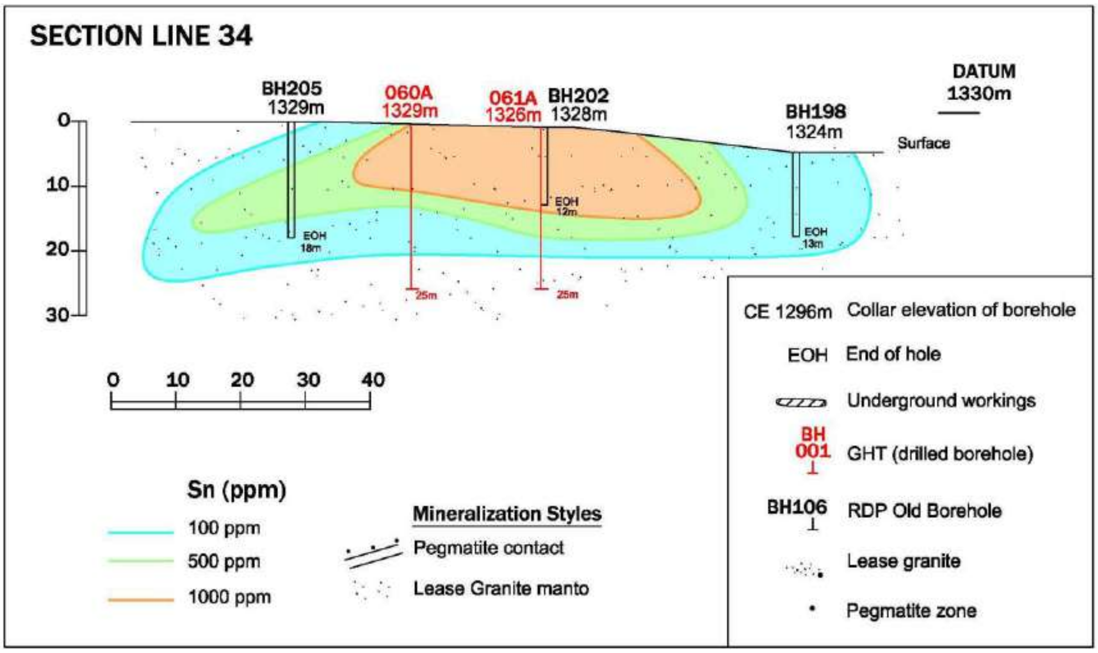

SECTION LINE 29
DATUM
1330m
BH39
CE 1327m
BH8
CE 1329m
BH184
CE 1329m
052
CE 1330m
BH181
053A
CE 1330m
BH178
CE 1329m
Surface
0
10
20
30
40
Mineralization Styles
Pegmatite contact
Lease Granite manto
Sn (ppm)
100 ppm
500 ppm
1000 ppm
0 10 20 30 40
CE 1296m Collar elevation of borehole
EOH End of hole
Underground workings
BH 001 GHT (drilled borehole)
BH106 RDP Old Borehole
Lease granite
Pegmatite zone

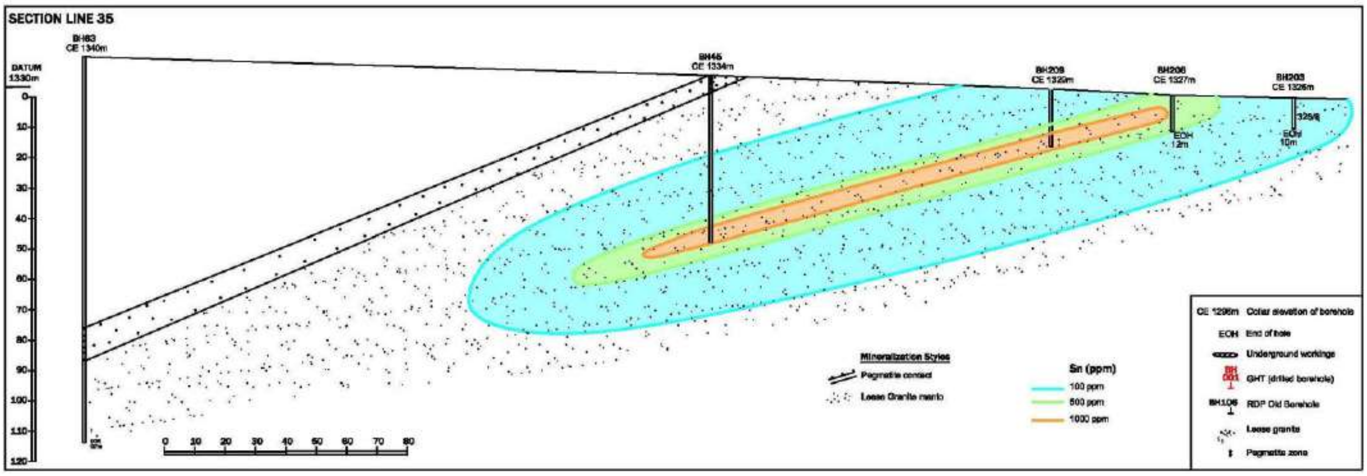

SECTION LINE 30
DATUM
1330m
BH40
CE 1329m
Surface
BH189
CE 1329m
BH185
054
CE 1329m
055
CE 1330m
BH182
056
CE 1332m
BH179
CE 1332m
0
10
20
30
40
0 10 20 30 40
Mineralization Styles
Pegmatite contact
Lease Granite manto
Sn (ppm)
100 ppm
500 ppm
1000 ppm
CE 1296m Collar elevation of borehole
EOH End of hole
Underground workings
BH 001 GHT (drilled borehole)
BH106 RDP Old Borehole
Lease granite
Pegmatite zone

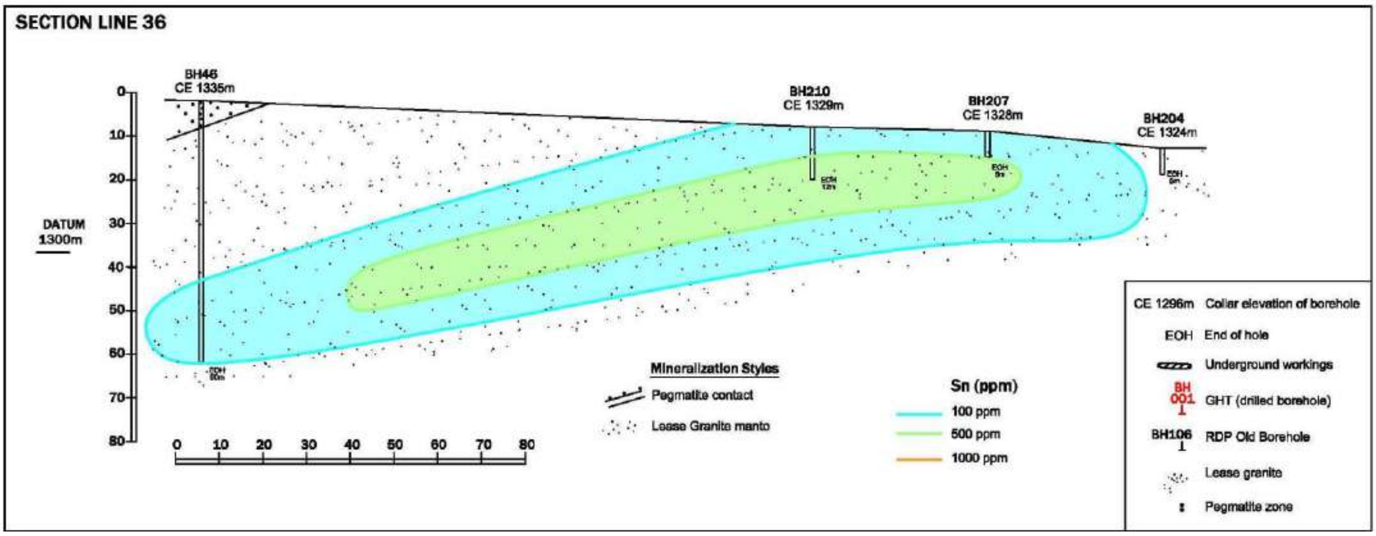

SECTION LINE 31A
BH42
1331m
BH195
1330m
BH88
1329m
BH89
057
1330m
BH91
1334m
BH92
1335m
BH93
1336m
BH94
1336m
BH95
1334m
Surface
DATUM
1320m
0
10
20
30
40
Mineralization Styles
Pegmatite contact
Lease Granite manto
Sn (ppm)
100 ppm
500 ppm
1000 ppm
0 10 20 30 40
CE 1296m Collar elevation of borehole
EOH End of hole
Underground workings
BH 001 GHT (drilled borehole)
BH106 RDP Old Borehole
Lease granite
Pegmatite zone

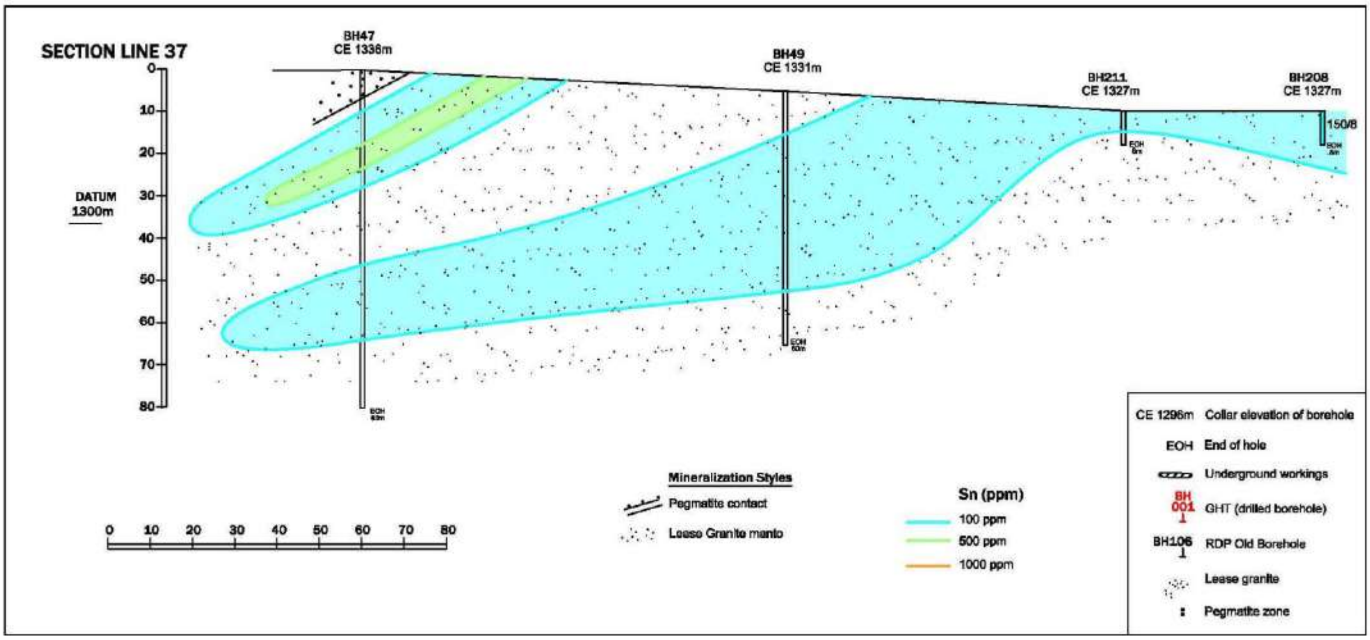

SECTION LINE 32
DATUM
1330m
BH11
1331m
BH200
1330m
BH196
058
1328m
BH192
1330m
BH188
1327m
Surface
0
10
20
30
40
CE 1296m Collar elevation of borehole
EOH End of hole
Underground workings
BH 001 GHT (drilled borehole)
BH106 RDP Old Borehole
Lease granite
Pegmatite zone
Mineralization Styles
Pegmatite contact
Lease Granite manto
Sn (ppm)
100 ppm
500 ppm
1000 ppm
0 10 20 30 40


SECTION LINE 33
BH205
1330m
BH201
059
1328m
BH197
1326m
BH193
1328m
Surface
DATUM
1330m
0
10
20
30
CE 1296m Collar elevation of borehole
EOH End of hole
Underground workings
BH 001 GHT (drilled borehole)
BH106 RDP Old Borehole
Lease granite
Pegmatite zone
Sn (ppm)
100 ppm
500 ppm
1000 ppm
Mineralization Styles
Pegmatite contact
Lease Granite manto
0 10 20 30 40


SECTION LINE 34
BH205
1329m
060A
1329m
061A
1326m
BH202
1328m
BH198
1324m
Surface
DATUM
1330m
0
10
20
30
EOH 18m
EOH 12m
EOH 13m
25m
25m
0 10 20 30 40
CE 1296m Collar elevation of borehole
EOH End of hole
Underground workings
BH 001 GHT (drilled borehole)
BH106 RDP Old Borehole
Lease granite
Pegmatite zone
Sn (ppm)
100 ppm
500 ppm
1000 ppm
Mineralization Styles
Pegmatite contact
Lease Granite manto


SECTION LINE 35
BH63
CE 1340m
BH45
CE 1334m
BH209
CE 1329m
BH206
CE 1327m
BH203
CE 1326m
DATUM
1330m
Mineralization Styles
Pegmatite contact
Lease Granite manto
Sn (ppm)
100 ppm
500 ppm
1000 ppm
CE 1296m Collar elevation of borehole
EOH End of hole
Underground workings
GHT (drilled borehole)
RDP Old Borehole
Lease granite
Pegmatite zone


SECTION LINE 36
BH46
CE 1335m
BH210
CE 1329m
BH207
CE 1328m
BH204
CE 1324m
DATUM
1300m
0
10
20
30
40
50
60
70
80
Mineralization Styles
Pegmatite contact
Lease Granite manto
Sn (ppm)
100 ppm
500 ppm
1000 ppm
CE 1296m Collar elevation of borehole
EOH End of hole
Underground workings
BH 001 GHT (drilled borehole)
BH106 RDP Old Borehole
Lease granite
Pegmatite zone


SECTION LINE 37
BH47
CE 1336m
BH49
CE 1331m
BH211
CE 1327m
BH208
CE 1327m
150/8
DATUM
1300m
0
10
20
30
40
50
60
70
80
Mineralization Styles
Pegmatite contact
Lease Granite manto
Sn (ppm)
100 ppm
500 ppm
1000 ppm
CE 1296m Collar elevation of borehole
EOH End of hole
Underground workings
BH 001 GHT (drilled borehole)
BH106 RDP Old Borehole
Lease granite
Pegmatite zone