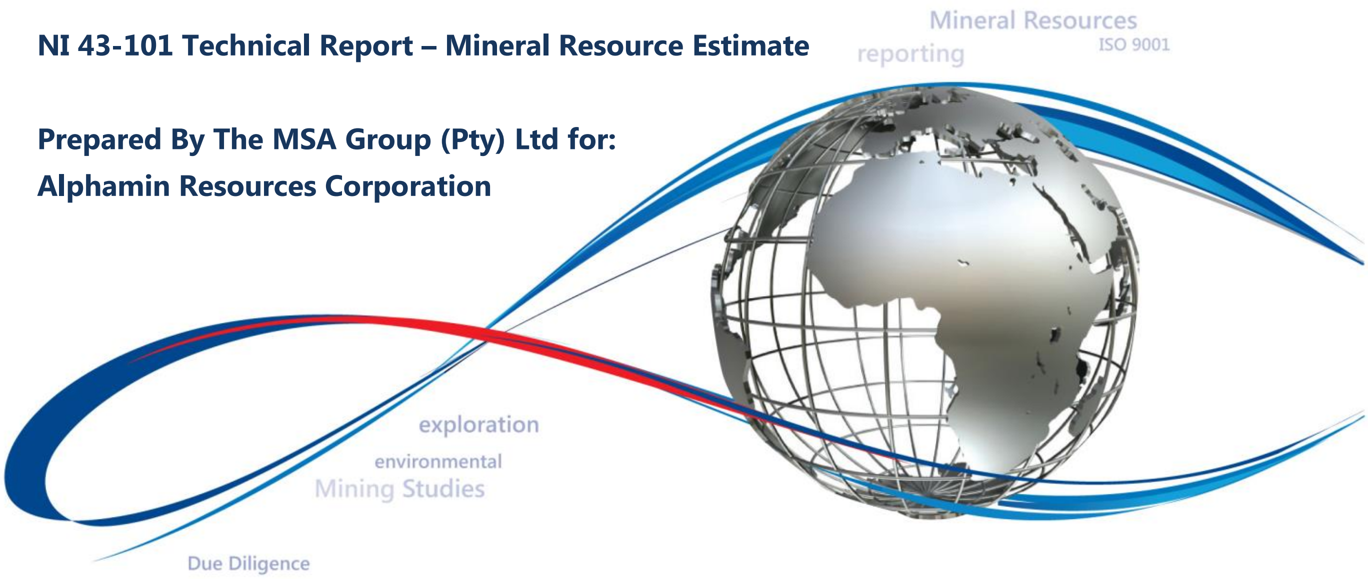
THE MSA GROUP

Specialist Consultants to the Mining Industry

Alphamin Resources Corporation
Bisie Tin Project
North Kivu Province, Democratic Republic of Congo

NI 43-101 Technical Report – Mineral Resource Estimate

Prepared By The MSA Group (Pty) Ltd for:
Alphamin Resources Corporation



Prepared By:

Jeremy C Witley	Pr. Sci. Nat., BSc (Hons)
Russell A Heins,	CEng., BSc (Hons) FSAIMM MIOM3

Effective Date: 26 November 2013
Report Date: 09 January 2014

MSA Project No.: J2679

The MSA Group (Pty) Ltd | Registration No: 2000/002800/07
Tel: +27 (0)11 880 4209 | Fax: +27 (0)11 880 2184 | email: info@msagroupservices.com
20B Rothesay Avenue, Craighall Park, Johannesburg 2196 | PO Box 81356, Parkhurst, 2120, South Africa
Directors: KD Scott, WSM Majola

www.msagroupservices.com

IMPORTANT NOTICE

This report was prepared as a National Instrument NI 43-101 Technical Report for Alphamin Resources Corporation by The MSA Group (Pty) Ltd (MSA), South Africa. The quality of information, conclusions and estimates contained herein is consistent with the level of effort involved in MSA's services, based on: i) information available at the time of preparation, ii) data supplied by outside sources, and iii) the assumptions, conditions, and qualifications set forth in this report. This report is intended for use by Alphamin Resources Corporation subject to the terms and conditions of its contract with MSA. Except for the purposes legislated under Canadian provincial securities law, any other uses of this report by any third party is at that party's sole risk.

THE MSA GROUP
Specialist Consultants to the Mining Industry

The MSA Group (Pty) Ltd
Registration No: 2000/002800/07
Tel: +27 (0)11 880 4209 | Fax: +27 (0)11 880 2184
email: info@msagroupservices.com
20B Rothesay Avenue, Craighall Park, Johannesburg 2196
PO Box 81356, Parkhurst, 2120, South Africa
Directors: KD Scott, WSM Majola

CERTIFICATE OF QUALIFIED PERSON

I, Jeremy Charles Witley, Pr.Sci.Nat do hereby certify that:

1. I am Principal Resource Consultant of:
   The MSA Group (Pty) Ltd
   20B Rothesay Avenue
   Craighall Park, Gauteng, South Africa,
   2196
2. This certificate applies to the technical report titled "Alphamin Resources Corporation, Bisie Tin Project, North Kivu Province, Democratic Republic of the Congo – NI 43-101 Technical Report – Mineral Resource Estimate", that has an effective date of 26 November 2013 and a report date of 09 January 2014 (the Technical Report).
3. I graduated with a degree in Mining Geology from the University of Leicester in 1988. In addition, I have obtained a Graduate Diploma in Engineering from the University of Witwatersrand in 2006.
4. I am a registered Professional Natural Scientist (Geological Science) with the South African Council for Natural Scientific Professions (SACNASP) and a member of the Geological Society of South Africa.
5. I have worked as a geologist for a total of 25 years. I have worked in a number of roles, including senior management, in mine geology, exploration projects and Mineral Resource management. I have conducted Mineral Resource estimates, audits and reviews for a wide range of commodities and styles of mineralization.
6. I have read the definition of "qualified person" set out in National Instrument 43-101 (NI 43-101) and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfil the requirements to be a "qualified person" for the purposes of NI 43-101.
7. I visited the Bisie Property during the period 18 – 20 July 2013.
8. I am responsible for the preparation all sections of the technical report except Section 13.
9. I have not had prior involvement with the property that is the subject of the Technical Report.
10. I am not aware of any material fact or material change with respect to the subject matter of the Technical Report that is not reflected in the Technical Report, the omission to disclose which makes the Technical Report misleading.
11. I am independent of the issuer according to the definition of independence described in section 1.5 of National Instrument 43-101.
12. I have read National Instrument 43-101 and Form 43-101F1 and, as of the date of this certificate, to the best of my knowledge, information and belief, those portions of the Technical Report for which I am responsible have been prepared in compliance with that instrument and form.
13. I consent to the filing of the Technical Report with any stock exchange and other regulatory authority and any publication by them for regulatory purposes, including electronic publication in the public company files on their websites accessible by the public, of the Technical Report.

Dated this 09th Day of January, 2014.

"signed and stamped"
Jeremy Charles Witley, Pr.Sci.Nat., MGSSA

THE MSA GROUP

Specialist Consultants to the Mining Industry

The MSA Group (Pty) Ltd
Registration No: 2000/002800/07
Tel: +27 (0)11 880 4209 | Fax: +27 (0)11 880 2184
email: info@msagroupservices.com
20B Rothesay Avenue, Craighall Park, Johannesburg 2196
PO Box 81356, Parkhurst, 2120, South Africa
Directors: KD Scott, WSM Majola

CERTIFICATE OF QUALIFIED PERSON

I, Russell Alexander Heins, C Eng do hereby certify that:

1. I am an Independent Metallurgical Consultant of:
   The MSA Group (Pty) Ltd
   20B Rothesay Avenue
   Craighall Park, Gauteng, South Africa,
   2196
2. This certificate applies to the technical report titled "Alphamin Resources Corporation, Bisie Tin Project, North Kivu Province, Democratic Republic of the Congo – NI 43-101 Technical Report – Mineral Resource Estimate", that has an effective date of 26 November 2013 and a report date of 09 January 2014 (the Technical Report).
3. I graduated with a degree in Minerals Engineering from the University of Birmingham in 1986.
4. I am a registered Chartered Engineer with the Engineering Council (UK), a Fellow of the South African Institute of Mining and Metallurgy, and a Member of the Institute of Materials, Minerals and Mining (UK)
5. I have worked as a metallurgist for a total of 27 years. I have worked in a number of roles, including senior management, in mine operational metallurgy, metallurgical projects and metallurgical operational management. I have conducted metallurgical reviews for a wide range of commodities, processes and styles of mineralization.
6. I have read the definition of "qualified person" set out in National Instrument 43-101 (NI 43-101) and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfil the requirements to be a "qualified person" for the purposes of NI 43-101.
7. I have not visited the Bisie Property.
8. I am responsible for the preparation of Section 13 of the Technical Report.
9. I have not had prior involvement with the property that is the subject of the Technical Report.
10. I am not aware of any material fact or material change with respect to the subject matter of the Technical Report that is not reflected in the Technical Report, the omission to disclose which makes the Technical Report misleading.
11. I am independent of the issuer according to the definition of independence described in section 1.5 of National Instrument 43-101.
12. I have read National Instrument 43-101 and Form 43-101F1 and, as of the date of this certificate, to the best of my knowledge, information and belief, those portions of the Technical Report for which I am responsible have been prepared in compliance with that instrument and form.
13. I consent to the filing of the Technical Report with any stock exchange and other regulatory authority and any publication by them for regulatory purposes, including electronic publication in the public company files on their websites accessible by the public, of the Technical Report.

Dated this 09th Day of January, 2014.

"signed and stamped"

Russell Alexander Heins, CEng BSc (Hons) FSAIMM MIOM3

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

1 SUMMARY

The MSA Group (Pty) Ltd (MSA) was commissioned by Alphamin Resources Corporation (Alphamin; the Company) to prepare an Independent Technical Report for the Company's Bisie Tin Project (the Project). Alphamin, through its wholly owned subsidiary, Mining and Processing Congo Sprl (MPC), has full legal title (100% ownership) over five exploration permits (Permis des Recherches No's: PR 5270; PR 10346; PR 5266; PR 5267; and PR 4246) covering 1,470km^2 in the North Kivu Province of the Democratic Republic of the Congo. The Bisie Project falls on PR 5266. No work has been conducted on the other four exploration permits, three of which are still under Force Majeure (PR 5270, PR 5267 and PR 4246).

The report has been prepared in accordance with the requirements of the National Instrument 43-101 (NI 43-101), "Standards of Disclosure for Mineral Projects", of the Canadian Securities Administrators (CSA) for lodgement on the CSA's "System for Electronic Document Analysis and Retrieval" (SEDAR). This report is required to support the estimation of Mineral Resources, as defined in NI 43-101, for the Gecomines prospect of the Bisie Project as announced by Alphamin in a press release issued 26 November 2013. The effective date of this report is 26 November 2013 for the Mineral Resources. It updates an earlier Technical Report titled "Report on the Bisie Tin Project – Concessions: PR5266, PR5267, PR5270 and PR4246, Walikale Territory, North Kivu, Democratic Republic of the Congo" dated 24 June, 2011.

The Bisie Tin Project (Project) is an exploration property located in eastern Democratic Republic of Congo in the Walikale District of the North Kivu Province. The Project is located approximately 180 km northwest of Goma, the capital of North Kivu and approximately 60 km northwest of Walikale centre.

The mineralization is associated with a steeply dipping (~65° east) north to south striking zone of intense chloritisation contained within micaceous schists. The tin bearing chloritised zone is generally between 10 m and 20 m thick. The mineralization occurs in the form of irregular high grade veins of botryoidal cassiterite several 10's of cm thick and finer grained cassiterite irregularly disseminated in the chlorite schist. Copper, lead and zinc occurs as chalcopyrite, galena and sphalerite in locally significant concentrations, together with silver. Two zones of mineralization have to date been discovered at Bisie; these are known as Gecomines, which is the zone for which the Mineral Resource estimate applies, and Golgotha, which occurs approximately 0.75 km to the south.

Mr J.C. Witley of The MSA Group (MSA), an Independent Consulting Company, visited the Bisie project site from 18 to 20 July 2013. During the visit he conducted independent check sampling, inspection of the drillhole cores and drilling sites. The check sample assays confirmed the original sample assays are within reasonable limits for this style of mineralization. Furthermore, duplicate assays completed by a second laboratory showed acceptable correlation with the primary laboratory assays at both high and low grade ranges. MSA considers that the exploration work conducted by Alphamin was carried out using appropriate techniques for the style of mineralization at Bisie, and that the resulting database is suitable for Mineral Resource estimation.

The Mineral Resource estimate was based on Sn, Cu, Pb, Zn and Ag assays and density measurements obtained from the cores of 37 diamond drillholes, which were completed by Alphamin between July 2012 and July 2013. The drillholes were angled at between -60° and -75° to the west.

Mineral Resource estimation was carried out using CAE Mining Studio 3 software. A 0.25 % Sn threshold was used to define the mineralized envelope over a minimum true thickness of 2 m. Wireframes were constructed for the mineralized zone and block model was constructed by filling the wireframe solids with parent cells of 40 m in the approximate strike and dip direction and 4 m across the zone. Rotated block models were constructed in order to best fit the mineralized envelope that dips steeply to the east.

Intersections less than two metres in true thickness (drilled length corrected on the basis of the average dip and strike of the individual mineralized zones) were diluted, using adjacent samples that were less than the 0.25 % Sn modelling threshold, to two metres prior to their use in estimation. Assays were composited to two metre lengths. Top cuts were applied to outlier values that were above breaks in the cumulative probability plot.

Semi-variograms were created for each of the estimated attributes and the accumulations of metal grade and density were estimated into each of the block models using Ordinary Kriging. The minimum number of composites used for estimation was eight, achieved by selecting data within the semi-variogram range of the block estimate. Specific gravity was estimated by Ordinary Kriging and the metal grades were then back-calculated from the accumulations.

The Mineral Resource was limited to deeper than 50 m below surface, as the shallow area of Gecomines has been depleted by artisanal mining activity and the quantity of remaining Mineral Resource in the affected area cannot be stated within reasonable limits. The maximum depth of the Mineral Resource is dictated by the location of the diamond drilling data. The deepest Mineral Resource reported is approximately 250 m below surface, the high grade mineralization being open at depth. The estimates were extrapolated to a maximum of 40 m in the dip direction of the nearest drillhole. In the strike directions, half the distance between the high grade intersections and peripheral lower grade intersections was applied; this being less than 40 m.

The Mineral Resource estimate has been completed by Mr. J.C. Witley (BSc Hons, GDE) who is a geologist with 25 years' experience in base and precious metals exploration and mining as well as Mineral Resource evaluation and reporting. He is a Principal Resource Consultant for The MSA Group (an independent consulting company), is a member in good standing with the South African Council for Natural Scientific Professions (SACNASP) and is a Member of the Geological Society of South Africa (GSSA). Mr. Witley has the appropriate relevant qualifications and experience to be considered a "Qualified Person" for the style and type of mineralization and activity being undertaken as defined in National Instrument 43-101 *Standards of Disclosure of Mineral Projects* (NI 43-101).

The Mineral Resource was estimated using The Canadian Institute of Mining, Metallurgy and Petroleum (CIM) Best Practice Guidelines (2003) and is reported in accordance with the 2010 CIM Definition Standards, which have been incorporated by reference into National Instrument 43-101

– *Standards of Disclosure for Mineral Projects* (NI 43-101). The Mineral Resource is classified into the Inferred category as shown in Table 1-1.

The Mineral Resource is reported at a base case tin grade of 0.25 %, which MSA considers will satisfy reasonable prospects for economic extraction given the high in-situ value of the mineralization. At the 0.25 % Sn cut-off grade, the Mineral Resource is 4.0 million tonnes at an average tin grade of 3.5 %.

Table 1-1
Bisie Gecomines Zone Mineral Resource at 0.25% Sn Cut-Off Grade, 26 November 2013.

Category	Tonnes (Millions)	Sn %	Sn tonnes (thousands)	Cu %	Zn %	Pb ppm	Ag g/t
Indicated	-	-	-	-	-	-	-
Inferred	4.0	3.5	141	0.27	0.12	60	2.2
Total	**4.0**	**3.5**	**141**	**0.27**	**0.12**	**60**	**2.2**

Notes:

All tabulated data has been rounded and as a result minor computational errors may occur

Mineral Resources which are not Mineral Reserves have no demonstrated economic viability.

Alphamin has a 100 per cent interest in the Bisie Project. Accordingly, the Gross and Net Attributable Inferred Mineral Resource are the same.

The Inferred Mineral Resource has been tabulated using a number of cut-off grades as shown in Table 1-2.

Table 1-2
Bisie Gecomines Zone Inferred Mineral Resources Grade Tonnage Table, 26 November 2013.

Cut-Off Sn %	Tonnes (Millions)	Sn %	Sn tonnes (thousands)	Cu %	Zn %	Pb ppm	Ag g/t
0.25	**4.01**	**3.5**	**141.2**	**0.27**	**0.12**	**60**	**2.2**
0.50	3.98	3.6	141.0	0.27	0.12	60	2.2
0.75	3.80	3.7	139.9	0.27	0.12	60	2.2
1.00	3.38	4.0	136.3	0.29	0.13	60	2.3

Notes:

All tabulated data has been rounded and as a result minor computational errors may occur

Mineral Resources which are not Mineral Reserves have no demonstrated economic viability.

Alphamin has a 100 per cent interest in the Bisie Project. Accordingly, the Gross and Net Attributable Inferred Mineral Resource are the same.

The tin mineralization at Bisie is high grade and partially explored and there is opportunity to expand the Mineral Resource inventory further. As at the effective date of the report, exploration at the project had been suspended having completed the initial Mineral Resource definition drilling at Gecomines. It is recommended that near term future exploration at Bisie is focussed on increasing the Mineral Resource at Gecomines and testing the nature of the mineralization along strike and down dip at Golgotha.

Aside from the high risk inherent in an exploration program, political interference and security risks, due to hostile rebel activities in the immediate surrounds, have been a significant problem over the entire tenure period to date. These have been to the extent that workers on-site have been evacuated and several interruptions to exploration activities have ensued.

2 INTRODUCTION

2.1 Scope of Work

The MSA Group (Pty) Ltd (MSA) has been commissioned by Alphamin Resources Corporation (Alphamin, the Company) to provide an Independent NI 43-101 Technical Report on the Company's Bisie Tin Exploration Project, located in the Walikale District, North Kivu Province, Democratic Republic of the Congo (DRC). Alphamin, through its wholly owned subsidiary, Mining and Processing Congo Sprl (MPC), has full legal title (100 % ownership) over five exploration permits (No's: PR 5270; PR 10346; PR 5266; PR 5267; and PR 4246) covering 1,470km^2 in the North Kivu Province. The Bisie Project falls on PR 5266. No work has been done on the other four exploration permits, three of which are still under Force Majeure (PR 5270, PR 5267 and PR 4246).

Alphamin is a publicly traded company listed on the TSX Venture Exchange (TSX-V) under the symbol AFM and on the Frankfurt Stock Exchange under the symbol A0RBSV.

This Technical Report is required to support the estimation of a Mineral Resource, as defined in NI 43-101, for the Bisie Tin Project as announced by Alphamin in a press release issued 26 November 2013. This is the first Mineral Resource reported for the project. The effective date of this report is 26 November 2013. It updates an earlier Technical Report titled "Report on the Bisie Tin Project – Concessions: PR5266, PR5267, PR5270 and PR4246, Walikale Territory, North Kivu, Democratic Republic of the Congo" dated 24 June, 2011.

The report has been prepared to comply with disclosure and reporting requirements set forth in National Instrument 43-101 *Standards of Disclosure for Mineral Projects* (NI 43-101), Companion Policy 43-101CP, Form 43-101F1, and the CIM Definition Standards for Mineral Resources and Mineral Reserves adopted by the CIM Council in November 2010.

All monetary figures expressed in this report are in United States of America dollars (US$) unless otherwise stated.

2.2 Principal Sources of Information

MSA has based its review of the Project on information provided by Alphamin, along with a technical report completed by Pearl (2011) and other public domain information. A listing of the principal sources of information is included at the end of this Independent Technical Report. A personal inspection of the project was made by Mr J.C. Witley from 18 to 20 July 2013 during which independent check sampling and inspection of the drillhole cores and drilling sites was carried out. MSA has endeavoured, by making all reasonable enquiries, to confirm the authenticity and completeness of the technical data upon which the Independent Technical Report is based. A final draft of the report was also provided to Alphamin, along with a written request to identify any material errors or omissions prior to lodgement.

Alphamin's mineral properties are considered to represent an "Exploration Project" which is inherently speculative in nature. However, MSA considers that the properties have been acquired on the basis of sound technical merit. The properties are also generally considered to be sufficiently prospective, subject to varying degrees of exploration risk, to warrant further exploration and assessment of their economic potential, consistent with the proposed programs.

The Independent Technical Report has been prepared on information available up to and including 26 November 2013. MSA has provided consent for the inclusion of the Independent Technical Report in the Prospectus for the Initial Public Offering, and has not withdrawn that consent prior to lodgement.

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 report has been compiled by Mr J.C. Witley (BSc Hons, GDE; Pr.Sci.Nat.) who is a professional geologist with 25 years' experience in base and precious metals exploration and mining as well as Mineral Resource evaluation and reporting. He is a Principal Resource Consultant for MSA (an independent consulting company), is a member in good standing with the South African Council for Natural Scientific Professions (SACNASP) and is a Member of the Geological Society of South Africa (GSSA). Mr Witley has the appropriate relevant qualifications, experience, competence and independence to act as a "Qualified Person" as that term is defined in National Instrument 43-101 (*Standards of Disclosure for Mineral Projects*).

Section 13 has been compiled by Mr R.A. Heins (CEng BSc Hons, FSAIMM, MIOM3) who is a professional engineer with 27 years' experience in minerals extraction. He is an Independent Metallurgical Consultant for MSA (an Independent consulting company), is a Fellow of the South African Institute of Mining and Metallurgy (FSAIMM) and Corporate Member of the Institute of Mining, Metallurgy and Materials (MIOM3). Mr Heins has the appropriate relevant qualifications, experience, competence and independence to act as a "Qualified Person" as that term is defined in National Instrument 43-101 (*Standards of Disclosure for Mineral Projects*).

Neither MSA, nor the author of this report, has or has had previously, any material interest in Alphamin or the mineral properties in which Alphamin has an interest. Our relationship with Alphamin is solely one of professional association between client and independent consultant. This report 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 report.

3 RELIANCE ON OTHER EXPERTS

Alphamin, through its wholly owned subsidiary, Mining and Processing Congo Sprl (MPC), has full legal title (100 % ownership) over five exploration permits (No's: PR 5270; PR 10346; PR 5266; PR 5267; and PR 4246) covering an aggregate area of approximately 1,470 square kilometres. The Bisie Project falls on PR 5266. No work has been done on the other four concessions, three of which are still under Force Majeure (PR 5270, PR 5267 and PR 4246).

MSA has not independently verified, nor is it qualified to verify, the legal status of these concessions. The present status of the concession listed in this report is based on information and copies of documents provided by Alphamin, and the report has been prepared on the assumption that the tenements will prove lawfully accessible for evaluation.

Similarly, neither MSA nor the authors of this report are qualified to provide comment on environmental issues associated with the Alphamin Projects.

No warranty or guarantee, be it expressed or implied, is made by MSA with respect to the completeness or accuracy of the legal or environmental aspects of this document. MSA does not undertake or accept any responsibility or liability in any way whatsoever to any person or entity in respect of these parts of this document, or any errors in or omissions from it, whether arising from negligence or any other basis in law whatsoever.

4 PROPERTY DESCRIPTION AND LOCATION

4.1 Location

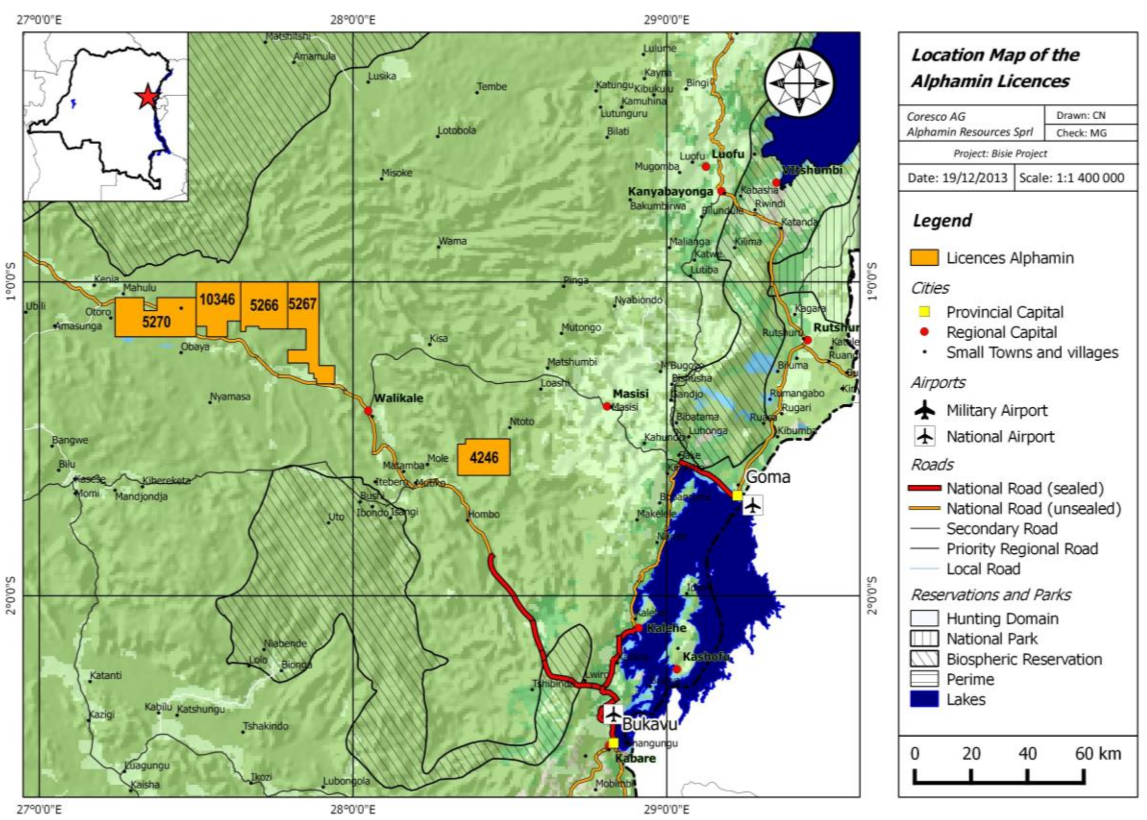
The Bisie Tin project is located in Walikale District of the North Kivu Province of the DRC. It is located approximately 180 km northwest of Goma, the capital of North Kivu and approximately 60 km northwest of Walikale (Figure 4-1).

4.2 Mineral Tenure, Permitting, Rights and Agreements

Alphamin, through its wholly owned subsidiary, Mining and Processing Congo Sprl (MPC), has full legal title (100 % ownership) over five exploration permits (Permis des Recherches) comprising the Bisie Property (No's: PR 5270; PR 10346; PR 5266; PR 5267; and PR 4246). They cover an aggregate area of approximately 1,470 square kilometres (Figure 4-1). The Bisie Project falls on PR 5266. No work has been done on the other four exploration permits, three of which are still under Force Majeure (PR 5270, PR 5267 and PR 4246).

Figure 4-1

Location Map showing the infrastructure and Alphamin Exploration permits (Bisie is located on PR 5266).



Sources: Licence coordinates: CAMI; Congo shape files: ESRI, DIVA-GIS

This report outlines the geological research carried out to date on PR 5266 only. The geographical co-ordinates of PR 5266, considered the most advanced of the exploration permits, are listed in Table 4-1 below. Details of all of the exploration permits making up the Bisie property are listed in Table 4-2.

Table 4-1
List of PR 5266 beacon co-ordinates.

Beacon Number	Longitude	Latitude
1 A	27°38'30"E	01°09'30"S
2 B	27°38'30"E	01°00'00"S
3	27°47'30"E	01°00'00"S
4	27°47'30"E	01°09'00"S
5	27°42'00"E	01°09'00"S
6	27°42'00"E	01°08'30"S
7	27°39'30"E	01°08'30"S
8	27°39'30"E	01°09'30"S

Table 4-2
List of exploration permits in the Bisie tin Property.

PR No	Approximate Area (km^2)	Commodities	Certificate Number	Validity Period	Force Majeure (date lifted)
5266	321 Blocks (±272.71 km^2)	Tin and gold	CAMI/CR/2935/2006	29 September 2006 to 28 September 2011; due to Force Majeure valid until 23 November 2014	Lifted 20th January 2012
4246	274 Blocks (±232.78 km^2)	Cassiterite, gold, tin, copper, platinum, cobalt, silver, niobium, tantalum, and wolframite	CAMI/CR/2970/2006	21 September 2006 to 20 September 2011; due to Force Majeure validity is suspended	Force Majeure in place
5267	380 Blocks (±322.83 km^2)	Tin and gold	CAMI/CR/2936/2006	29 September 2006 to 28 September 2011; due to Force Majeure validity is suspended	Force Majeure in place
5270	440 Blocks (±373.81 km^2)	Tin and gold	CAMI/CR/2939/2006	29 September 2006 to 28 September 2011; due to Force Majeure validity is suspended	Force Majeure in place
10346	311 Blocks (±265.6 km^2)	Coltan and gold	CAMI/CR/6635/12	02 July 2009 to 01 July 2014. Transferred to Alphamin on the 21 October 2013	Not affected

4.2.1 Force Majeure

Pearl (2011) noted that, due to events beyond MPC's control which prevented it from fulfilling its obligations and exercising and enjoying its mineral rights, notice of Force Majeure was given to the Mining Registry on 19 March 2009 in relation to all MPC Properties at the time (PR 5266, PR 4246, PR 5267, and PR 5270). The declaration of Force Majeure for these exploration permits was accepted on 26 March 2009.

The Force Majeure was caused by the presence of uncontrolled armed groups and other outlaws who forced the MPC employees to leave the Bisie site and also caused damage to the exploration camp and equipment. The unsafe climate in at the time contributed to the recognition of a generalised Force Majeure for the mining operators based in the eastern part of the DRC.

PR 10346 was a more recent acquisition and was not affected by the Force Majeure.

According to the Mining Code Article 297, the requirements to perform the titleholders' obligations are suspended from the date of the occurrence of the Force Majeure. The term of the concession will be extended for a period equivalent to the duration of the Force Majeure. When the Force Majeure ceases, the titleholder is required to inform the Mining Registry within ten days, and to resume performance of its obligations (Pearl, 2011).

Force Majeure was lifted on PR 5266 on 20th January 2012 and Alphamin was allowed to resume work on the concession. A new decree should be issued by the Mining Ministry indicating the validity and new expiry date of the permit, however neither Alphamin nor MPC have received the letter for PR 5266. The CAMI (Congolese mining cadastre) system for the DRC indicates that the permit has been extended until 23 November 2014.

The author is not aware of any royalties, back-in rights, payments or other agreements and encumbrances related to the exploration permits comprising the Bisie Tin Property other than the Environmental Bond of approximately US$ 10,400 due on PR 5266 and US$ 19,670 for PR 10346.

4.3 Environmental Liabilities

The author is not aware of any special environmental restrictions or liabilities related to the Bisie Project.

4.4 Major Risks

Political interference and security risks have been a significant problem over the entire tenure period to date which led to the application for Force Majeure when an employee was critically injured. Security risks have resulted in several site evacuations, intimidation and assault of other workers, the cancellation of consultancy visits (at significant cost), and the delay of mapping, sampling and compilation of results since lifting of Force Majeure on PR 5266.

Alphamin experienced further delays in exploration and drilling from August 2013 when all staff were evacuated due to hostile rebel activities in the immediate surrounds. The Company field camp was raided on 9 November 2013 by a group of villagers who caused damage to company equipment and assets. At present, work on the site is suspended (Alphamin Press Release, Nov 2013).

5 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

5.1 Accessibility

The Project area cannot be accessed directly by road, however facilities on site include a well-maintained helicopter landing area (27°44’38”E, 01°02’07”S, 829 metres above sea level) and several office buildings (Figure 5-1).

The Project area is accessed by air or by road from Walikale, to the southeast, to a point on the road approximately 40 km south of the Bisie Ridge. From this point, there is a footpath to the Project area. Walikale is located approximately 140 km west-northwest of Goma, the capital of North Kivu.

Figure 5-1
Annotated aerial photograph of the Bisie camp.

5.2 Climate and Physiography

The climate is tropical humid with two wet seasons; April to June and September to January. The average annual rainfall is 1,300 mm, with an average temperature range of 12 °C, from a minimum of 18 °C to a maximum of 30 °C. The annual average temperature is 25 °C. Operations can carry on all year round.

The topography comprises moderate to steep slopes, and perennial streams and rivers. The altitude in the Project area varies from 500 to 870 metres elevation (Figure 5-2).

Bedrock outcrop is poor, with the area covered by dense vegetation. Clay (kaolin) soils and alluvium occur in the valleys, whilst the slopes are covered by a mixture of clay soils and eluvial rubble.

Figure 5-2
Topography, dense vegetation cover and the Oso River in the PR 5266 Project area and surrounds.

5.3 Local Resources and Infrastructure

Local resources in the immediate vicinity of the Project area are scarce. All necessary consumables can be obtained from Walikale or from Goma and Bukavu. Until road access to the Project area is established, the main mode of transport to and from the Project area is by contracted helicopter.

Water is available on site from springs and rivers. There is sufficient available land on the concession for potential storage areas, waste disposal areas, and processing plant sites. There is no power availability from the national power grid in the area and power will have to be obtained from either diesel generators or hydro-electric generators. Mining personnel could be sourced from other parts of the province/DRC, with skilled operations managers sourced from South Africa (Pearl, 2011).

6 HISTORY

Unless otherwise indicated, the information below is summarised from Pearl (2011).

Mineralization was discovered by artisinal prospectors, with illegal artisanal mining commencing in 2002, and increasing significantly in 2004 following an increase in the price of tin. There are no records of prior ownership of the concession areas.

Four main cassiterite (tin-oxide) illegal artisanal mining sites (locally known as *Chantiers* which translates as 'public works') are located on or at the foothills of Mpama Mountain. At Golgotha and Gecomines, located along 1.5 km of a ridge which extends over more than 9 km on PR 5266, primary cassiterite mineralization has been mined from alluvial, open pit and underground workings. The underground, hard rock mining comprises tunnels following the tin mineralization. The tunnels are reported to reach up to 150 m in length, with collapses in the tunnels not uncommon (Wimmer and Hilgert, 2011). Pearl (2011) reported approximately 34 adits, occurring in two rows, one above the other, at Gecomines, which was the largest and most productive site. The adits are between approximately 25 m and 50 m long and vary in inclination from horizontal to a dip of between 30° and 45° to the east.

At Bawana and Manoire, located in the foothills of Mpama Mountain, alluvial mining exploited cassiterite in the alluvial gravels and talus.

The cassiterite was mostly traded from the Gecomines site and from Manoire village. It was packed into 50 kg batches and carried 45 km by porters, on a path from Manoire to Ndjingala village on the Walikale-Lubutu road. Two tonne loads were transported from Ndjingala by small truck to Kilambo, from where it was flown to Goma.

MPC, a former subsidiary of Kivu Resources, was formed in 2002 to trade in minerals in the eastern DRC. In 2006, MPC applied for and was granted four exploration permits (PR's) for the Bisie area (PR 4246, PR 5266, PR 5267 and PR 5270; Alphamin Meeting Minutes, 2013). MPC began work in the area in October 2006.

At the end of November 2006, MPC was forced to evacuate the project. MPC approached the Minister who undertook to gain control of the area within a year. At this time (November 2006), the area was controlled by the 85th FARDC (Forces Armées de la République Démocratique du Congo) Brigade under the control of Colonel Sammy Matumo. There was a large contingent of artisanal miners and associated people on the property. The 85th FARDC Brigade controlled access to the camp and a large part of the mining activities, as well as maintaining checkpoints between the working sites and the support villages, and along the trail between Ndjingala and Bisie (Wimmer and Hilgert, 2011). Between 2007 and 2008, it was estimated that between 13,000 and 18,000 people lived in the Bisie area (Alphamin Meeting Minutes, 2013; Wimmer and Hilgert, 2011).

A new team was established on site by MPC in 2008. At that time it was reported that people associated with the artisanal mining were leaving the area due to a declining tin price (US$ 10,090 per tonne in December 2008 versus US$ 25,331 per tonne in May 2008). In 2008, MPC was again forced to evacuate the camp and at this stage they applied for Force Majeure, which was granted on 26 March 2009.

According to Nicholas Garrett's (2008) in depth study, the Bisie artisanal mines produced approximately 70 % of the cassiterite exported from Goma in 2008. Official recorded production figures for Bisie for 2009 were 6,840 tonnes of tin concentrate, although it is generally considered likely production that production was in the order of 50% more than this due to under declaration of production in order to avoid the high taxes imposed by the Government of the DRC.

In March 2009, the 85th FARDC Brigade was replaced by the 1st Brigade of ex-CNDP (Congrès National pour la Défense du Peuplé) members; this was then renamed the 212th Brigade in September 2009.

On the 9th September 2010, President Kabila imposed an outright ban on all mining activities in Walikale territory. Two days later, he suspended all exploitation and export of minerals from North Kivu, South Kivu and Maniema Provinces.

The ban on exploitation and export of minerals, together with the Dodd-Frank Wall Street Reform and Consumer Protection Act, as well as pressure from the Organisation for Economic Cooperation and Development (OECD), drove the buyers of cassiterite concentrate to buy lower volumes at lower prices. The Dodd-Frank legislation requires US-listed companies sourcing conflict minerals from the DRC and adjoining countries, to implement due diligence measures. This served as a catalyst for other international and regional initiatives aimed at increasing accountability of companies sourcing minerals from the eastern DRC and the wider region (Wimmer and Hilgert, 2011). The main buyers of cassiterite in the area, i.e. the Malaysian Smelting Corporation, various Chinese companies and Eurotrade International, completely boycotted Bisie material, which due to its pink-red colour is easily identifiable.

Production and trade slowed during President Kabila's ban, but did not cease completely. Wimmer and Hilgert (2011) presented a set of satellite images which show evidence of continued artisanal mining at Bisie. They estimated that the actual mining area expanded by 0.74 ha during the period of the ban. The ban on mining and exports was lifted on 10 March 2011.

By late May 2011, the DRC army completed its withdrawal from the Bisie tin mine. In August 2011, Alphamin closed its acquisition of a 70 % interest in the Bisie Tin Project in consideration for the issuance of 14 million shares to the shareholders of Kivu Resources, with a call option to purchase an additional 20% of the property for a period of three years (MEG Mine Search, 2013).

The Force Majeure was lifted at the Bisie Project in February 2012. By late July, Alphamin had acquired 90% of Bisie and had entered into an agreement to earn the final 10% in consideration for the issuance of an additional 9.66 million shares to Kivu (MEG Mine Search, 2013).

Alphamin currently owns 100 % of Bisie, through its wholly owned subsidiary, Mining and Processing Congo Sprl (MPC).

6.1 Work by Mining and Processing Congo Sprl (2006-2008)

Commencing in October 2006, MPC carried out 5 reconnaissance exploration campaigns over an eighteen month period.

On the first reconnaissance trip (October 2006), a camp was established and reconnaissance mapping commenced. Work was often interrupted by the 85th FARDC Brigade who were controlling between 300 and 400 artisanal miners. The trip was intended to locate and identify cassiterite and coltan (columbite-tantalite) occurrences and to undertake preliminary geological mapping and reconnaissance rock chip sampling.

On the second trip, a two day jungle walk was used as an opportunity to carry out field checking of the regional geology of the areas surrounding the Bisie Ridge and the artisanal workings. Further geological mapping and mapping of the artisanal workings was carried out.

Trip three entailed detailed surface geological mapping and mapping of the underground artisanal workings. The work was conducted over a 12 day period, using GPS to record topographic information and note lithological contacts. The GPS was also used to measure and map the extent of the artisanal workings at surface.

Three external geological consultants (Sam Mawson, Jerry Fiala and one consultant from SRK) accompanied employees of the MPC on the fourth trip. The consultants reviewed the existing geological data, examined the extent of the artisanal workings at Bisie and collected rock samples required for mineralogical and petrological examinations.

In April 2008, MPC undertook its' fifth reconnaissance campaign over 20 days. This included continuing reconnaissance geological mapping of the Bisie vein mineralization, checking of outcrop localities and recording new artisanal workings on the Bisie ridge and in the alluvial ground in the surrounding valleys. Several traverses were undertaken from Bisie in order to map the host rocks for some distance both to the east and west of the deposit. Despite poor outcrop, the limited exposures indicate that the dominant unit is a pale blue-green micaceous schist with thin beds of grey shale, lenses of clean quartzite and elongated irregular-shaped bodies of coarse-grained amphibolite, either weathered or altered to chlorite. A small weathered exposure of quartz-feldspar-hornblende granite was noted, located approximately 4 km west of the Bisie workings. The granite is described as pink, medium-grained porphyritic granite with a slight fabric manifested by parallel elongation of the feldspar porphyroblasts.

MPC also carried out a literature search and compiled a detailed review of information lodged at the Royal Africa Museum in Tervuren, Belgium. An additional search for information was carried out at the archives in Kalima. In both cases, information pertaining to regional lithological and mineral potential was found. There was little information on detailed geology and mineralization, with only regional geological maps found. All known mineralization in the Alphamin exploration permits was discovered post-colonialism (MPC Report, 2008).

MPC purchased Landsat 7 Imagery and undertook detailed imagery interpretation. The interpretation was used to refine regional relationships between the Palaeo- to Mesoproterozoic metasediments and the Neoproterozoic granites. On the existing regional geological maps, the metasediments show a strong northwest-southeast fabric, however from the Landsat Imagery, it was noted that the regional fabric of metasediments in the middle of the permit area is north-south, complicated by the intrusion of a granite pluton. This was confirmed by reconnaissance mapping (MPC Report, 2008).

The granite contact is visible in the Landsat Imagery, approximately 3 km to the west of the Bisie workings. It is thought to be the source of the quartz veining and the associated cassiterite mineralization. The pure quartz veining and the dominant tin mineralization are considered to represent part of the last phases of post-granite metallogenesis (MPC Report, 2008).

MPC collected 38 rock samples in June 2007 as part of their reconnaissance work at Bisie, to be used for mineralogical and petrological examination. Most of the samples were collected from primary bedrock mineralization in outcrop, artisanal workings and cuttings. Additional samples were collected from weathered mineralization, fresh metasedimentary host rocks and alluvial gravels and talus slopes below the artisanal workings. These samples were sent to GET Company Ltd, Prague, Czech Republic, for analysis. Twenty-one samples were analysed for 31 elements including tin, tantalum, niobium and tungsten and rare earth elements (REE's) using ICP/MS finish on a lithium borate fused bead. Fourteen other base metals were determined using ICP/MS on a 4 acid digest. Thirty-nine polished thin sections were prepared from 24 of the samples for microscope mineralogical study. Eighteen thin sections were studied using the microprobe CAMECA SX100 at Masaryk University, Brno, Czech Republic (Breiter, 2007).

According to the studied samples, the Bisie mineralization is unusual and very different to other classic tin deposits, specifically with reference to the presence of up to 0.5 % REE and the high grade tin (50-90 % SnO_2 in some samples). From the mineral composition of the mineralization, a low temperature origin is suggested. The mineralizing fluids do not contain fluorine or lithium and base metal sulphides are scarce, suggesting a deep seated granitic source. It was thought at the time that the shape of the mineralized bodies would be irregular, making exploration using modern exploration methods difficult.

6.2 Work carried out on PR 5270

Reconnaissance work has been carried out by MPC on PR 5270 which lies to the west, but not immediately adjacent to PR 5266. This exploration permit is currently under Force Majeure. The reconnaissance work was undertaken in May 2008, over a period of 17 days.

In the west of PR 5270, artisanal mining of alluvial gold and cassiterite occurs along small tertiary streams which drain into the Oso River. In some locations, sand in the Oso River itself is concentrated for the "black sand" (predominantly magnetite) that contains cassiterite and fine-grained gold.

MPC visited five main artisanal mines, all located in the hills to the west of the Oso River, in the western part of the exploration permit. The mines were mapped and sampled. Fine black cassiterite occurs in quartz veins hosted in micaceous schists. A brief description of the artisanal mines is given below:

- Carrière Mondiale:
  - Veins of over 1 m thick, strike over a distance of over 100 m
  - The veins had been mined to a depth of between 25 and 35 m
  - In 2008 there were thirteen groups of miners, each producing approximately 120 kg of cassiterite per day, for an approximate total of 1,500 kg.
- Carrière Fuso:
  - Similar in shape, size, and mineralogy to Carrière Mondiale
  - Eight mining groups were estimated to produce approximately 140 kg of black cassiterite each per day, for a total of approximately 1,120 kg per day.
- Carrière Bouvou:
  - Located 500 m east of Carriere Fuso
  - An underground gallery of over 150 m in length has been excavated
  - Quartz veining hosting disseminated black cassiterite was visible along the length of the gallery
  - The mine was reported to be the richest in the area.
- Carrière Au Lieu de Zero:
  - This is an alluvial operation in the Abenge River, a tribute of the Oso River
  - In 2008, sand was being concentrate for the fine cassiterite
  - Four groups of miners were present, each producing approximately 50 kg of cassiterite per day.
- Carrière Ndonga:
  - This is an alluvial working in a small tributary stream of the Oso River
  - Mud, sand and pebble material is sluiced by six groups of miners, each producing approximately 40 kg of clean black cassiterite per day, totalling 240 kg per day.

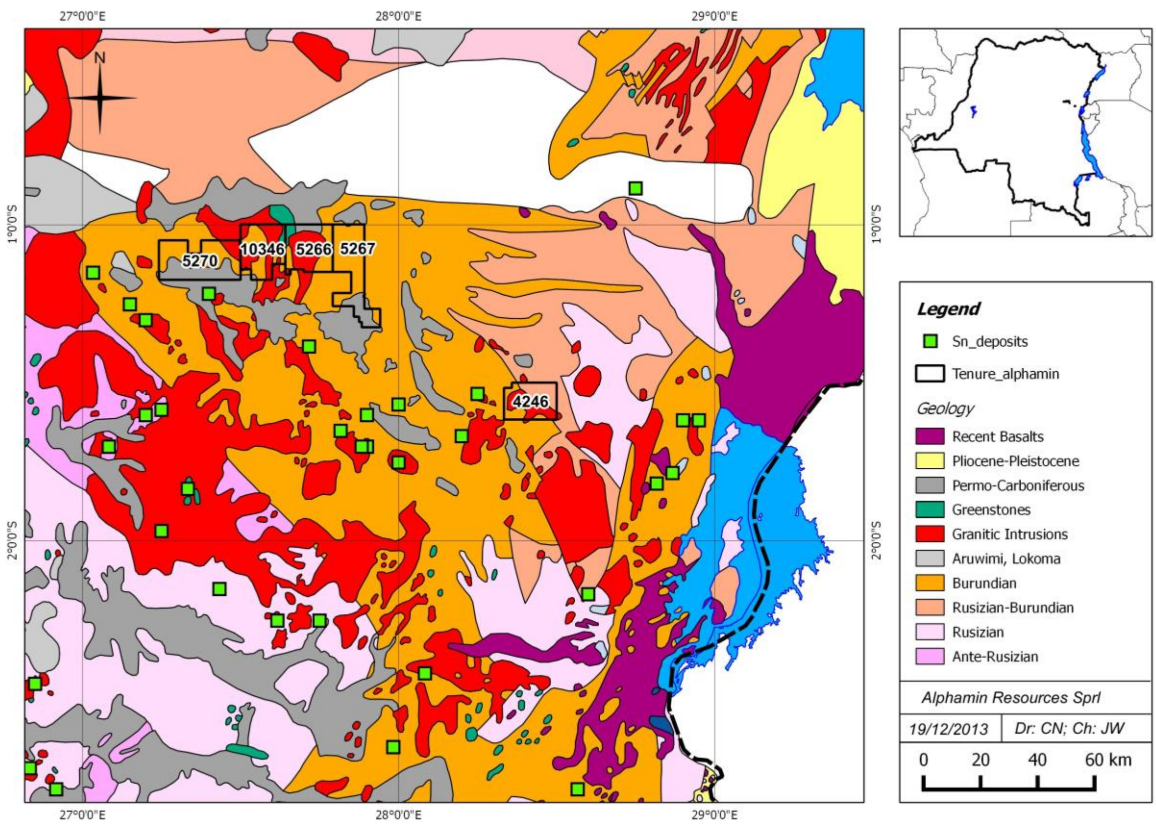
7 GEOLOGICAL SETTING AND MINERALIZATION

7.1 Regional Geology

The Bisie Project is underlain in part by the Kibaran Orogenic Belt lithologies, interpreted as being an inter-cratonic collision zone with different periods of extension and compression (Pearl, 2011). Units present in the area include (Figure 7-1):

- The Palaeoproterozoic (Lower Proterozoic) Basement comprising Rusizian and Ante-Rusizian units, composed mainly of poorly exposed dolomites, quartzites, amphibolites, mica schists and migmatite gneisses.
- The upper Mesoproterozoic rocks (loosely termed Burundian in the eastern DRC, Burundi and Rwanda) composed of dominant micaceous schists and buff to red arenaceous phyllites with minor interbedded quartzites and amphibolites. Shales and conglomerates are also found in the upper parts of this sequence.

Figure 7-1
Regional geology with the Alphamin tenement locations.



Sources: Geological map : shapefile extracted from the «Carte Géologique et Minière de la République Démocratique du Congo » (Musée Royal de l'Afrique Centrale, Tervuren), Licences coordinates: CAMI.

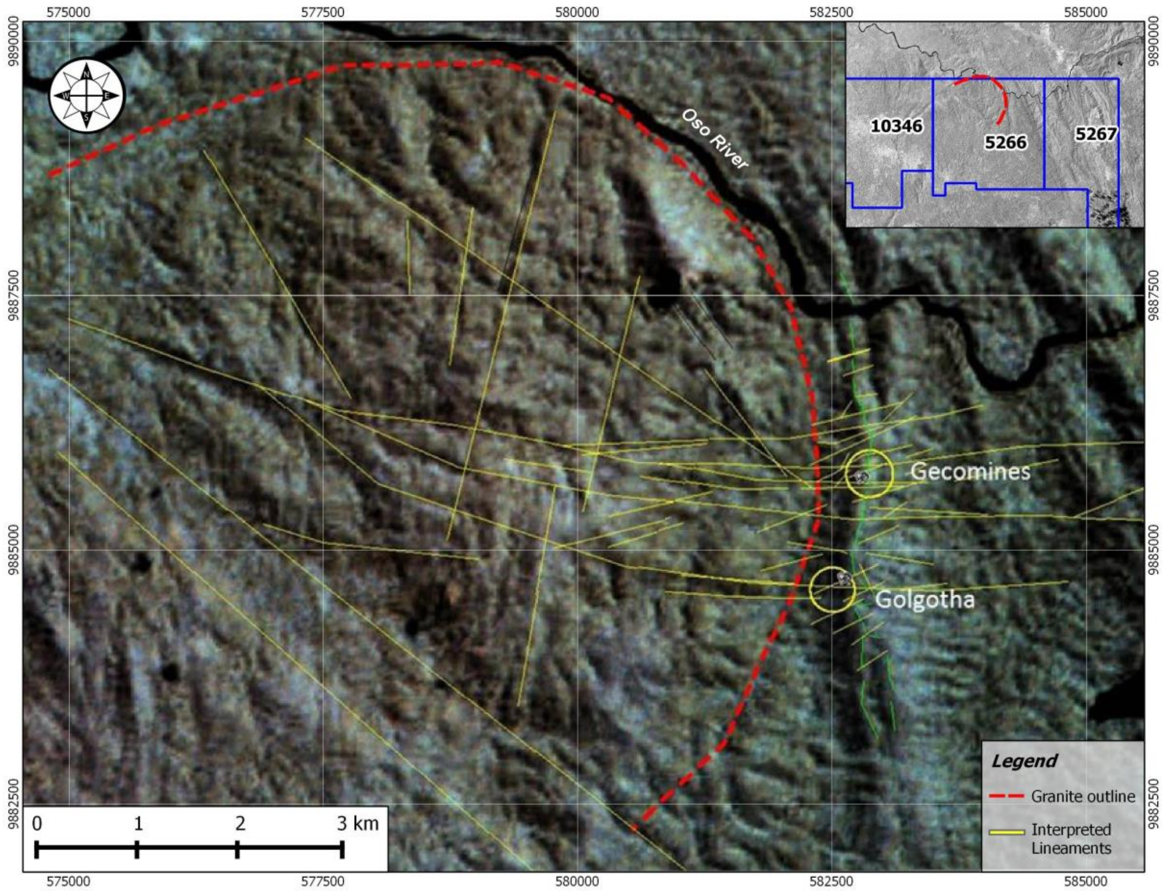
The upper contact of the Palaeoproterozoic basement with the overlying Mesoproterozoic sediments is poorly exposed and rarely observed, probably due to faulting complicated by tectono-metamorphic effects and granite intrusions. Both units have been intruded by different generations of granites, which started in the Mesoproterozoic (± 1,375 Ma) and continued until the last so-called "tin granite" intrusion at about 986 Ma (Neoproterozoic). These intrusions are commonly believed to be the source of the numerous tin occurrences in the region, with the granites themselves containing elevated levels of tin. No other rock sequences such as the Lindian Group sediments or the Karoo Supergroup sediments have been identified in the area to date.

7.1.1 Structure

Metamorphic units in the region generally strike northwest-southeast. The ridge containing the Bisie mineralization strikes north-south until the Oso River in the north, after which the strike of the ridge changes to the northwest-southeast regional strike (Figure 7-2). Large scale folding is evident in the satellite imagery, however it has not been ascertained whether the Bisie ridge forms part of a tight fold. There is strong evidence for a fault or shear zone along the western slope of the ridge; this may have given rise to the elevation of the Bisie ridge. In the Golgotha area and further to the south, a mineralized and highly sheared and altered amphibolite is exposed in small cliffs (Alphamin Report, 2013).

Figure 7-2

Landsat image showing the limits of the granite pluton adjacent to Bisie Ridge.



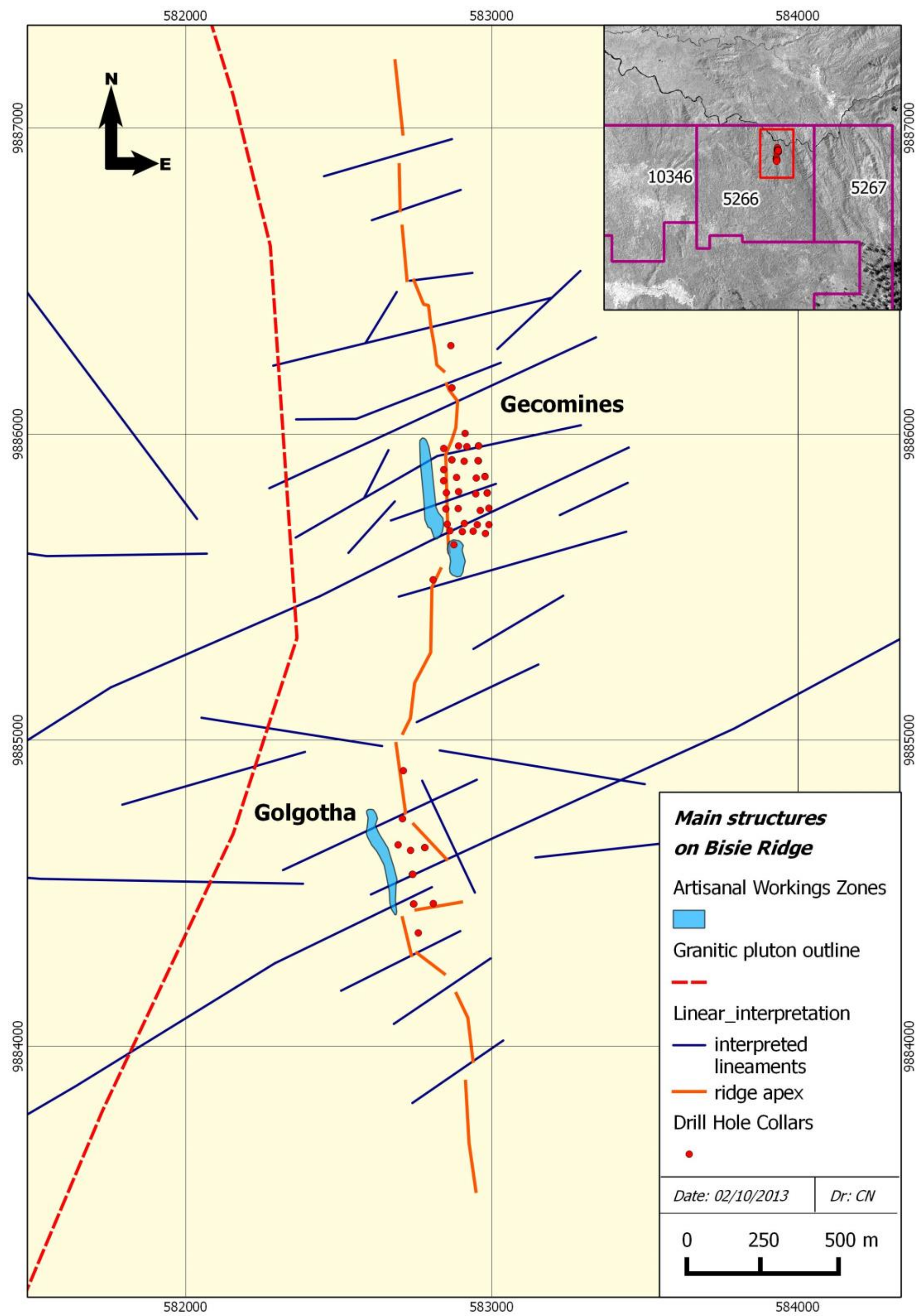
Note the Oso River running from east to west in the upper part of the Figure.

Source: Landsat data (NASA), interpretation by John Barrett. (August 2012)

Slickensides and partial brecciation of the cassiterite veins are visible in the material mined by the artisanal miners. The timing of the emplacement and the proximity to later structures appears to determine the extent of the brecciation and disaggregation. The intensity of lead, zinc and silver mineralization in the area seems to be structurally controlled, with the lead, zinc and silver replacing iron in massive pyrite units. These massive pyrite units show more galena and sphalerite replacement in areas of intense deformation related to shearing and faulting (Alphamin Report, 2013).

Structural interpretation of Landsat imagery of the area shows numerous cross-cutting east-northeast to west-southwest striking faults, with possible offset of the mineralized structure along the Bisie Ridge (Figure 7-3). Several of these structures can be followed over several kilometres. The source of the mineralizing fluids is thought to be the massive plutonic intrusion to the west of the ridge (Figure 7-2).

Figure 7-3
Structural interpretation over the Bisie Ridge.



Sourced from: Alphamin Report, 2013

The geological modelling indicates the presence of sub-parallel thrust faults that appear to obliquely strike through the mineralized zone. More detailed structural geology work is required in order to resolve the structural features of the Bisie deposits.

7.2 Property Geology

Detailed geological mapping has not been conducted over the entire Bisie Project area. MPC undertook limited reconnaissance exploration campaigns in the Bisie Project area within PR 5266. Major observations from the MPC work in the project area are as follows:

- the eastern part of the Project area is underlain by metasediments comprising micaceous schists, quartzites, phyllites and amphibolites, with minor calcareous rocks. The metasediments in the central part of the permit area strike north-south with dips between 30° and 40° to the east. The regional folding of these units is gentle. Metasediments in the east of the permit area generally strike north-northwest to south-southeast; and
- in the west of the Project area, a granite pluton gives rise to subdued topography, compared with the topography in the area underlain by metasediments. Mapping of the area by MPC defines the granite as a medium-grained pink porphyritic granite, comprising predominantly quartz and pink feldspar, with minor muscovite and hornblende.

7.3 Mineralization

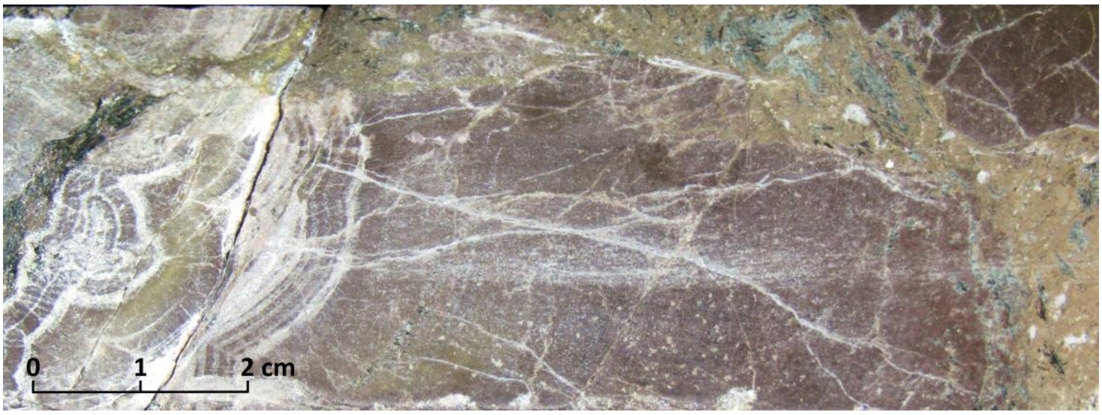
The tin mineralization found so far at the Bisie Project is confined to the north-south striking, easterly dipping metasediments that occur approximately 3 km east of the granite contact. The mineralization at Bisie is multi-phased and appears similar in nature to the San Rafael deposit in Peru (Pearl, 2011; Alphamin Report, 2013).

Using the San Rafael deposit model, together with structural and mineral evidence visible in mineralized samples and drill core, it appears that the cassiterite was emplaced first, followed by copper in the form of chalcopyrite and bornite, then by lead and zinc mineralization. Chlorite alteration is extensive in parts and is thought to be the result of the last stage of fluids entering the system. The tin and copper mineralization is predominantly found in zones dominated by intense chloritic alteration, although mineralized zones with no chlorite have also been intersected by drillholes (Alphamin Report, 2013). The host rocks are predominantly highly chlorite-altered amphibolites, fine- to medium-grained chlorite schists and to a lesser extent, the adjacent biotite schists and quartz schists.

The largest volume of cassiterite observed in drill core occurs as discrete massive veins ranging from 2 mm to 0.64 m in thickness. However lesser amounts of fine disseminated cassiterite occur. Chutes of 20 m by 8 m were mined by the artisanal workers, which likely consisted of a number of closely spaced veins. The cassiterite veins are massive, pinkish brown, fine-grained and often botryoidal, and show compositional layering thought to be due to variations in the iron content. This form of cassiterite has often been referred to as "wood tin", as illustrated in Figure 7-4 (Alphamin Report, 2013). The upper 10 m to 20 m of the mineralized veins are weathered to a porous and earthy “cassiterite gossan” or “cassiterite-in-gossan”, comprising a mixture of cassiterite, smectite clays, hematite and earthy limonite (MPC Report, 2008). The occurrences of cassiteritie-bearing gossan have since been mostly mined by the artisanal workers.

The dominant geological control is structural emplacement of cassiterite-bearing veins. The pressure-temperature conditions at the time of tin deposits are important controls and probably reflect distance from the source granite (Pearl, 2011).

Figure 7-4
Photograph of core showing the botryoidal texture of the pink cassiterite and copper sulphides.



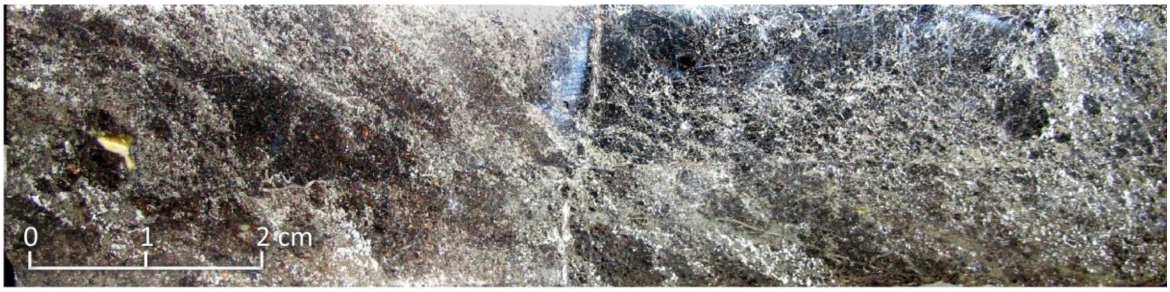
Sourced from: Alphamin, 2013.

Copper mineralization is generally associated with the cassiterite zones. This is thought to be the result of continued tectonic movement which allowed the copper-rich fluids to move along the same mineralized structures. Most of the copper mineralization occurs in the form of blebs, lenses and veins, with the latter two being parallel to the schistosity. Chalcopyrite is also common in quartz veins, together with pyrite and to a lesser extent, arsenopyrite. Chalcopyrite and bornite also occur as fracture fillings within the cassiterite. The copper mineralization is generally fairly widespread but higher grades are sporadic. Higher grade copper intercepts usually occur adjacent to and overlapping the high tin grade intercepts, if not directly correlating with them (Alphamin Report, 2013).

Most of the zinc mineralization occurs in a massive pyrite unit, together with lead and silver further south at Golgotha. Small quantities of zinc mineralization are also found together with the tin and copper mineralization. The intensity of the galena and sphalerite replacement of the pyrite appears to be structurally controlled. In drill hole BGH001, the pyrite unit is crosscut by a shear or fault zone and with replacement being almost complete over an interval of 14 m, with at least 6 m comprising massive sulphides. The massive zinc and lead mineralization is shown in Figure 7-5 (Alphamin Report, 2013).

Figure 7-5

Photograph of core showing massive sphalerite (zinc) and galena (lead).



Sourced from: Alphamin Report, 2013.

Artisanal workings are concentrated at Golgotha in the south and Gecomines in the north (Figure 7-3). Drilling has also focused in these areas. The tin mineralization is better developed at Gecomines, with thicker and more numerous cassiterite veins, and substantial copper mineralization in parts. At Golgotha, there is less cassiterite and the veins are generally thinner. However the lead and zinc mineralization is more prevalent, possibly due to the presence of the massive pyrite unit (Alphamin Report, 2013).

8 DEPOSIT TYPES

The Bisie tin deposit is a cassiterite-bearing stockwork or vein system adjacent and possibly distal to underlying source granite. From the mineralogical composition studies undertaken by MPC on 38 rock and concentrate samples, it was concluded that the mineralization at Bisie is unusual and different from other classic tin deposits. The deposit has up to 0.5 % REE and very high grade tin (up to 50 – 90 % cassiterite in some samples).

From the composition of the mineralization, it was concluded that the mineralization has a low temperature origin, with a probable hidden fractionated granitic source. Fluorine and lithium are absent from the ore forming fluids and base metal sulphides scarce. This may indicate the source granite to be at depth below the surface.

Three dimensional modelling of the Mineral Resource indicates that the deposit can be simply described as a steeply dipping tabular sheet of variable grade mineralization consisting of irregular veins and disseminations of cassiterite that is complex on a small scale.

9 EXPLORATION

9.1 Soil Geochemistry

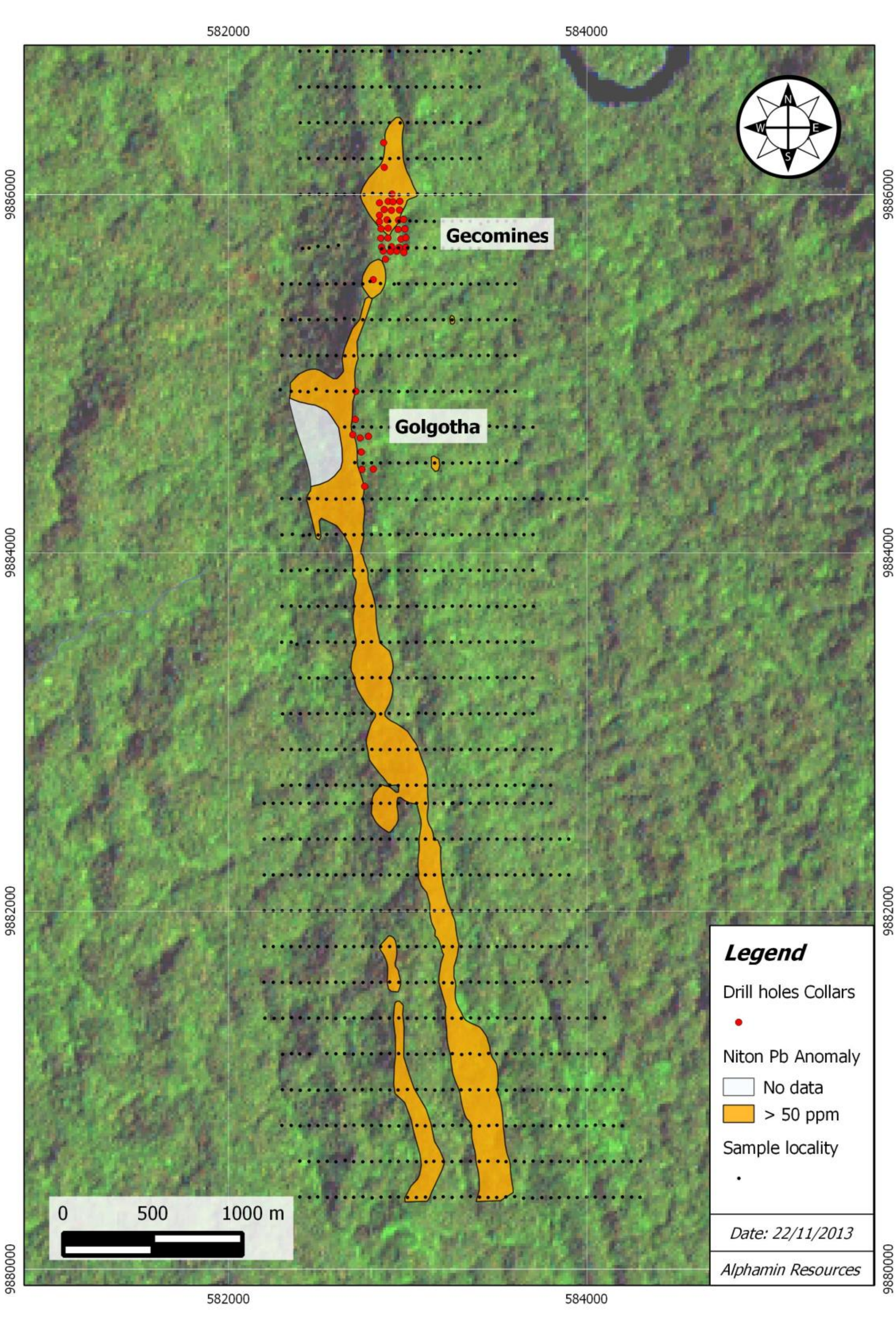
Soil geochemical sampling was carried out in August and September 2012 and again in May 2013 in order to identify targets for future exploration along the 9 km-long Bisie ridge. Soil samples of approximately 2 kg each were collected from the B soil horizon approximately 60 cm below surface. Samples were taken at 50 m intervals along east west lines over the ridge spaced 200 m apart. All samples were air dried and sieved to -2 mm and then -180 µm before being analysed on site using a Niton hand held XRF analyser.

Approximately 100 g of the sample of sieved soil passing 180 µm was placed in a plastic zip lock bag. The sample was placed on the Niton stand and analysis time was 30 seconds on the soil setting.

The results show a significant lead in soil anomaly that extends north and south of the artisanal workings over a length of approximately 6 km, with the anomaly open to the south (Figure 9-1). Lead and arsenic appear to be some of the path finder elements consistently associated with the tin mineralization, and the anomaly may indicate extensive mineralization potential along the ridge. Copper in soil is more limited, and extends principally north of the Gecomines zone.

Figure 9-1

Lead in soil anomaly at Bisie.

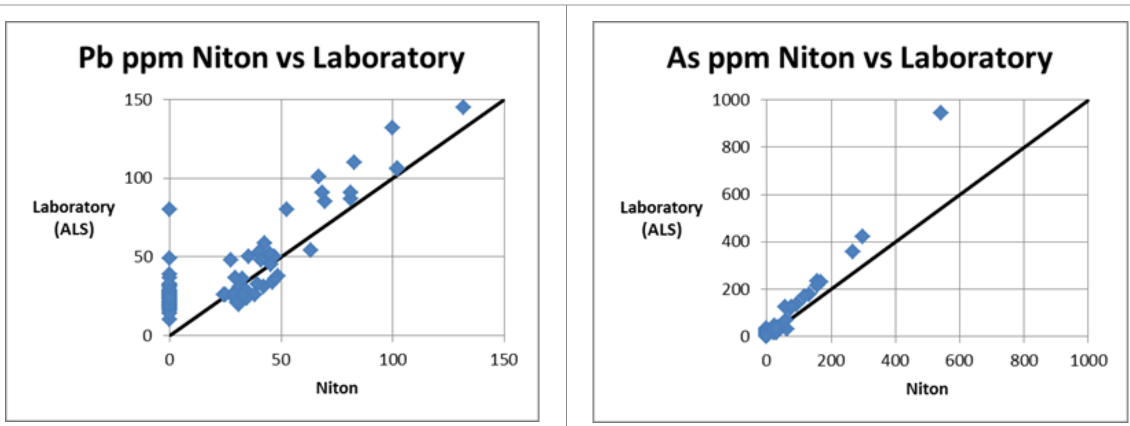


Sourced from: Alphamin Report, 2013.

The Niton analyses were verified by laboratory assays conducted by ALS Chemex in Johannesburg. A four acid digest and ICP-AES finish was used to analyse 100 soil samples for a suite of 33 elements including base metals. The laboratory results confirmed the anomalous Pb and As values, but indicated that the Niton analyses tended to be lower than the laboratory results (Figure 9-2). Poor correlation was found between the Niton and the laboratory for Cu and Zn and hence the Niton analyses for these elements were of limited use.

Figure 9-2

Comparison between Laboratory and Niton Soil Analyses.



The use of the Niton XRF for soil sample analyses is a cheap and efficient method of determining anomalous concentrations of Pb and As in the soils as an exploration tool, the results of which are suitable for generating drill targets or areas of interest for further scrutiny.

10 DRILLING

A total of 47 diamond drill holes have been drilled on the Bisie Project to date; 37 at Gecomines and 10 at Golgotha. Drillhole collars were positioned using a hand held GPS unit. Final collar surveys were completed with a digital GPS (DGPS), using reference base stations, by a certified surveyor. Down-hole surveys were conducted using a Reflex EZ-Trac digital survey instrument and multi shot receiver. All drillholes were surveyed at 30 m intervals down the hole.

Drill core was recovered from the core barrels and washed and placed into core trays at the drill site. Core recovery was measured and noted along with length of run and depth on the core blocks, which were inserted in core trays at the end of each run. Each core tray was numbered and marked with the relevant drillhole number at the drill site. On completion of the drillhole, the core was airlifted back to the camp by helicopter where core recovery was checked during the metre marking process.

Core recovery was generally very good within the mineralized zone and country rock. Most core loss was noted in the upper 30 m and total core recovery averaged 91.6 %.

All the drilling at Bisie to date has been HQ & NQ size (63.5 mm and 47.6 mm diameter core respectively) diamond cored drilling inclined steeply (-60° to -75°) in order to intersect the mineralization at a high angle. The location, azimuth and dip and final depth of each drillhole is shown in Appendix 2.

Two drilling programs have been successfully completed on the Bisie prospect; namely an initial exploratory program focused on covering both the Gecomines and Golgotha prospects, (Figure 10-1) and a second, Mineral Resource definition-based phase, concentrated on the Gecomines prospect where the tin grades returned from phase 1 were the highest.

Drilling was focused on areas of artisanal mining and along strike from these workings to test the strike extent of shallow mineralization. To date, mineralization is open along strike in both directions and at depth at both prospects. Although the thickness and grade of mineralization varies, the style of mineralization for each of the Sn/Cu and the Ag/Zn/Pb zones remains consistent. The Sn/Cu zone is well developed at both the Gecomines and Golgotha target areas while the Ag/Zn/Pb zone is better developed to the south at Golgotha.

10.1 Golgotha Prospect

Drilling at Golgotha (10 drill holes for 1,657.2 m) has been exploratory in nature, and aimed to determine the extent and nature of the mineralization. Two distinct mineralized zones have been intercepted, with an upper zone showing well-developed lead, zinc and silver mineralization, and a lower zone rich in tin and copper. Figure 10-2 shows holes BGH001, 006 and 007A in cross-section intercepting the two zones. Drilling to date at Golgotha has delineated 260 m of strike returning tin intercepts of 10 m or more grading in excess of 0.7 %, for example:

- **32.2 m @ 0.76 % Sn** from 106.9 m including **22.05 m @ 1.02 % Sn**; and
- **11 m @ 1.48 % Sn** from 71 m, including **2.5 m @ 5.76 % Sn**.

Copper and rare earth element (Cerium and Lanthanum) mineralization is commonly associated with the tin rich zone, along with elevated lead and zinc. Significant results include:

- **11 m @ 0.88 % Cu** from 72 m including **4.5 m @ 1.74 % Cu**;
- **35 m @ 0.77 % Cu** from 53 m including **10 m @ 1.67 % Cu**; and
- **10.1 m @ 1,042 g/t Ce** from 162 m.

Drilling further identified a zone rich in silver, zinc and lead mineralization in the Golgotha target area. Best results include:

- **19 m @ 197 g/t Ag** from 61 m;
- **17.7 m @ 14.11 % Zn** from 61 m including **13 m @ 18.09 % Zn**; and
- **14.75 m @ 10.82 % Pb** from 61 m.

The next drilling program, set to start during the early part of 2014, will aim to delineate the extent of both the tin and copper and massive sulphide mineralization at Golgotha, with the possibility of deeper high-grade tin mineralization similar to that of Gecomines.

Figure 10-1
Phase 1 drill collars, with significant intersects.

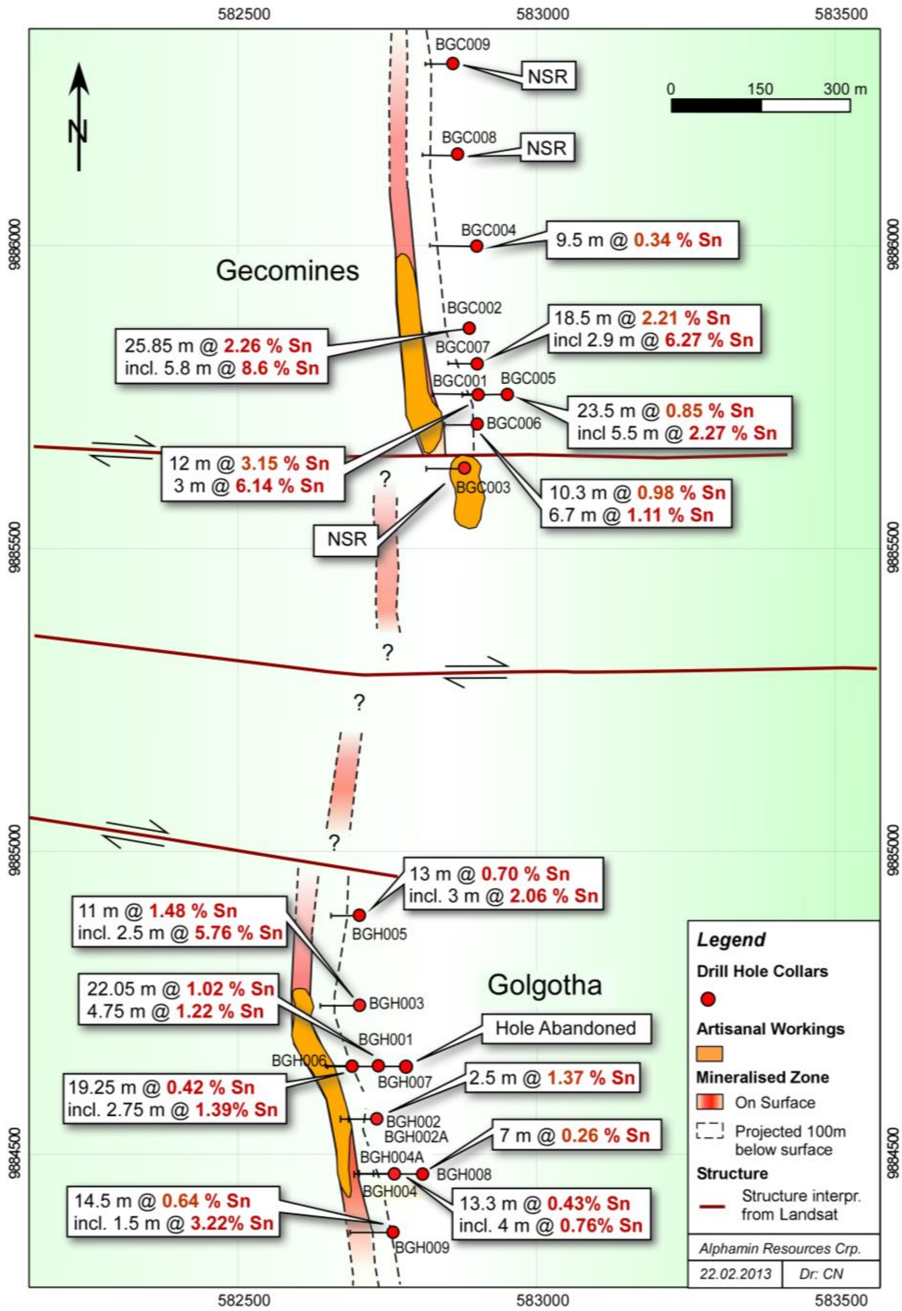
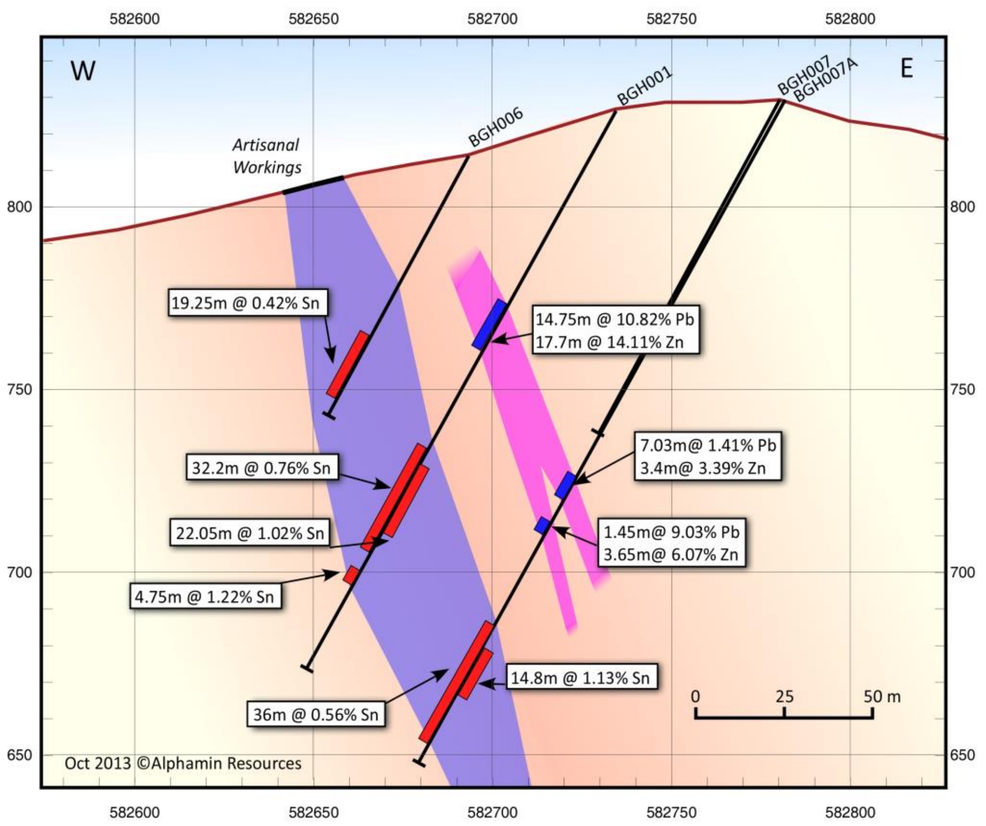


Figure 10-2
Schematic section 9884650N showing drill holes BGH001, BGC006, and BGH007 and 007A at Golgotha prospect.



10.2 Gecomines Prospect

Drilling at Gecomines totalled 37 drillholes for 4,930.65 m. In addition to the first 9 exploratory holes drilled during the first campaign, 28 holes were completed during the second program, aimed at delineating a Mineral Resource. These were drilled on 50 m sections over the areas of best mineralization with the southernmost section being at 25 m due to the presence of a cross cutting fault (Figure 10-1).

The drillholes intersected variable mineralization mostly within a persistent chlorite schist unit with massive cassiterite veins hosting the majority of the tin. The structural data suggests a shallow northerly plunge at this stage. The last four holes drilled in the northern portion of the project aimed to intercept this plunge at depth, and all returned high grade mineralization.

- **29 m** @ **3.3% Sn** from 165 m including **11 m** @ **6.06 % Sn**;
- **17 m** @ **6.78% Sn** from 185 m including **4.35 m** @ **18.62 % Sn**;
- **15 m** @ **7.94% Sn** from 171 m & **7.65 m** @ **9.40 % Sn** from 192 m; and
- **17 m** @ **3.27% Sn** from 133 m.

Figure 10-3 shows the collar locations and significant intercepts, and an example of a drilled section is shown in Figure 10-4. Further drilling that has been planned to explore down dip at depth and along strike to the north is aimed to define the extents of the high grade mineralization.

Copper mineralization at Gecomines is consistently associated with tin mineralization, generally overlapping it. While copper grades are generally low, some holes returned relatively high grades. BGC035 reported 14.8 m @ 1.03 % Copper within an interval of 29 m @ 3.3 % tin.

Figure 10-3
Gecomines schematic drill hole locality map showing significant intercepts.

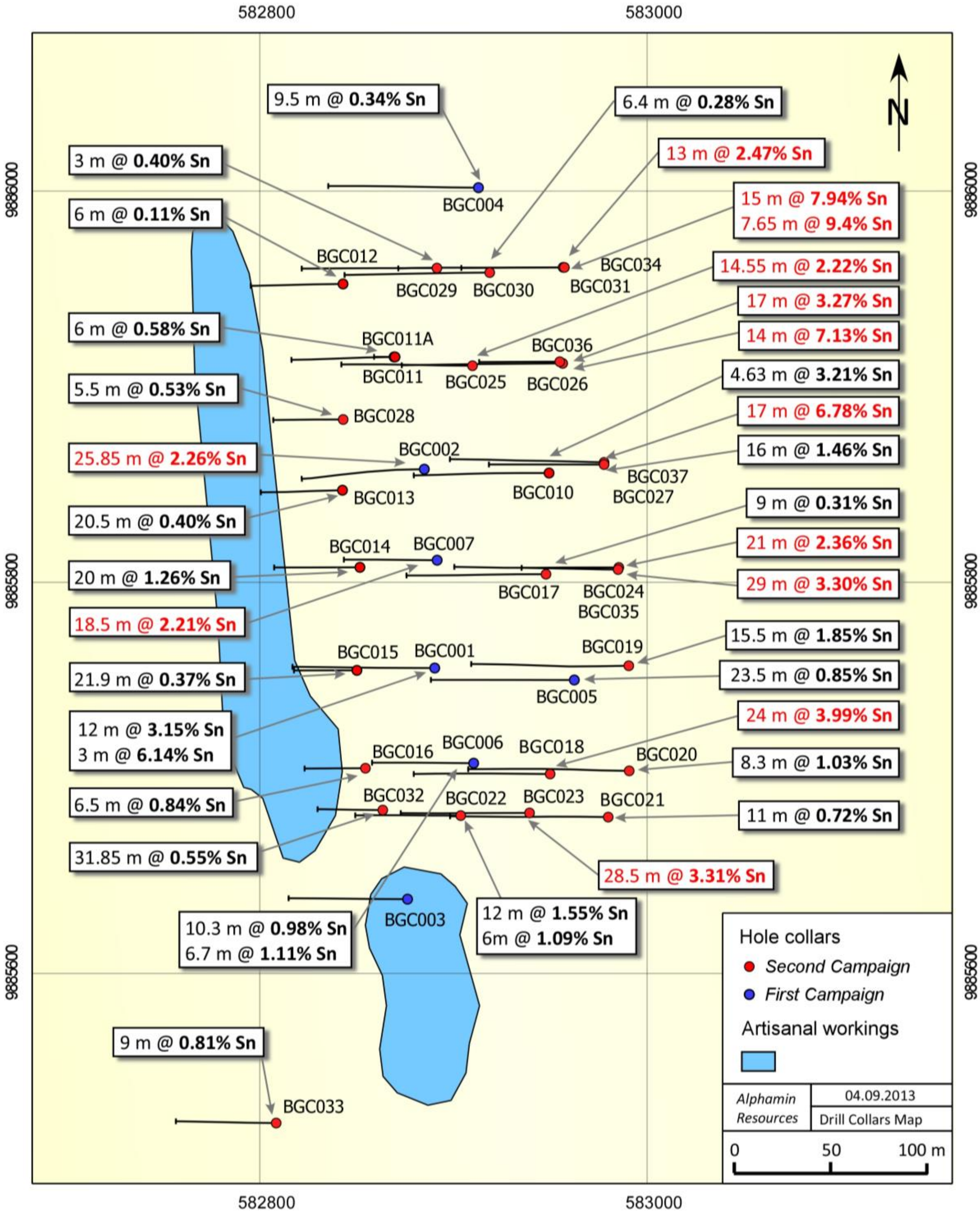
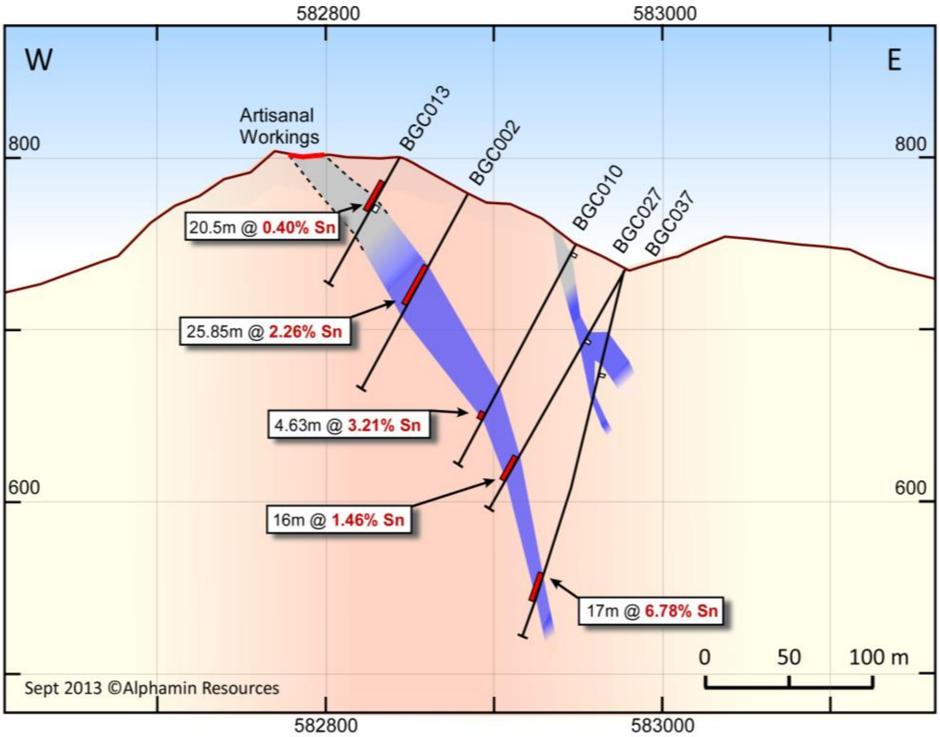


Figure 10-4
Schematic section 9885850N showing drill holes BGC0013, 002, 010, 027 & 037 at Gecomines prospect.



10.3 Exploration Drilling

A single exploration hole drilled as part of the phase two program (BGC033) was drilled 150 m to the south of the main Gecomines workings and intersected the host unit, returning an intercept of 9 m @ 0.81 % tin. This confirmed the continuity of the mineralized system south of the east-west cross-cutting fault that was thought to truncate mineralization and the possible reason for the barren hole BGC003. Meanwhile, drill hole BGH005, drilled 150 m north of the main Golgotha prospect, reported 13 m @ 0.70 % tin. This confirms the potential to intercept significant mineralization over the 650 m zone separating the two prospects. This could be tested further in a future drilling program.

11 SAMPLE PREPARATION, ANALYSES AND SECURITY

The zones to be sampled were selected on the basis of visible mineralization and Niton XRF analysis. A 10 m zone, where observations and Niton analysis did not identify any mineralization, was sampled either side of any mineralization identified. A nominal sample length of one metre was used, which was varied in order to honour individual zones of mineralization intensity and lithological boundaries. The minimum sample length used was 0.3 m for HQ diameter core and 0.4 m for NQ diameter core. Maximum sample lengths did not exceed 2.0 m.

After sample mark up and completion of lithological logging the core was photographed. The core was then split longitudinally in half using a water cooled diamond blade core saw along a cut line designed to separate the two halves of the core equally throughout the sample length. Core was held in closable Almonte core cutting boxes in order to reduce core loss and increase cutting accuracy. On completion of cutting of the sample, the cut core was replaced into the core tray with the half to be sampled facing upward. The convention used was for the side to be sampled to be on the left hand side of the low point of the core foliation.

On completion of the cutting process, the core trays were moved to the sampling shed. The geologist or field assistant used the pre-printed sample number list to place the core samples (starting from the end of the sample and moving backward to the beginning of the sample) into pre marked plastic sample bags. Cross checks were completed against the marked bags and sample numbers against the sample list to mitigate against sample swaps. A sample ticket corresponding to the number on the sample bag and sample sheet was placed inside a zip lock plastic bag which was then placed in the numbered sample bag along with the core sample.

One certified reference material (CRM) sample was inserted on average for every 30 samples, with quarter core duplicate samples and blank samples being inserted at the same frequency. Approximately 10 % of the samples submitted were in order to monitor sample and assay. The CRMs were sourced from Ore Research and Exploration of Australia (CRM numbers OREAS, 140, 141 and 142) and from Bureau of Analysed Samples Ltd of Great Britain (CRM number BCS-CRM 355).

After final cross checking the sample bags were tied closed using a plastic zip tie and then placed into poly weave sacks which were in turn sealed with plastic zip ties. Each poly weave sack was marked with a number and the sample numbers contained within, as well as the address of the laboratory.

The poly weave sacks were then transported to MPC's office in Bukavu via private helicopter and packed into cardboard boxes which were labelled and shipped to the laboratory via air freight.

At the laboratory, samples were first checked off against the list of samples supplied and then weighed and oven dried. The dried samples were crushed to 70 % passing 2 mm, from which a 250 g split was taken and this was pulverized to 85 % passing -75µm from which a sample for analysis was taken.

Samples were submitted to the SANAS accredited ALS Chemex laboratory in Johannesburg where samples were analysed using ME-XRF05 conducted on a pressed pellet with 10 % precision and an upper limit of 10,000 ppm. For the second campaign the limit was 5,000 ppm. Over limit samples were sent to Vancouver for ME-XRF10 which uses a Lithium Borate 50:50 flux with an upper detection limit of 60 % and precision of 5 %. ME-ICP61, HF, HNO_3, $HCL0_4$ and HCL leach with ICP-AES finish was used for 33 elements including base metals. ME-OG62, a four acid digestion, was used on ore grade samples for Pb, Zn, Cu and Ag. Industry accepted QA/QC checks were applied by the laboratory.

In the QP's opinion, the sample preparation, security and analytical procedures used for the Bisie samples are adequate for the style of mineralization at Bisie.

12 DATA VERIFICATION

12.1 Independent Check Sampling

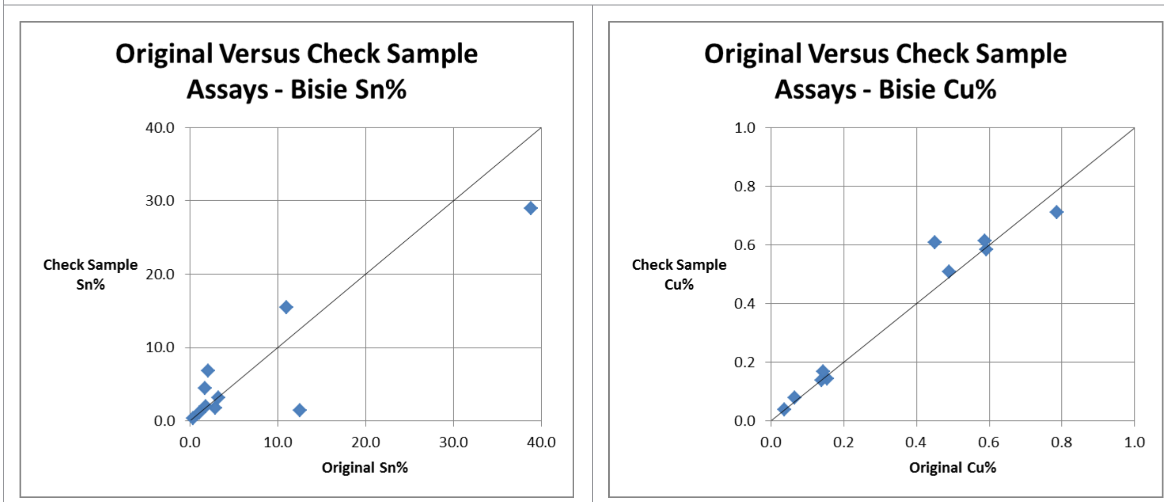
The Bisie site was visited by Mr J.C. Witley in July 2013 for three days in order to inspect the core and review the exploration processes. As part of the data verification exercise, ten quarter core samples were taken from two drillholes (BGC018 and BGC024) across a variety of mineralization intensities within the well mineralized zone. The samples were photographed on site and sealed and prepared for dispatch to ALS Chemex (ALS) in Johannesburg. On arrival in Johannesburg, the samples were unpacked, photographed, verified against the photographs taken on site and then sent for assay.

A comparison of the original assays with the independent check sampling assays is shown in Table 12-1 and the Sn and Cu results are shown as scattergrams in Figure 12-1.

Table 12-1
Check Sample Assay Results.

Sample ID	Sn%		Cu%		Ag g/t		Pb ppm		Zn%	
	Original	Check	Original	Check	Original	Check	Original	Check	Original	Check
BGC024_39	2.88	1.79	0.04	0.04	0.5	0.0	8	6	0.06	0.06
BGC024_40	2.01	6.78	0.07	0.08	0.0	0.0	5	15	0.06	0.06
BGC024_41	3.20	3.12	0.16	0.14	1.2	0.0	12	16	0.07	0.07
BGC024_42	1.80	1.95	0.14	0.14	1.3	0.0	15	13	0.08	0.08
BGC024_43	11.00	15.45	0.14	0.17	1.4	0.0	22	26	0.07	0.07
BGC018_45	1.04	1.11	0.59	0.58	5.0	5.1	35	38	0.63	0.73
BGC018_46	38.80	29.00	0.49	0.51	4.2	4.4	32	47	0.07	0.10
BGC018_47	0.35	0.35	0.59	0.61	4.2	4.1	22	31	0.10	0.10
BGC018_48	12.50	1.39	0.45	0.61	3.7	4.8	43	45	0.22	0.13
BGC018_49	1.68	4.49	0.79	0.71	6.4	5.7	45	43	0.09	0.08
Mean	**7.53**	**6.54**	**0.35**	**0.36**	**2.8**	**2.4**	**24**	**28**	**0.14**	**0.15**

Figure 12-1
Scattergrams of Sn and Cu Check Sample Assay Results.



The check assays confirmed the presence of high grade tin, although the individual sample assays did not compare well for the high grade tin samples. Five of the samples were re-submitted with a new sample ID and re-assayed for tin (Table 12-2). The results compared reasonably well with the original check sample results. The difference between the check sample and original sample is probably a result of the nuggety nature of the high grade vein mineralization, amplified by the small check sample size (quarter NQ core). No particular bias was noted for the tin assays with the high grade check sample assays being either lower or higher than the original.

Table 12-2
Check sample assay results – re-assays

Sample ID	Sn %	
	Original	Re-assay
BGC024_39	1.79	1.79
BGC024_40	6.78	6.14
BGC024_43	15.45	13.85
BGC018_46	29.00	29.50
BGC018_48	1.39	1.44
BGC018_49	4.49	4.37
Mean	**9.82**	**9.52**

12.2 Visual verification

The tin mineralization at Bisie is clearly visible in the cores, occurring as coarse grained cassiterite veins and finer disseminations. A comparison of the Sn assays and the visible mineralization in the core was made for nine drillholes. Most of the core observations confirmed the magnitude of the assayed grades. A number of Sn grades reported were significantly higher or lower than the observations in the remaining half core. This was considered a result of the irregular nuggety nature of the high grade tin mineralization. Cores were observed from the following drillholes, which represent a range of mineralization intensities at Bisie:

- BGC006;
- BGC007;
- BGC016;
- BGC017;
- BGC018;
- BGC020;
- BGH001;
- BGH006; and
- BGH007A.

12.3 Verification of Drillhole Collars

The Project was visited during the later stages of phase 2 of the 2013 drilling program, which was aimed at Mineral Resource definition. Eleven of the drillhole collars were photographed and the locations verified against the surveyed coordinates by using a hand-held GPS.

12.4 Verification of Analytical Quality Control Data

Alphamin has carried out quality control by the addition of blank and certified reference material (CRM) samples into the sample stream. The core samples taken from the earlier drillholes (BGH002 to BGH009 and BGC001) did not have blanks inserted. Quarter core samples were sent for assay along with the primary half-core samples, the duplicate assay immediately following the primary assay. As a further check, the pulp rejects were collected from ALS and 149 of these from 13 drillholes spread over the Gecomines area were sent to SGS for check assay for Sn, Cu, Zn and Pb at the end of this phase of the exploration program.

A summary of the quantity and proportion of QAQC samples used external to the laboratory is shown in Table 12-3.

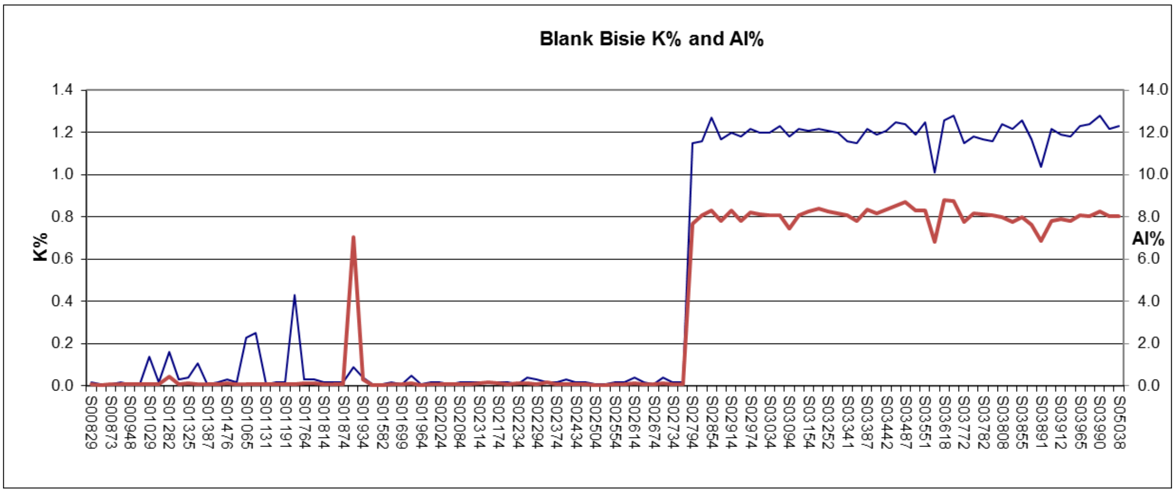
Table 12-3
Frequency of QAQC samples used.

	Core samples	Blanks		CRM's		Core duplicates		Second laboratory assays	
	Number	Number	%	Number	%	Number	%	Number	%
BGH 001	149	0	0%	26	2.6%	25	2.5%	0	0%
BGH 002-009	856	20	2.3%						
BGC 001-009	546	0	0%	92	3.6%	103	4.0%	149	5.7%
BGC 010-037	2,036	87	4.2%						

12.4.1 Blank Sample Analyses

The blank samples used at Bisie were sourced locally from quartz veins. The nature of the blank changed in the later part of the program as evidenced by the sharp increase in potassium and aluminium values (Figure 12-2).

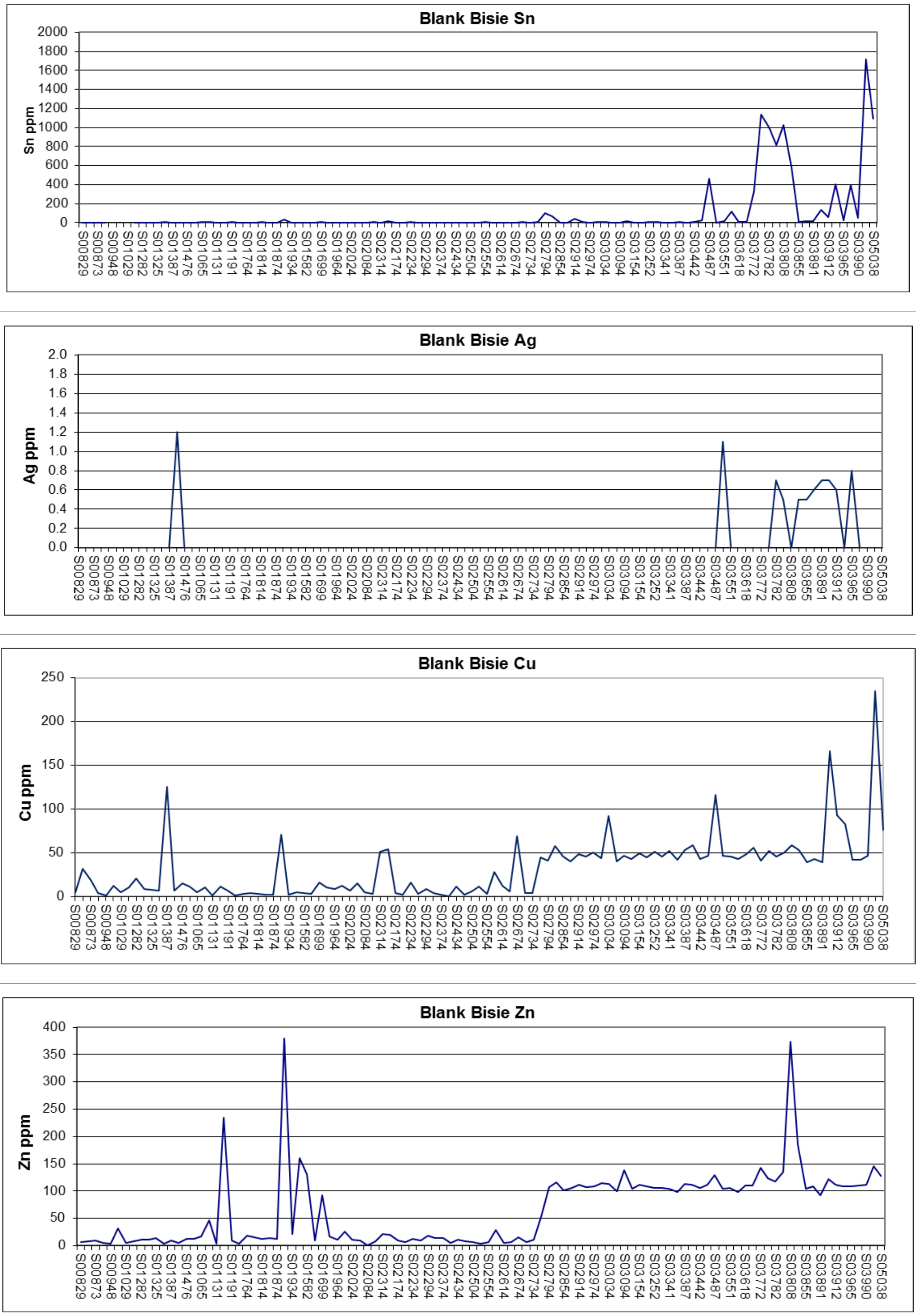
Figure 12-2
Blank sample results for potassium and aluminium.



Some contamination of tin and silver in the blank samples is evident in the later part of the drilling campaign (Figure 12-3). Given the significant amount of artisanal mining and the high grade nature of the deposit it cannot be assured that some contamination may not have occurred at source rather than at the laboratory. However, this will not significantly affect the outcome of the Mineral Resource tin grade estimate given the high grade nature of the deposit.

Figure 12-3

Blank sample results for tin (Sn), silver (Ag), zinc (Zn) and lead (Pb).



12.5 Results of the CRM Sample Analyses

Four different certified reference materials (CRM's) were used with Sn grades spanning the range of the Bisie mineralization; however, many of the CRM's inserted were not of sufficient mass to be assayed for Sn after analyses for other elements were complete and so Sn assays were not completed for all of the CRM samples submitted (Table 12-4). All of the CRM's that were used are certified for Sn, Ag, Cu, Zn and Pb, with the exception of BCS-CRM No355 that is not certified for Ag analysis.

Table 12-4
Tin grade for CRM's used at Bisie and number analysed.

CRM Name	Accepted mean Sn grade (ppm)	Standard deviation	Number used	Number of Sn assays reported
BCS-CRM No355	314,200	2,200	18	14
OREAS 140	1,755	122	33	13
OREAS 141	6,061	339	30	19
OREAS 142	10,400	500	37	29

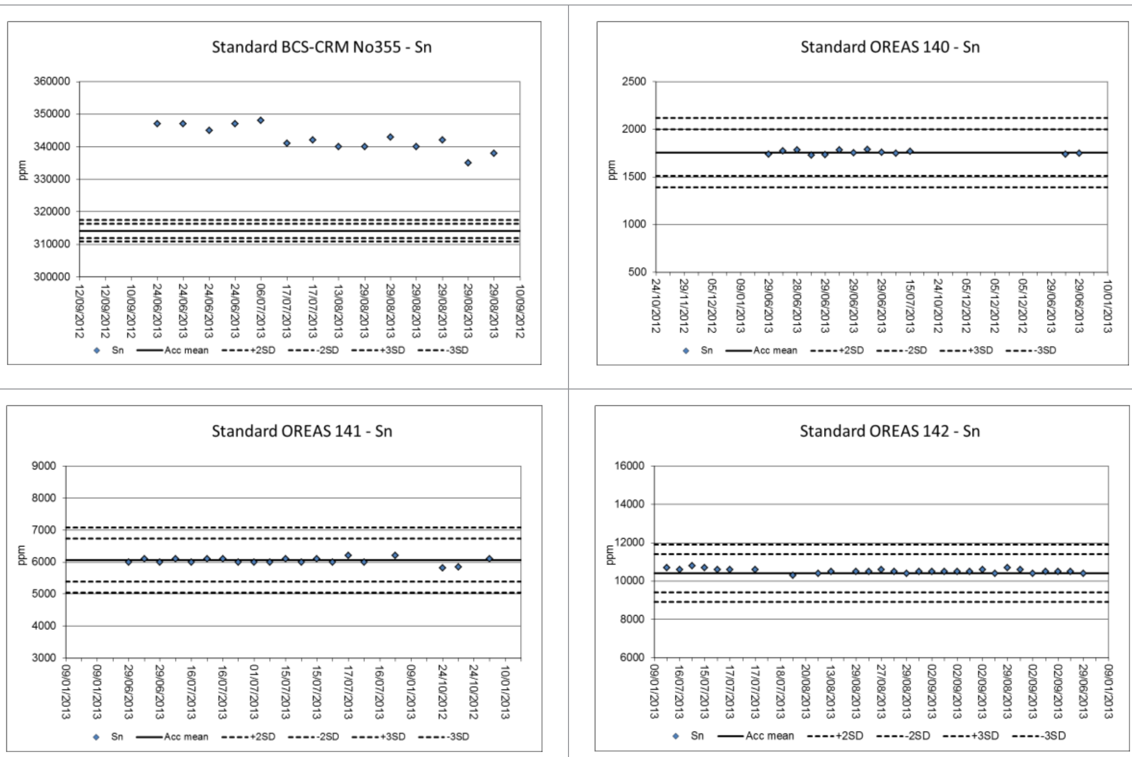
Table 12-5 shows the certified values for the elements of interest at Bisie for the CRM's used.

Table 12-5
Certified values in ppm of CRM's used at Bisie.

	Sn		Ag		Cu		Zn		Pb	
CRM Name	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
BCS-CRM No355	314200	2200	-	-	850	80	590	60	120	20
OREAS 140	1755	122	1.03	0.11	1529	82	1706	123	26.7	0.8
OREAS 141	6061	339	1.58	0.11	2453	98	3637	178	59	3.8
OREAS 142	10400	500	1.22	0.12	1466	65	2436	82	54.3	3.8

The results of the CRM assays indicate that the Sn assays for the lower grade CRMS's (0.18 %, 0.61 % and 1.04 % Sn) are accurate and unbiased with none of the assays falling outside of one standard deviation from the accepted mean. The analyses of the high grade standard (31.42 % Sn) were consistently higher than the accepted mean and well outside of the three standard deviation acceptance limit (Figure 12-4). The mean assay of BCS-CRM No355 by ALS was 34.25 % Sn, which is 9 % higher than the accepted mean of the CRM.

Figure 12-4
CRM sample results for Sn.



A summary of the results of the CRM analyses is shown in Table 12-6. A failure was deemed an assay that fell outside of three standard deviations of the accepted mean value.

Table 12-6
Summary of CRM analyses

CRM Name	Sn	Ag	Cu	Zn	Pb
BCS-CRM No355	Fail – Bias 9% High	N/A	No Failures	No Failures	
OREAS 140	No Failures	8/33 failed. Slight low bias	No Failures	No Failures	20/33 Failed – low bias
OREAS 141	No Failures	6/28 failed. Slight low bias	1/28 Failed	No Failures – Slight low bias	6/28 Failed – low bias
OREAS 142	No Failures	No Failures	1/23 Failed	3/23 Failed – Slight low bias	6/23 Failed – Low bias

Overall the Ag and Pb analyses were outside of acceptable limits, however given the low grade of these elements in the Bisie deposit, the risk to the project is insignificant, the low bias indicating slight under-estimation. The Cu and Zn assays were accurate with a slight low bias for Zn.

12.5.1 Results of the Core Duplicate Sample Analyses

The quarter core field duplicates showed differences in individual assays outside of more than 20% particularly for Sn, Cu and Zn. For Ag assays above 2 ppm and for Pb above 100 ppm differences between individual assays were generally less than 20 %. The percentage difference between the mean of the two sample sets was less than 10 % (Table 12-7). It should be noted that poor precision can be expected with small samples (quarter core) taken from the nuggety irregular vein style Sn mineralization at Bisie, as also confirmed by the poor precision found with the quarter core check sample assay results.

Table 12-7
Mean values and standard deviation in ppm of original versus field duplicates at Bisie.

	Sn		Ag		Cu		Zn		Pb	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Original	17,069	66,806	2	9	1,410	3,650	1,166	3,026	178	1,238
Field Duplicate	18,248	69,341	2	10	1,456	3,840	1,076	2,914	184	1,316
% Mean Difference	7	4	5	9	3	5	8	4	3	6

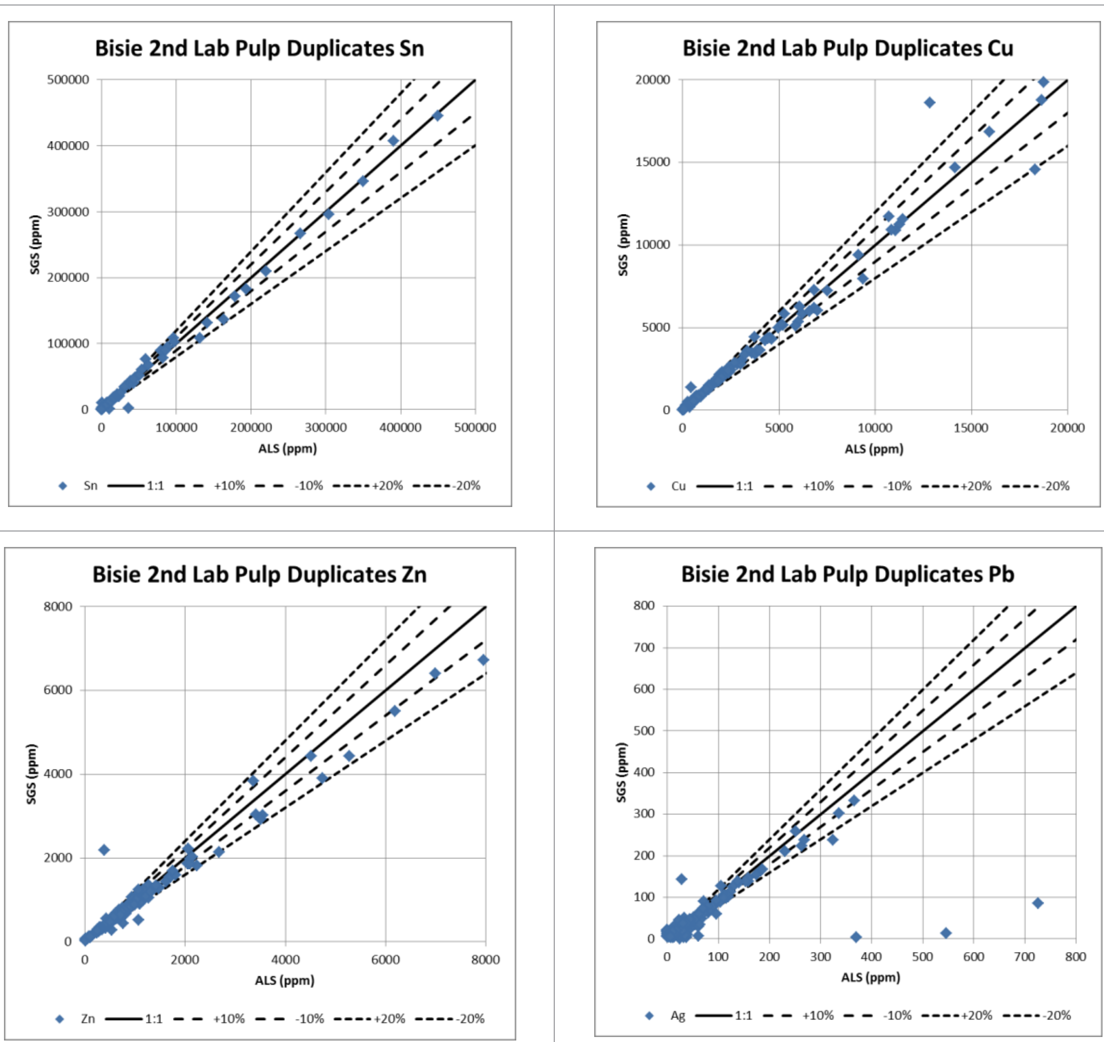
12.5.2 Results of the Second Laboratory Check Analyses

The SGS Sn assays compared well with the ALS assays although they tended to be more variable, as evidenced by the slightly higher standard deviation (Table 12-8; Figure 12-5). It is important to note that the bias noted with the high grade CRM assays was not repeated between SGS and ALS there being no significant bias between SGS and ALS for the high grade assays. The Cu assays compared well between the two laboratories. For both Zn and Pb, SGS reported lower grades than ALS.

Table 12-8
Mean Values and Standard Deviation in ppm of ALS versus SGS Pulp duplicates at Bisie.

	Sn		Ag		Cu		Zn		Pb	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
ALS	42,812	99,360	-	-	2,874	3,937	1,381	3,248	66	99
SGS	42,977	104,871	-	-	2,796	3,930	1,269	3,221	52	61
% Mean Difference	0	5	-	-	3	0	8	1	25	47

Figure 12-5
Scatterplots for ALS versus SGS pulp duplicate assays.



12.5.3 Summary of the Data Verification

Overall the Sn assay data appear to be of good quality, however the higher than specification assays by approximately 9 % of the high grade CRM cannot be explained, particularly as the SGS assays confirmed those completed by ALS. The field duplicate data indicate that the Sn mineralization is nuggety, which is expected in the high grade vein style environment at Bisie.

The Ag assays completed on the Bisie samples are of poor accuracy, being biased lower than the CRM's accepted mean values, however given the low grade of Ag in the Bisie deposit, the risk to the project is low.

The Cu assays are considered to be of good quality as shown by the low failure rate for the CRM's and the good repeatability of the ALS assays by SGS.

The Zn assays are accurate with a slight low bias for Zn indicated by the CRM analysis. The SGS Zn assays were lower than those of ALS.

Overall the Pb analyses were outside of acceptable limits both for the CRM assays and the second laboratory pulp duplicate assays, however given the low grade of Pb in the Bisie deposit the risk to the project is low. The low bias for the CRM's indicates a slight under-assay by ALS but the duplicate assays performed by SGS were lower than those of ALS, indicating that the SGS assays were biased lower still than the accepted CRM values.

The quality of the assays is reasonable with the exception of the Pb and Ag assays which should be considered to be of low confidence

13 MINERAL PROCESSING AND METALLURGICAL TESTING

13.1 Mineralogy and Deportment

A sample weighing approximately 65 kg, made up of quartered core sourced from three drill holes at Gecomines was sent to SGS laboratories in Johannesburg in South Africa for a deportment study and metallurgical testwork in order to assess mineralogy and likely recovery rates for a processing facility.

The sample was split and sent for mineralogical characterization as follows:

- Thin section
- XRF/XRD on head sample for major element and major mineral analyses
- Polished section for Bulk Modal Analysis (BMA)
- Screening at different size fractions for deportment, liberation and association analyses by QEMSCAN SMS (Specific Mineral Search) analysis.

Head geochemical analyses indicated that the Sn grade was 2.49 % Sn, with approximately 0.2 % Cu and 0.5 % S present. Grading analysis indicated the tin deported generally evenly by size fraction, with a slight upgrading into the coarser size fractions, however insufficient upgrade was achieved for any potential opportunity for processing

Mineralogical analysis, conducted at a crush size of 100 % passing 1,700 µm, indicated that the sample was comprised primarily of silicates in the form of chlorite (>50 %), with mica/K-feldspar (20-50 %) and quartz (10-20 %) being the other significant gangue minerals present. This analysis was validated and confirmed by the bulk modal analysis, resulting in the following overall composition of the sample (Table 13-1).

The cassiterite was identified as the only Sn-hosting phase, and was coarse-grained, with most of the grains reporting to size fractions between 100 µm and 800 µm and ranging in grain size from <5 µm to 700-800 µm. The cassiterite occurred as liberated grains, partially liberated grains and as locked grains, with the best liberation in the -106+53 µm fraction and worst liberation in the coarsest fraction tested (-1700+212 µm) as would be expected.

Table 13-1 Mineralogical composition of the Bisie sample		
Mineral	**Approximate Chemical Formula**	**% Abundance**
Chalcopyrite	$CuFeS_2$	0.43
Pyrite	FeS_2	0.51
	Total Sulphides	**0.94**
Mica / K-feldspar	$KAl_2(Si_3Al)O_{10}(OH,F)_2/KAlSi_3O_8$	22.10
Quartz	SiO_2	10.15
Zircon	$ZrSiO_4$	1.15
Chlorite	$(Mg,Fe)_6(Si,Al)_4O_{10}(OH)_8$	58.79
	Total Silicates	**92.19**
Fe Oxide/Hydroxide	Fe_2O_3-FeOOH	0.92
Rutile	TiO_2	0.57
Ilmenite	$FeTiO_3$	2.24
Cassiterite	SnO_2	2.90
	Total Oxides	**6.63**
Other		0.26
	TOTALS	**100.02**

13.2 Mineral Processing and Metallurgical Testing

The same 65 kg core sample was used for the laboratory metallurgical testwork which was performed at SGS Laboratories and at Maelgwyn Minerals (flotation amenability testing).

The mineralogical studies confirmed that the dominant tin mineral is cassiterite which is typically recovered by a combination of gravity concentration and flotation to produce a smeltable tin concentrate.

It should be noted that the metallurgical testwork was performed at laboratory scale and on samples which are not necessarily representative of the bulk mineralization of the Gecomines deposit. As such, the likely recoveries and grades are only indicative of possible plant performance. These results will need to be confirmed by representative metallurgical sampling and pilot scale testing before definitive numbers are available.

Liberation is partially achieved by crushing and subsequent gravity concentration in the coarser size fractions, due to the coarse nature of the cassiterite mineralization. This process has been estimated to result in approximately 50 % yield of contained tin value to concentrate . Rod milling and flotation of the run of mine fines and gravity tails indicated a likely overall yield of 85 % of contained tin to concentrate.

The conceptual process design has been phased to reduce initial capital outlay with the three phases as follows:

- Phase 1: 500 ktpa, crushing, and jigging.

- Phase 2: 1 Mtpa, crushing and jigging, with milling and flotation of the -1mm fraction.
- Phase 3: 1 Mtpa as per phase 2 with milling and flotation of the jig tails.

Copper is present as chalcopyrite in the samples at approximately 0.25 % Cu and needs to be removed from the final concentrate by a separate flotation process to avoid smelter penalties in the final concentrate. The copper resulted in less than 3 % contribution to revenue based on the sample sent.

Both sulphide and magnetic mineral removal from the concentrate have been included in the conceptual process design and no smelter penalties are expected at this stage.

14 MINERAL RESOURCE ESTIMATES

On behalf of Alphamin, MSA has completed a Mineral Resource estimate for the Gecomines prospect of the Bisie Project.

To the best of the QP's knowledge there are currently no title, legal, taxation, marketing, permitting, socio-economic or other relevant issues that may materially affect the Mineral Resources described in this Technical Report aside from those already mentioned in Section 4 of this report.

The Mineral Resources presented herein represent the first Mineral Resource estimate completed at Bisie. The Mineral Resource estimate incorporates drilling data collected by Alphamin in 2013, which in the QP's opinion were collected in accordance with The Canadian Institute of Mining, Metallurgy and Petroleum (CIM) "Exploration Best Practices Guidelines".

The Mineral Resource was estimated using CIM "Best Practice Guidelines for Estimation of Mineral Resources and Mineral Reserves" and classified in accordance with the "2010 CIM Definition Standards". Mineral Resources within the Project are reported in accordance with the Canadian Securities Administrators National Instrument 43-101 Best Practices guidelines. It should be noted that Mineral Resources are not Mineral Reserves and do not have demonstrated economic viability.

The Mineral Resource estimate was conducted using CAE Studio 3 software, together with Microsoft Excel and Snowden Supervisor for data analysis. The Mineral Resource estimation was completed by Mr Jeremy Witley.

14.1 Mineral Resource Estimation Database

The database used for the Mineral Resource estimate consists of:

- information from diamond drillholes;
- collar surveys;
- down-the-hole-surveys;
- sampling and assay data;
- Specific Gravity measurements;
- geology logs; and
- a digital terrain model based on a number of survey traverses.

The principal sources of information used for the estimate include raw data generated during the course of the exploration drilling program completed by Alphamin between July 2012 and July 2013. The Mineral Resource estimate was based on Sn, Cu, Pb, Zn and Ag assays and density measurements obtained from the cores of 37 diamond drillholes that were angled downwards at between 60° and 75° to the west that were planned to intersect the mineralized zones at a spacing of between 50 m and 100 m on the plane of mineralization.

14.2 Exploratory Analysis of the Raw Data

The dataset examined consisted of sample and logging data from diamond drillholes (DD). The following attributes are of direct relevance to the estimate:

- Sn, Ag, Cu, Zn, Pb, S and As assays in parts per million. The Sn, Cu, Zn, Pb and S data were converted into per cent for the Mineral Resource estimation;
- Relative Density (SG); and
- Lithological Codes.

The high grade mineralization occurs within a zone of intense chloritisation termed amphibolite by the Alphamin geologists. Towards the north of the deposit, the mineralization appears to separate into two mineralized zones, an upper and lower vein system, separated by a barren middling. This may be related to sub-parallel thrust faults that appear to obliquely strike through the mineralized zone. A threshold of 0.25% Sn was used to define the extents of the mineralized zone.

Visual inspection of the data showed that the well mineralized intersections occur within drillholes drilled along east-west fence lines spaced approximately 50 m apart over a strike length of approximately 330 m. Two holes, BGC008 and BGC009, were drilled 150 m and 280 m to the north respectively, which both intersected the prospective chlorite schist zone but were not significantly mineralized. The best intersection in BGC008 was 0.76% Sn over 0.4 m and in BGC009 0.09 % Sn over 1 m. Forty metres to the south the mineralization is constrained by a barren drillhole (BGC003; <0.01 % Sn), however approximately 150 m to the south BGC033 intersected mineralization of up to 3.52 % Sn. This intersection is offset approximately 50 m to the west of the north-south trend of the Gecomines deposit and could not be included in the Mineral Resource model to a reasonable level of confidence; however it does highlight the potential to increase the strike length of the deposit. Examination of the drillhole data in section shows that some of the highest Sn grade intersections occur in the lowermost drillhole on several of the fence lines. The deposit is open at depth and significant potential exists to expand the mineralization down dip.

Several of the drillholes, BGC013, 014, 015, 016 and 032 are affected by artisanal mining activity as evidenced by cavities and cored wooden mine supports. Each one of the affected holes is the uppermost hole in the respective fence line along which it was drilled. The data from these holes were used to inform the mineralization model extents, but were not used for grade estimation as it was assumed that much of the high grade Sn mineralization would have been removed by the artisanal miners and that the remaining mineralization is not representative of the in-situ mineralization.

A summary of the drillhole data that were used for Mineral Resource estimation is provided in Appendix 3.

A total of 2,056 samples were assayed for Sn, Ag, Cu, Zn and Pb and a total of 3,970 density determinations were taken from the 28 representative drillholes that intersected in the area identified as containing the Mineral Resource.

14.2.1 Validation of the data

The validation process consisted of:

- examining the sample assay, collar survey, down-hole survey and geology data to ensure that the data were complete for all of the drillholes;
- examining the de-surveyed data in three dimensions to check for spatial errors;
- examination of the assay and density data in order to ascertain whether they were within expected ranges; and
- checks for "From-To" errors, to ensure that the sample data did not overlap one another or that there were no unexplained gaps between samples.

The data validation exercise revealed the following:

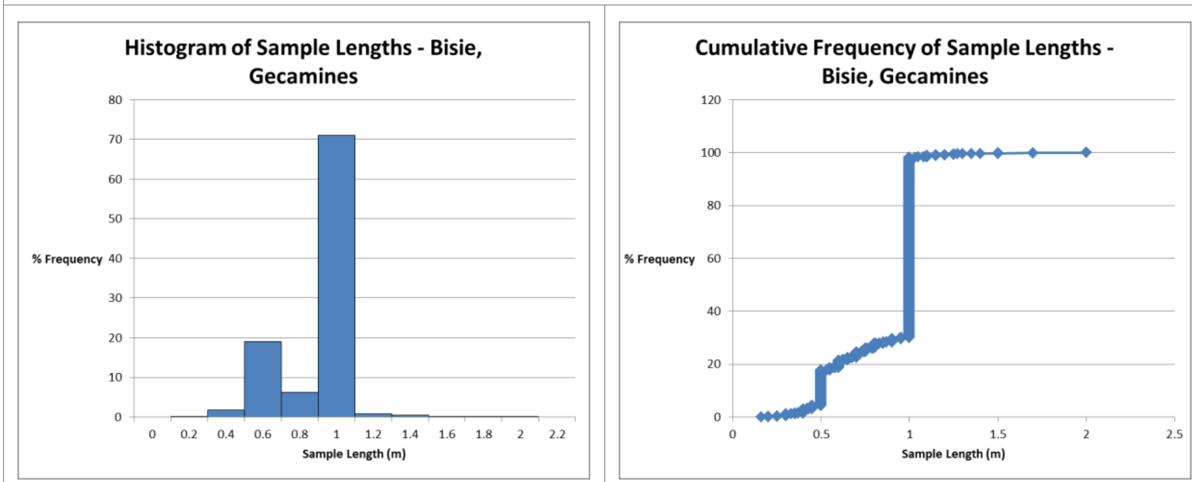
- down-hole surveys for 9 holes did not commence at the collar position (AT = 0). No corrections were required, the first survey value being assigned to the collar;
- examination of the drillhole data in three dimensions showed that the collars of the drillholes plotted in their expected positions;
- several of the relative density data are not within expected ranges for the rock types and mineralization at Bisie. The value of any sample with a relative density of less than 1.50 and greater than 7.0 (the maximum theoretical value of cassiterite) was removed from the density dataset. In total, 6 out of 3,970 values were removed from the dataset;
- extreme assays were checked. The highest Ag assay in the Bisie dataset is 775 g/t followed by 85.6 g/t and then and the next highest value is 28.7 g/t. The 775 g/t value was removed from the database; and
- there were no gaps or overlaps in the drillhole data.

14.2.2 Statistics of the Sample Data

A histogram and cumulative frequency plot of the sample lengths are presented in Figure 14-1. 98.2 % of the sample lengths are 1.0 m or less. No relationship between sample length and Sn grade was apparent.

Figure 14-1

Histogram and cumulative frequency plot of the sample length data.



14.2.3 Statistics of the Assay Data

14.2.3.1 Univariate Analysis

A summary of the sample assay and SG data statistics is shown in Table 14-1.

Table 14-1

Summary of the raw validated sample data in the vein zones at Bisie.

Variable	Number of Assays	Mean Value	Minimum Value	Maximum Value
Sn%	1,550	3.30	0.0009	60.00
Ag g/t	1,549	2.61	0.25	28.7
Cu%	1,550	0.30	0.0001	5.22
Zn%	1,550	0.14	0.0007	3.74
Pb%	1,550	0.009	0.0001	1.40
S%	1,550	1.19	0.001	10.00*
As ppm	1,550	651	2.5	10,000*
Density t/m^3	979	3.21	2.05	2.98

**Note that the maximum S value assayed was 10 % and As 10,000 ppm and no over-limit assays were performed on S or As*

The maximum assay value reported for S was 10 % and for As 10,000 ppm. This is the maximum reported value for these elements for the assay methods that were used. Over-limit assays were not performed on these samples. In the vein zones there were 46 As values and 10 S values that were reported on the upper assay limit and therefore a slight underestimation of these elements will occur.

Several of the density data were missing. The missing data were substituted with data based on the tin grade using a regression of 0.0363 (Sn %)+3.0717. For the un-mineralized zones, a constant value for each lithology was applied as shown in Table 14-2.

Table 14-2
Default density value applied for missing values for each rock type in the waste zones at Bisie.

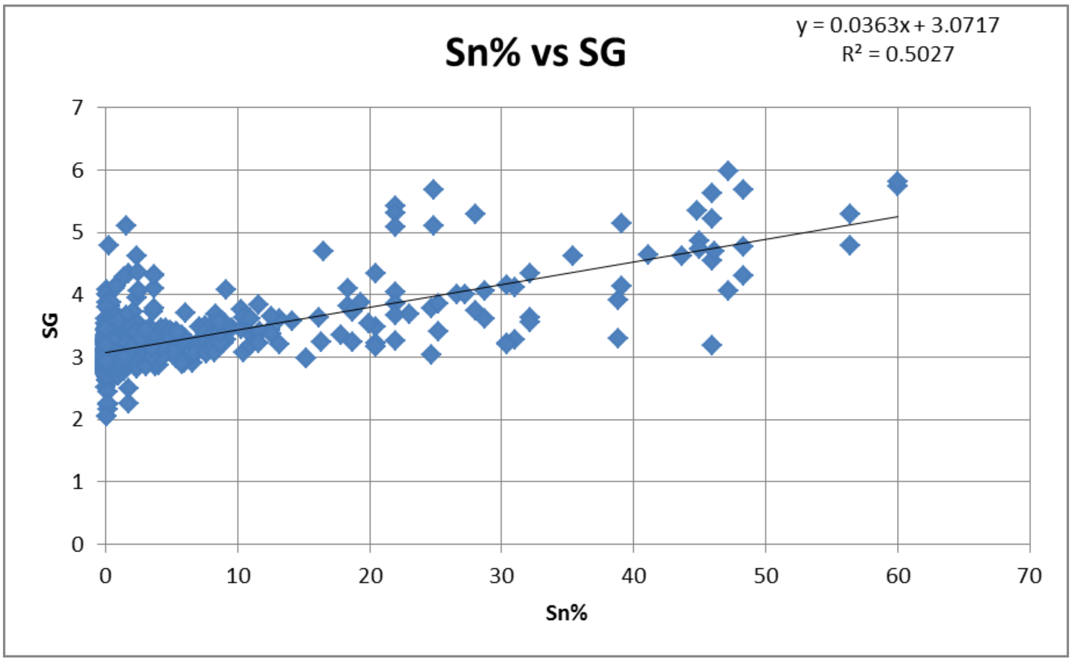
Rock Type	Density
Chlorite Schist (AMPH)	3.08
Chlorite mica schist (ASCH)	2.92
Core loss (CL)	2.86
Mica Schist (MSCH)	2.82
Quartz Vein	2.67
Shear Zone	2.85

14.2.3.2 Bivariate Analysis

Scatterplots were made that compare the grades of each variable with one another in order to understand any relationships that may exist in the data that should be preserved in the Mineral Resource estimate. A linear relationship between Sn % and SG was observed whereby the grade of Sn increased with density (Figure 14-2). As a result the estimation proceeded using the product of each grade and density. Very weak relationships were observed between Cu and Zn and Cu and S.

Figure 14-2

Scatterplot of Sn% versus SG in the Mineralized zone at Gecomines.



14.2.4 Summary of the Exploratory Analysis of the Raw Dataset

- The database is robust. A few minor errors were identified that were corrected by the Alphamin database manager.
- Sample lengths are less than 2 m. Most sample lengths are 1 m.
- The host rock to the mineralization is chlorite schist.
- Parts of the uppermost portion of the deposit have been removed by artisanal miners and several of the shallow drillholes are unrepresentative having drilled through the workings.
- There is a linear relationship between Sn grade and density.
- The Gecomines mineralized zone is constrained by drilling to the south and north although potential exists along strike. The deposit is open at depth with the highest grade Sn mineralization being drilled in the lowermost drillholes.

14.3 Geological Modelling

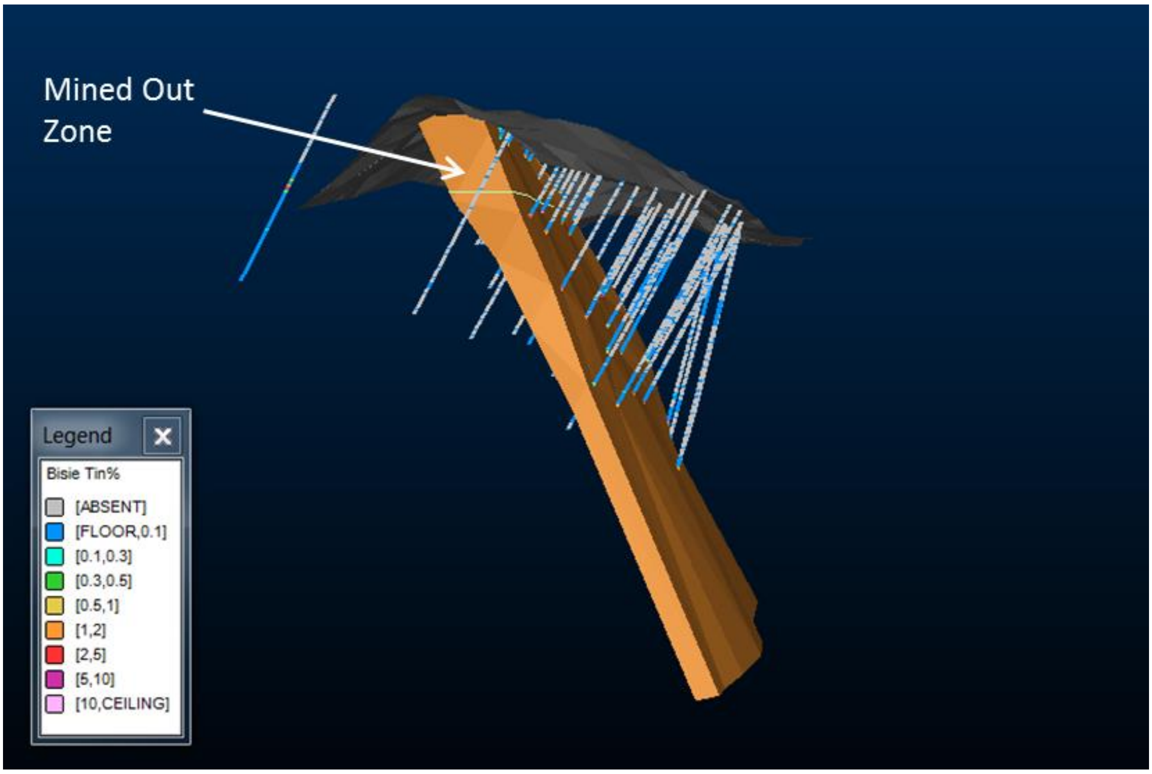
A grade shell for the mineralized zone was created using a 0.25 % Sn threshold and a minimum true width of 2 m was applied. Where the intersection true thickness was found to be less than 2 m, the intersection was diluted by equal lengths of sample either side so that a minimum intersection true thickness of 2 m was achieved. Points were created for the hangingwall and footwall positions of each grade zone and these were linked together in a series of strings that were used to create the grade shell wireframe.

A single grade shell was created. In the northern area of the Gecomines deposit, the mineralization appears to split into an upper and lower vein system separated by a barren middling. This may be related to sub-parallel thrust faults that appear to obliquely strike through the mineralized zone. A narrow barren middling could be modelled through to the south of the deposit however this thinned to less than 2 m in places and was not considered robust enough to separate out in the model.

A "mined out zone" was created that enclosed the drillholes that had been identified to have intersected artisanal workings. A half distance rule was applied between the affected drillhole and the next drillhole down dip. It should be noted that although artisanal mining has taken place, the Sn mineralization was not completely removed and potential for remaining Sn mineralization exists within the "mined out zone".

An isometric view of the mineralized zone is shown in Figure 14-3.

Figure 14-3
Isometric view of the mineralized wireframe and drillhole traces – View is approximately northwards.



Note: the mined out zone is the area above the horizontal green line.

14.4 Statistical Analysis of the Composite Data

The sample data were selected from with the 0.25 % Sn grade shell. The samples were then composited to lengths of approximately 2 m, so that the composite lengths were as near to 2 m as possible without discarding any of the sample length, and the Sn, Cu, Pb and Zn grade data were multiplied by density. The composite data were de-clustered using cells of the same dimensions as the estimation block model (40 m in the dip and strike direction and 4 m across strike). A summary of the de-clustered statistics is shown in Table 14-3 and the histograms and log probability plots are shown in Appendix 4.

The coefficients of variation (CV's) are moderate to high and strongly positively skewed, with the exception of density that has low CV and is slightly positively skewed.

Table 14-3
Summary statistics (de-clustered) of the estimation data.

Attribute	Number of Composites	Minimum	Maximum	Mean	50th Percentile	CV	Skewness
				Grades			
Sn %	251	0.00	31.45	2.63	0.71	1.86	3.3
Ag g/t	251	0.25	23.57	2.25	0.87	1.57	3.4
Cu %	251	0.00	2.89	0.28	0.09	1.66	3.0
Zn %	251	0.00	1.22	0.12	0.07	1.25	3.5
Pb %	251	0.00	0.33	0.01	0.01	2.68	12.5
S %	251	0.02	7.86	1.12	0.74	1.14	2.7
As ppm	251	2.5	10000	454	43	3.23	4.3
Density t/m^3	251	2.76	4.07	3.12	3.06	0.07	1.8
				Grade times density			
Sn %.t/m3	251	0.02	126.08	9.02	2.16	2.02	3.7
Cu %.t/m^3	251	0.00	9.71	0.89	0.29	1.69	3.1
Zn %.t/m^3	251	0.00	4.71	0.39	0.22	1.34	4.0
Pb %.t/m^3	251	0.00	1.29	0.03	0.02	3.06	13.8

14.5 Cutting and Capping

The log probability plots and histograms of the composite data were examined for outlier values that have a low probability of re-occurrence. These values were capped to a threshold as shown in Table 14-4. Decisions on the capping threshold were guided by breaks in the cumulative log probability plots and the location of the high grade samples with respect to other high grade samples. The capping reduced the CV's to less than 1.9.

Table 14-4
Impact of capping the estimation data.

	Before capping				After Capping		
Attribute	**Number of Composites**	**Mean (g/t)**	**CV**	**Cap Value**	**Number of Composites Capped**	**Mean (g/t)**	**CV**
				Grades			
Sn %	251	2.63	1.86	18	10	2.45	1.68
Ag g/t	251	2.25	1.57	13	4	2.12	1.37
Cu %	251	0.28	1.66	1.5	7	0.26	1.47
Zn %	251	0.12	1.25	0.65	3	0.12	1.09
Pb %	251	0.008	2.68	0.045	3	0.007	1.11
S %	251	1.12	1.14	-	0	1.12	1.14
As ppm	251	454	3.23	-	0	454	3.23
Density t/m^3	251	3.12	0.07	-	0	3.12	0.07
				Grade times density			
Sn %.t/m3	251	9.02	2.02	100	4	7.99	1.87
Cu $\%.t/m^3$	251	0.89	1.69	5.2	6	0.74	1.45
Zn $\%.t/m^3$	251	0.39	1.34	2.1	4	0.35	1.02
Pb $\%.t/m^3$	251	0.03	3.06	0.07	9	0.02	0.74

14.6 Geostatistical Analysis

The 2 m composite data were examined using semi-variograms that were calculated and modelled using Snowden Supervisor software. All attributes except density were transformed to normal scores distributions and then the spherical semi-variogram models were back-transformed to normal statistical space for use in the grade interpolation process.

Semi-variograms were calculated on the 2 m composite data and modelled within the plane of mineralization, with no plunge and across the plane, the major direction being within the plane of mineralization and the minor direction being across strike. The semi-variograms indicated that a steep plunge to the north may occur, however there were insufficient data to model the plunge. Normalised semi-variograms were calculated so that the sum of the variance (total sill value) is equal to one.

Semi-variograms were modelled with either one or two spherical structures. The nugget effect was estimated by extrapolation of the first two experimental semi-variogram points (calculated at the same lag as the composite length) to the Y axis.

The semi-variogram model parameters are shown in Table 14-5 and the semi-variograms are presented in Appendix 5.

The reliability of the semi-variograms both in the plane of the mineralization and across strike for each of the variables is generally moderate to good.

Table 14-5
Semi-Variogram Parameters – Bisie, Gecomines.

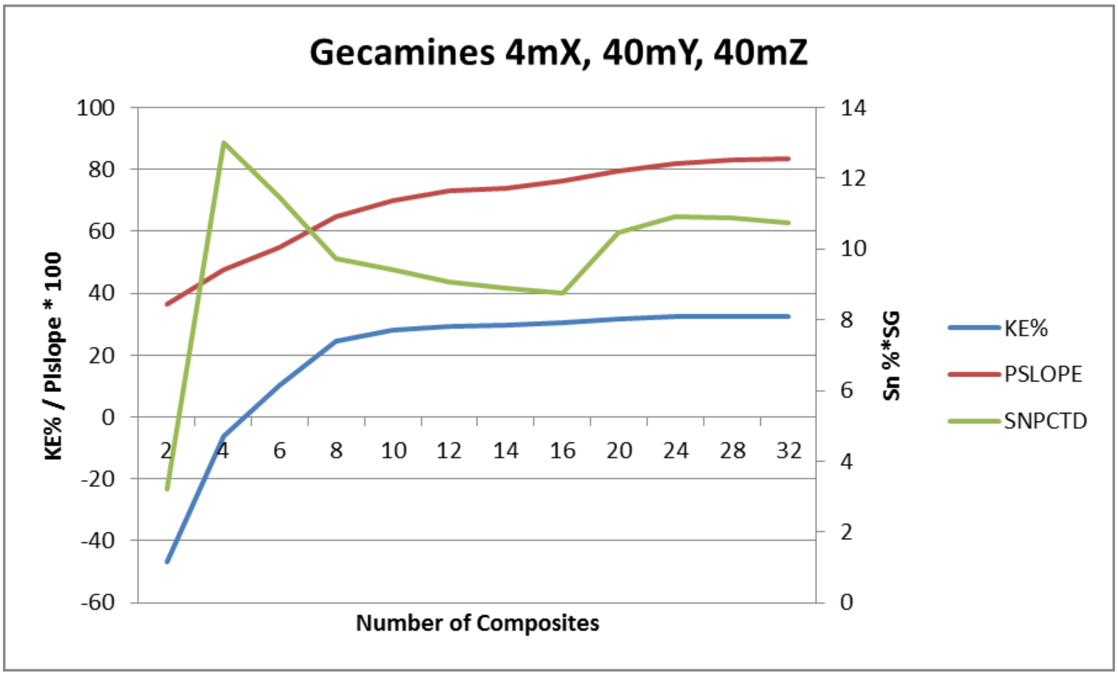
Attribute	Transform	Rotation Angle			Rotation Axis			Nugget Effect (C0)	Range of First Structure (R1)			Sill 1 (C1)	Range of Second Structure (R2)			Sill 2 (C2)
		1	2	3	1	2	3		1	2	3		1	2	3	
Grades																
Sn%	NS	85	63	0	3	1	3	0.23	50	50	16	0.32	175	175	16	0.45
Ag g/t	NS	85	63	0	3	1	3	0.15	75	75	33	0.37	180	180	33	0.48
Cu%	NS	85	63	0	3	1	3	0.09	150	150	22	0.91	-	-	-	-
Zn%	NS	85	63	0	3	1	3	0.21	40	40	14	0.43	200	200	24	0.36
Pb%	NS	85	63	0	3	1	3	0.48	50	50	20	0.44	200	200	20	0.08
S%	NS	85	63	0	3	1	3	0.19	50	50	7	0.29	180	180	30	0.52
As ppm	NS	85	63	0	3	1	3	0.24	70	70	7	0.51	120	120	30	0.25
Density	-	85	63	0	3	1	3	0.12	70	70	8	0.23	200	200	45	0.65
Grade times Density																
Sn%.t/m3	NS	85	63	0	3	1	3	0.39	120	120	5	0.26	120	120	12	0.35
Cu%.t/m^3	NS	85	63	0	3	1	3	0.08	150	150	20	0.92	-	-	-	-
Zn%.t/m^3	NS	85	63	0	3	1	3	0.15	37	37	14	0.49	200	200	24	0.36
Pb%.t/m^3	NS	85	63	0	3	1	3	0.23	61	61	14	0.53	190	190	20	0.24

14.6.1 Kriging Neighbourhood Analysis

A Kriging Neighbourhood Analysis (KNA) was performed on the Sn%.t/m3 data in order to assess the most appropriate block size, optimal number of composites for high confidence estimation and the required discretisation level. A single block model cell was created at a number of positions and the cell was expanded in various amounts in a number of directions until the best combination of the highest Kriging Efficiency (KE%) and highest Slope of Regression (PSlope) were obtained. Once the most suitable block size was chosen, the number of composites was increased while measuring KE%, PSlope, grade and the number of negative weights. These were plotted graphically and the minimum and maximum number of composites required for an estimate was obtained, while ensuring that an estimate was not attained with significant amounts of negative weights. The discretisation level was varied using the optimal block size and numbers of composites until enough discretisation points were used so that KE% and PSlope did not vary considerably with an increase in the number of discretisation points.

The KNA resulted in a choice of block size of 40 m along strike, 40 m vertical and 4 m across strike. The minimum number of composites required for a high confidence estimate was 8 and the maximum number 16, there being no significant improvement in the Kriging Efficiency or Slope of Regression with additional samples (Figure 14-4).

Figure 14-4
Example of number of sample selection.



14.7 Block Modelling

Block models were rotated in the dip direction in order to best fit the orientation of the mineralized zones. The block model prototype parameters are shown in Table 14-6. The cells were split to a minimum sub-cell of 0.25 mX by 1 mY by 1 mZ in order to well represent the wireframe model boundaries.

Table 14-6
Block model prototype parameters for Bisie, Gecomines.

Block Size (m)			Model origin			Rotation Angle			Rotation Axis			Number of cells		
X	Y	Z	X	Y	Z	1	2	3	1	2	3	X	Y	Z
4	40	40	582750	9885650	300	0	28	0	3	2	3	152	52	52

Block models were created by filling below the topographic surface and above and below the "mined-out" area surface using the same model prototypes as shown in Table 14-6. The topographic model and "mined-out" models were added to the mineralization models, so that the block model cells were coded as either mined or un-mined, and the model cells above the topographic surface were removed.

The dynamic anisotropy process in CAE Studio 3 software was used to control the estimate so that the search parameter directions were modified to follow the shape of the mineralized zones. This was achieved by estimating a dip and direction into each block model cell based on the dip and direction of the wireframes. The search parameters used to estimate the dynamic angles into the block model are shown in Table 14-7.

Table 14-7
Dynamic anisotropy search parameters for Bisie, Gecomines.

Search Distance (m)			Search Angle			Search Axis			Number of samples		Search Multiplier 1	Search Multiplier 2
1	2	3	1	2	3	1	2	3	Min	Max		
60	60	10	85	65	0	3	1	3	3	5	3	-

14.8 Estimation

Attributes were estimated into the mineralized zones using the capped 2 m composite drillhole sample data. Ordinary Kriging was used to estimate the attributes into the block model cells using parent cell estimation.

The search distance and the rotation angles that defined the search ellipses were set at the variogram range for Sn%.t/m^3. If an estimate was not achieved within the search ellipse volume, the search ellipse was expanded by 50 %. Should an estimate still not be achieved, an unrestricted distance search ellipse was used that collected a minimum of 24 and a maximum number of 48 composites. The intention of this search was to estimate grades close to the local average when away from the drillhole data so that the high grade holes at the down-dip extent of the drilling grid did not over-influence the extrapolated area. Discretisation was set at 5 strike by 5 dip by 3 in the across strike direction of the blocks. Dynamic anisotropy was used to guide the search in the local direction of the mineralized zones. The first and second searches were restricted to a maximum of 4 composites from a single hole in order to ensure that the estimation was not based on a single hole in the poorer drilled areas. The search parameters are shown in Table 14-8

Table 14-8
Search parameters for Bisie, Gecomines.

Search Distance (m)			Search Angle			Rotation Axis			First Search Volume		Factor	Search Multiplier 2	
1	2	3	1	2	3	1	2	3	Min Num.	Max Num.		Min Num.	Max Num.
Primary Search													
120	120	12	85	63	0	3	1	3	8	16	1.5	8	16
Secondary Local Average Search													
4000	4000	800	85	63	0	3	1	3	24	48			

The estimates of grade times by density were divided by the density grade for each block in order to obtain the estimated grade for Sn, Cu, Zn and Pb.

14.9 Validation of the Estimates

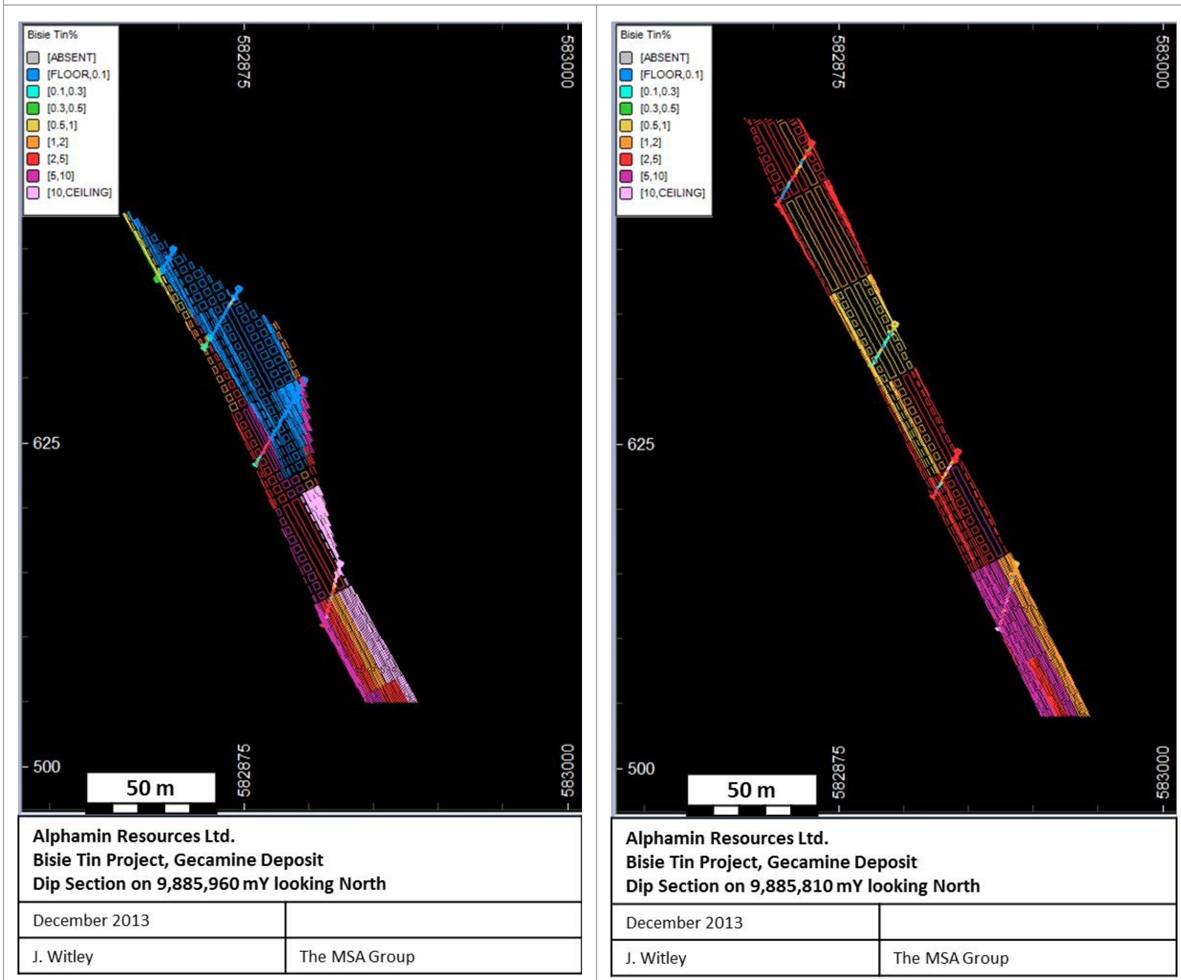
The models were validated by:

- Visual examination of the input data against the block model estimates;
- Sectional validation; and
- Comparison of the input data statistics against the model statistics.

The block model was examined visually in sections to ensure that the drillhole grades were locally well represented by the model. The model validated visually well against the data. Examples of sections showing the block model and drillholes shaded by Sn% are shown in Figure 14-5. Note that the section on 9,885,960 mY illustrates the waste parting separating the Upper and Lower vein systems towards the northern end of the Gecomines deposit.

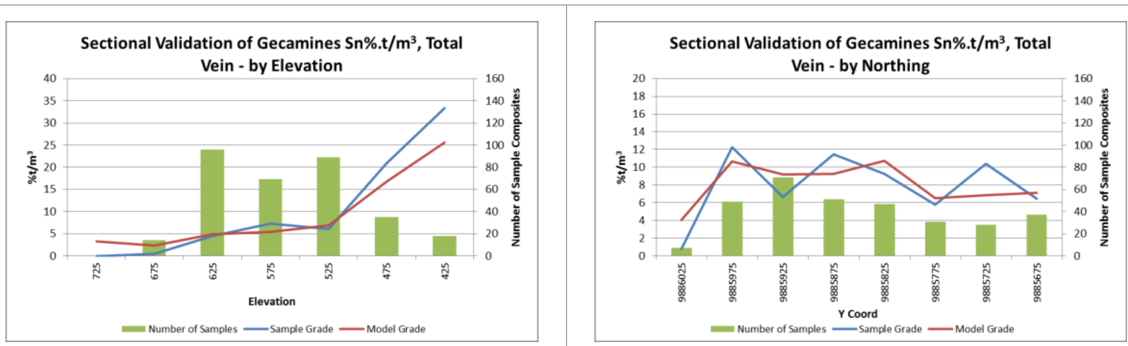
Figure 14-5

Sections through block model and drillhole data illustrating correlation between model and data (note sections are 150 m apart).



Sectional validation plots were constructed for in order to compare the average grades of the block model against the input data along a number of corridors in various directions through the deposit. Samples of the sectional validation plots are shown in Figure 14-6. These show that the estimates are smoother than the data yet retain the broad grade trends across the deposit.

Figure 14-6
Sectional validation plots for Sn%.t/m³.



As a further check, the length-density weighted grades of the drillholes were compared with the model grade (Table 14-9). Most attributes compare well with the input data with the exception of Sn. This is partly the result of the high grade intersections on the down-dip edge of drillhole grid having an inordinate high weighting by being extrapolated away from the data.

Table 14-9
Comparison between drillhole and model data values.

Attribute	Weighted Mean Data	Mean Model
Sn%	3.07	3.51
Ag g/t	2.35	2.16
Cu%	0.29	0.27
Zn%	0.13	0.12
Pb%	0.01	0.01
S%	1.14	1.11
As ppm	527	413
Density	3.11	3.13

14.10 Mineral Resource Classification

Classification of the Gecomines Mineral Resource was based on confidence in the data, confidence in the geological model and the continuity of grade. The main considerations in the classification of the Gecomines Mineral resource were as follows:

- All of the data that informs the Mineral Resource has been collected by Alphamin. These data have been collected using acceptable principals; however there are unresolved discrepancies with the high grade Sn CRM data.
- The geological framework of the Mineral Resource appears to be a steeply dipping thick slab of chlorite schist containing a number of cassiterite veins and zones and disseminated cassiterite. The drillhole grid is approximately 50 m in dip by 50 m in strike that is sufficient to delineate the general shape, although some portions of the deposit are less well drilled. There is evidence of faulting at a close angle to the chlorite schist that requires further

investigation. Furthermore, the interpretation of individual vein systems has not been carried out and the mineralization model is not well understood.

- Although the broad continuity of the mineralized zone appears to be reasonable, continuity of the individual high grade zones is yet to be confirmed. Much of the tin is contained in a number of extremely high grade narrow cassiterite veins that are yet to be correlated.
- The deposit is open at depth and the highest grade intersections are in the down-dip extremities of the drilling grid. Mineral Resources extrapolated away from these drillholes are of high risk.
- The grade model is necessarily smoothed in the absence of sufficient drillholes to conduct local estimation at a reasonable level of confidence.

Given the aforementioned factors the Gecomines Mineral Resource at Bisie has been classified as an Inferred Mineral Resource. Estimates were extrapolated in the plane of the mineralization for a maximum distance of 40 m from the nearest drillhole intersection, this being considered by MSA to be the limit of reasonable geological interpretation for this style of mineralization, it being possible that the mineralization could terminate abruptly. In the strike directions, half the distance between the high grade intersections and peripheral lower grade intersections was applied; this being less than 40 m.

To the best of the QP's knowledge there is no environmental, permitting, legal, tax, socio-political, marketing or other relevant issues which may materially affect the Mineral Resource estimate as reported in this technical report aside from those mentioned in Section 4 of this report.

The Mineral Resources will be affected by further infill and exploration drilling which may result in increases or decreases in subsequent Mineral Resource estimates. Inferred Mineral Resources are considered to be high risk estimates that may change significantly with additional data. It cannot be assumed that all or part of an Inferred Mineral Resource will necessarily be upgraded to an Indicated Mineral Resource as a result of continued exploration. The Mineral Resources may also be affected by subsequent assessments of mining, environmental, processing, permitting, taxation, socio-economic and other factors.

14.11 Mineral Resource Statement

The Mineral Resource estimate has been completed by Mr. J.C. Witley (BSc Hons, GDE) who is a geologist with 25 years' experience in base and precious metals exploration and mining as well as Mineral Resource evaluation and reporting. He is Principal Resource Consultant for The MSA Group (an independent consulting company), is a member in good standing with the South African Council for Natural Scientific Professions (SACNASP) and is a Member of the Geological Society of South Africa (GSSA). Mr Witley has the appropriate relevant qualifications and experience to be considered a "Qualified Person" for the style and type of mineralization and activity being undertaken as defined in National Instrument 43-101 *Standards of Disclosure of Mineral Projects* (NI 43-101).

The Mineral Resource estimate as at 26 November 2013 is presented in Table 14-10. The Mineral Resource is stated at a cut-off grade of 0.25% Sn over a minimum true mineralized width of 2 m. In the QP's opinion, the Mineral Resources reported herein at the selected cut-off grade have "reasonable prospects for economic extraction", taking into consideration mining and processing assumptions. These are based on an underground mine and concentrator with operating cost of USD50 per tonne and a Sn price of US$ 25,000 per tonne. The reader is cautioned that the assessment of the mineralization estimate that is incorporated in the Mineral Resource is solely for the purpose of reporting Mineral Resources that have "reasonable prospects for economic extraction" underground and does not represent an attempt to estimate Mineral Reserves. At the 0.25 % Sn cut-off grade, the Mineral Resource is 4.0 million tonnes at an average tin grade of 3.5 %.

The Mineral Resource was estimated using The Canadian Institute of Mining, Metallurgy and Petroleum (CIM) Best Practice Guidelines (2003) and is reported in accordance with the 2010 CIM Definition Standards, which have been incorporated by reference into National Instrument 43-101 – *Standards of Disclosure for Mineral Projects* (NI 43-101). The Mineral Resource is classified into the Inferred category.

Table 14-10
Bisie Gecomines Zone Mineral Resource at 0.25% Sn Cut-Off Grade, 26 November 2013.

Category	Tonnes (Millions)	Sn %	Sn tonnes (thousands)	Cu %	Zn %	Pb ppm	Ag g/t
Indicated	-	-	-	-	-	-	-
Inferred	4.0	3.5	141	0.27	0.12	60	2.2
Total	**4.0**	**3.5**	**141**	**0.27**	**0.12**	**60**	**2.2**

Notes:

All tabulated data has been rounded and as a result minor computational errors may occur
Mineral Resources which are not Mineral Reserves have no demonstrated economic viability.
Alphamin has a 100 per cent interest in the Bisie Project. Accordingly, the Gross and Net Attributable Inferred Mineral Resource are the same.

The Inferred Mineral Resource has been tabulated using a number of cut-off grades as shown in Table 14-11.

Table 14-11
Bisie Gecomines Zone Inferred Mineral Resources Grade Tonnage Table, 26 November 2013.

Cut-Off Sn %	Tonnes (Millions)	Sn %	Sn tonnes (thousands)	Cu %	Zn %	Pb ppm	Ag g/t
0.25	**4.01**	**3.5**	**141.2**	**0.27**	**0.12**	**60**	**2.2**
0.50	3.98	3.6	141.0	0.27	0.12	60	2.2
0.75	3.80	3.7	139.9	0.27	0.12	60	2.2
1.00	3.38	4.0	136.3	0.29	0.13	60	2.3

Notes:

All tabulated data has been rounded and as a result minor computational errors may occur
Mineral Resources which are not Mineral Reserves have no demonstrated economic viability.
Alphamin has a 100 per cent interest in the Bisie Project. Accordingly, the Gross and Net Attributable Inferred Mineral Resource are the same.

The Mineral Resource dips at approximately 65 degrees to the east and strikes close to north-south. The Mineral Resource was limited to deeper than 50 m below surface, as the shallow area of Gecomines has been depleted by artisanal mining activity and the quantity of remaining Mineral Resource in the affected area cannot be stated within reasonable limits. The maximum depth of the Mineral Resource is dictated by the location of the diamond drilling data. The deepest Mineral Resource reported is approximately 250 m below surface, the high grade mineralization being open at depth. The area defined as a Mineral Resource extends approximately 400 m along strike by 200 m on dip. The Mineral Resource is between approximately 10 m and 20 m thick, although narrower zones occur to the north.

14.12 Comparison with previous estimates

This is the first Mineral Resource estimate for the Gecomines deposit at Bisie.

14.13 Assessment of reporting criteria

The checklist in Table 14-12 of assessment and reporting criteria summarises the pertinent criteria for this Mineral Resource in accordance with CIM guidelines and MSA's assessment and comment on the estimates.

Table 14-12
Checklist of Reporting Criteria.

Drilling techniques	All drillholes were diamond drill cored and drilled from surface (mostly NQ) at angles of between -60° and -75°. In the Mineral Resource area, 28 of the 37 drillholes completed were used for the grade estimate, four of the holes intersected mineralization to the north and south of the high grade zone and five of the shallow drillholes intersected artisanal workings. The data from these nine holes were not used for grade estimation.
Logging	All of the drillholes were geologically logged by qualified geologists. The logging was of an appropriate standard for grade estimation.
Drill sample recovery	Core recovery in the mineralized zones was observed to be very good and was on average 95 %. Five of the shallow drillholes intersected artisanal workings and so recovery of the high grade mineralization was poor and therefore the data from these holes were not used for grade estimation.
Sampling methods	Half core samples were collected continuously through the mineralized zones after being cut longitudinally in half using a diamond saw. Drillhole samples were taken at nominal 1 m intervals, which were adjusted to smaller intervals in order to target the vein zones. Lithological contacts were honoured during the sampling. MSA's observations indicated that the routine sampling methods were of a high standard and suitable for evaluation purposes.

Quality of assay data and laboratory tests	The assays were conducted at ALS Chemex in Johannesburg where samples were analyzed using fused disc ME-XRF05 conducted on a pressed pellet with 10% precision and an upper limit of 10 000ppm. Over limit samples were sent to Vancouver for ME-XRF10 which uses a Lithium Borate 50:50 flux with an upper detection limit of 60 % and precision of 5 %. ME-ICP61, HF, HNO_3, $HCL0_4$ and HCL leach with ICP-AES finish was used for 33 elements including base metals. ME-OG62 a four acid digestion was used on ore grade samples for Pb, Zn, Cu and Ag. External quality assurance of the laboratory assays for the Alphamin samples was monitored by the insertion of: • Blank samples collected from quartz vein on site at a rate of approximately 3% of the total sample set. • Field duplicates consisting of quarter core on approximately 4 % of the total sample set. • Certified reference materials (CRM's): Four CRMs were used. Combined, these formed approximately 3% of the total sample set. • 150 Pulp duplicates were sent to SGS (Johannesburg) for confirmation assay. These formed approximately 6% of the total data set. Included with the pulp duplicates were 15 CRM's. The QAQC measures used by Alphamin revealed the following: • The high grade CRM (31.42 % Sn) indicated that an over-assay of approximately 9 % may have occurred. The lower grade CRMs (<2 % Sn) indicated that the Sn and Cu assays were accurate consistently within two standard deviations of the accepted CRM value. • The field duplicates confirmed the nuggetty nature of the tin mineralization. The majority of the duplicate assays were within 20 % of the field sample. • Blank samples indicated that no significant contamination occurred for most of the program. Seven blank assays returned Sn values of between 0.005% and 0.02 %, which is not considered material to the project. • The pulp duplicates assayed by SGS showed excellent correlation with the ALS assays at both high and low grade ranges
Verification of sampling and assaying	MSA observed the mineralization in the cores and compared it with the assay results. MSA found that the assays generally agreed with the observations made on the core. MSA took ten quarter core field duplicates for independent check assay, which confirmed the original sample assays within reasonable limits for this style of mineralization.
Location of data points	All of the Bisie surface drillhole collars have been surveyed by a qualified surveyor using a differential GPS. Down-hole surveys were completed for all of the holes drilled at Gecomines.
Tonnage factors (in situ bulk densities)	Specific gravity determinations were made for the drillhole samples using the Archimedes principal of weight in air versus weight in water. Where no density data were available, a regression equation was applied. Specific gravity was interpolated into the block model using Ordinary Kriging.
Data density and distribution	Drillholes intersected the Mineral Resource at between approximately 50 m by 50 m and 100 m by 100 m spacing in the plane of mineralization.

Database integrity	Data were stored in an Excel database. MSA completed spot checks on the database and is confident that the Alphamin database is an accurate representation of the original data collected.
Dimensions	The area defined as a Mineral Resource extends approximately 400 m along strike by 200 m on dip. The Mineral Resource is between approximately 10 m and 20 m thick, although narrower zones occur to the north.
Geological interpretation	The mineralized intersections in drill core are clearly discernible. The Mineral Resource is interpreted to occur as two sub-parallel locally complex vein systems of mineralization dipping 65° to the east, in places separated by a barren zone several metres wide. The mineralized zones and intermittent waste middling are composed of chlorite schist that is the result of intense alteration that may represent a distinct stratigraphic interval. The Mineral Resource is affected by a number of faults that are sub-parallel to the mineralization causing local displacement. The precise locations of faults have not been determined.
Domains	The mineralization was modelled as a thick slab containing irregular vein style mineralization. In places a waste interval was defined by Sn grades of less than 0.25 %. A hard boundary was used to select data for estimation in order to honour the sharp nature of vein boundaries.
Compositing	Sample lengths were composited to 2 m.
Statistics and variography	The coefficient of variation for Sn composites is approximately 2, the histograms being positively skewed. Normal Scores variograms were calculated in the plane of the mineralization layering, down-hole and across strike. Variogram ranges were 120 m in the in-plane direction and 10 m across strike.
Top or bottom cuts for grades	Top cuts were applied to outlier values that were above breaks in the cumulative probability plot.
Data clustering	Drillhole intersections were not clustered, the grid being approximately regular.
Block size	4 mN by 40 mE by 40mRL three dimensional block models as optimised using a Kriging Neighbourhood Analysis. The blocks were rotated into the plane of mineralization prior to estimation.
Grade estimation	The accumulation of grade and density were estimated using Ordinary Kriging. Estimation parameters were optimised using a Kriging Neighbourhood Analysis. A minimum number of 8 and a maximum of 16 two metre composites were required to be selected within 120 m of a block in order to achieve an estimate. Grades were extrapolated in the plane of the mineralization for a maximum distance of 40 m from the nearest drillhole intersection, this being considered by MSA to be the limit of reasonable geological interpretation for this style of mineralization, it being possible that the mineralization could terminate abruptly.

Resource Classification	The mineralization was classified as Inferred Mineral Resources if block estimates were achieved with the required minimum number of samples within 40 m in the dip direction of the nearest drillhole. In the strike directions half the distance between the high grade intersections and peripheral lower grade intersections was applied, this being less than 40 m.
Mining Cuts	A minimum true thickness of 2 m was applied. The considerable thickness and steep dip implies that the Mineral Resource can be extracted using established underground mining methods.
Metallurgical factors or assumptions	The tin mineralization occurs as cassiterite, an oxide of tin (SnO_2). The Cu, Zn and Pb mineralization occurs as sulphides. Each of these minerals is amenable to standard processing techniques for each metal.
Legal Aspects and Tenure	Alphamin through its wholly owned DRC subsidiary, Mining and Processing Congo Sprl, has a "Certificat de Recherches" for PR 5266 valid to November 2014 after which it will be renewed with a 50% reduction on the licence area
Audits and reviews	The following review work was completed by MSA: • Inspection of approximately 25% of the Alphamin cores used in the Mineral Resource estimate • Database spot check • Inspection of drill sites • Independent check sampling

15 MINERAL RESERVE ESTIMATES

Not Applicable.

16 MINING METHODS

Not Applicable.

17 RECOVERY METHODS

Not Applicable.

18 PROJECT INFRASTRUCTURE

Not Applicable.

19 MARKET STUDIES AND CONTRACTS

Not Applicable.

20 ENVIRONMENTAL STUDIES, PERMITTING AND SOCIAL OR COMMUNITY IMPACT

Not Applicable.

21 CAPITAL AND OPERATING COSTS

Not Applicable.

22 ECONOMIC ANALYSIS

Not Applicable.

23 ADJACENT PROPERTIES

There are no adjacent properties of relevance.

24 OTHER RELEVANT DATA AND INFORMATION

There is no other relevant data and information to add to this report.

25 INTERPRETATION AND CONCLUSIONS

The Bisie Tin Project is an exploration property located in eastern Democratic Republic of Congo in the Walikale District of the North Kivu Province. The Project is located approximately 180 km northwest of Goma, the capital of North Kivu and approximately 60 km northwest of Walikale.

The aim of this report is to detail the process and results of the first Mineral Resource estimation exercise for the Project and to provide an update to the exploration carried out on the Project since the previous technical report on the Project dated 24 June, 2011. This current report is required to support the estimation of Mineral Resources, as defined in NI 43-101, for the Gecomines prospect of the Bisie Project as announced by Alphamin in a press release issued 26 November 2013.

MSA has reported an Inferred Mineral resource of 4.0 Mt at an average grade of 3.5% Sn as shown in Table 25-1. The Mineral Resource was estimated using The Canadian Institute of Mining, Metallurgy and Petroleum (CIM) Best Practice Guidelines (2003) and is reported in accordance with the 2010 CIM Definition Standards, which have been incorporated by reference into National Instrument 43-101 – Standards of Disclosure for Mineral Projects (NI 43-101).

Table 25-1

Bisie Gecomines Zone Mineral Resource at 0.25% Sn Cut-Off Grade, 26 November 2013.

Category	Tonnes (Millions)	Sn %	Sn tonnes (thousands)	Cu %	Zn %	Pb ppm	Ag g/t
Indicated	-	-	-	-	-	-	-
Inferred	4.0	3.5	141	0.27	0.12	60	2.2
Total	**4.0**	**3.5**	**141**	**0.27**	**0.12**	**60**	**2.2**

The Mineral Resource estimate was based on Sn, Cu, Pb, Zn and Ag assays and density measurements obtained from the cores of 37 diamond drillholes, which were completed by Alphamin between July 2012 and July 2013. The QP considers that the exploration work conducted by Alphamin was carried out using appropriate techniques for the style of mineralization at Bisie, and that the resulting database is suitable for Mineral Resource estimation.

Two zones of mineralization have to date been discovered at Bisie; these are known as Gecomines, which is the zone for which the Mineral Resource estimate applies, and Golgotha, which occurs approximately 0.75 km to the south. The mineralization is associated with a steeply dipping (~65° east) north to south striking zone of intense chloritisation contained within micaceous schists. The tin bearing chloritised zone is generally between 10 m and 20 m thick. The mineralization occurs in the form of irregular high grade veins of botryoidal cassiterite several 10's of cm thick and finer grained cassiterite irregularly disseminated in the chlorite schist. Copper, lead and zinc occurs as chalcopyrite, galena and sphalerite in locally significant concentrations, together with silver.

The Mineral Resource at Gecomines occurs from approximately 50 m to 250 m below surface and is open at depth. The area from surface to approximately 50 m below surface has largely been depleted by artisanal mining and has been excluded from the estimate. The strike length of the Mineral Resource is approximately 400 m.

The tin mineralization at Bisie is high grade and partially explored and there is opportunity to expand the Mineral Resource inventory further. As at the effective date of the report, exploration at the project had been suspended having completed the initial Mineral Resource definition drilling at Gecomines. It is recommended that near term future exploration at Bisie is focussed on increasing the Mineral Resource at Gecomines and testing the nature of the mineralization along strike and down dip at Golgotha.

Aside from the high risk inherent in an exploration program, political interference and security risks, due to hostile activities by uncontrolled armed groups and other outlaws in the immediate surrounds, have been a significant problem over the entire tenure period to date. These have been to the extent that workers on-site have been evacuated, property has been damaged and several interruptions to exploration activities have ensued.

The Mineral Resources may be affected by further infill and exploration drilling which may result in increases or decreases in subsequent Mineral Resource estimates. Inferred Mineral Resources are considered to be high risk estimates that may change significantly with additional data. It cannot be assumed that all or part of an Inferred Mineral Resource will necessarily be upgraded to an Indicated Mineral Resource as a result of continued exploration. The Mineral Resources may also be affected by subsequent assessments of mining, environmental, processing, permitting, taxation, socio-economic and other factors.

26 RECOMMENDATIONS

It is recommended that near term future exploration at Bisie is focussed on increasing the Mineral Resource at Gecomines and testing the nature of the mineralization along strike and down dip at Golgotha.

26.1 Gecomines

Gecomines is the prospect that has the most potential to increase resources in the short term. Eighteen diamond drillholes for a total of 5,305 m have been designed to test for further mineralization at depth and along strike to the north testing the postulated northerly plunge of the high grade mineralization. Initially nine holes for a total of 2,915m will attempt to intercept mineralization approximately 100 m and 200 m down dip of the existing drillhole grid on three section lines 100 m apart. Should this part of the Phase 1 program be successful, Phase 2 infill drilling of a further nine holes on selected sections at 50 m spacing will be completed in order to increase confidence in mineralization continuity and facilitating an updated Mineral Resource estimate.

In conjunction with the Phase 1 drilling, Alphamin intends to conduct a metallurgical drill program to procure 7,000 kg of mineralized material utilising a PQ diameter core barrel. This will provide sufficient sample volume to undertake detailed metallurgical test work in order to facilitate decisions on process plant design.

The completion of this program should provide adequate insight into the size and grade of the project to allow plant design and feasibility studies to proceed with confidence and thus move the project closer to production.

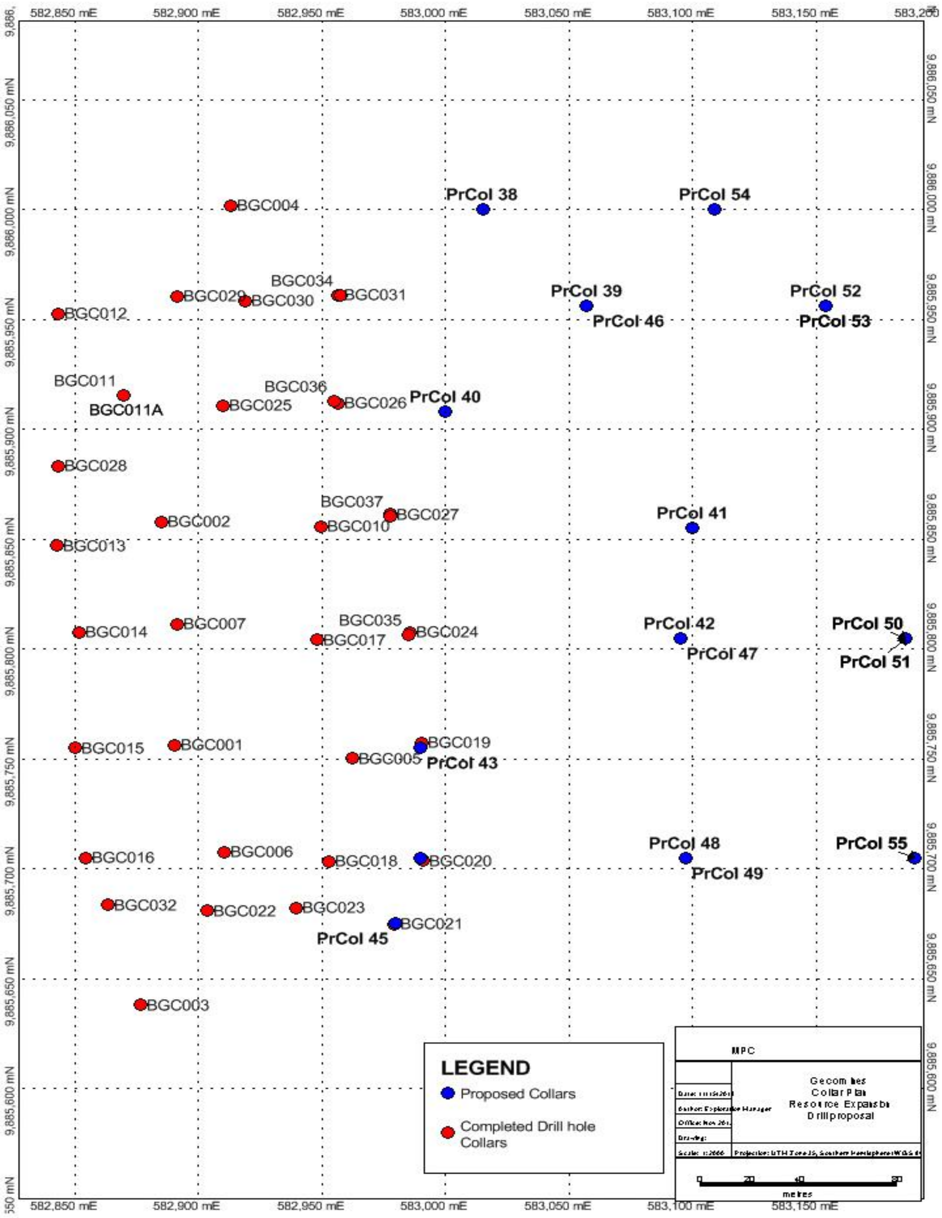
Table 26-1 shows the planned drillhole positions and drillhole depths for the Gecomines exploration drilling and Figure 26-1 shows the collar plan.

Drilling time should be approximately 5 months utilising 1 rig for the first 3 months and then 2 rigs for an additional 2 months.

Table 26-1
Proposed Phase 1 and Phase 2 Exploration Drillhole Collars for Gecomines.

Proposed Collar ID	Northing	Easting	Azimuth	Inclination	Depth (m)	Comments	Proposed Drilling Order
PrCol 38	9886000	583015	270	-60	200	Phase 1	4th
PrCol 39	9885956	583057	270	-60	280	Phase 2	11th
PrCol 40	9885908	583000	270	-75	200	Phase 2	10th
PrCol 41	9885855	583100	270	-60	320	Phase 1	9th
PrCol 42	9885805	583095	270	-60	285	Phase 2	12th
PrCol 43	9885755	582990	270	-75	190	Phase 2	13th
PrCol 44	9885705	582990	270	-75	190	Phase 2	14th
PrCol 45	9885675	582980	270	-75	190	Phase 2	15th
PrCol 46	9885956	583057	270	-70	320	Phase 1	1st
PrCol 47	9885805	583095	270	-69	320	Phase 1	2nd
PrCol 48	9885705	583097	270	-60	275	Phase 1	3rd
PrCol 49	9885705	583097	270	-70	315	Phase 2	16th
PrCol 50	9885805	583186	270	-60	365	Phase 2	17th
PrCol 51	9885805	583186	270	-66	400	Phase 1	6th
PrCol 52	9885956	583154	270	-60	375	Phase 2	18th
PrCol 53	9885956	583154	270	-67	400	Phase 1	5th
PrCol 54	9886000	583109	270	-60	320	Phase 1	7th
PrCol 55	9885705	583190	270	-60	360	Phase 1	8th
Total					**5,305**		

Figure 26-1
Proposed Collars of the Resource Extension Drilling Program at Gecomines



26.2 Golgotha

Seven diamond drillholes (1,785m) have been planned for Golgotha to test for mineralization at depth below the current drilling and further along strike to the north. Holes have been planned on existing sections on 100 m to 150 m section spacing covering 400 m of strike with down dip intersections planned at 100 m spacing from existing drillhole intersections. This program will be run in conjunction with Phase 2 at Gecomines and on completion will determine if the Golgotha prospect hosts viable grades of Sn mineralization over significant strike and depth in order to justify further infill work.

Table 26-2 shows the planned drillhole positions and drillhole depths for the Golgotha exploration drilling.

Drilling time is expected to be between four and six weeks utilising two drill rigs.

Table 26-2
Proposed Exploration Drillhole Collars for Golgotha.

Proposed Collar ID	Northing	Easting	Azimuth	Inclination	Depth (m)	Comments	Proposed Drilling Order
GP001	9884560	582834	270	-60	210	Phase 1	4th
GP002	9884655	582883	270	-60	320	Phase 1	1st
GP003	9884750	582805	270	-60	260	Phase 1	2nd
GP004	9884750	582893	270	-60	350	Phase 1	5th
GP005	9884905	582820	270	-60	220	Phase 1	3rd
GP006	9884905	582912	270	-60	325	Phase 1	6th
GP007	9885000	582700	270	-60	100	Phase 1	7th
Total					**1,785**		

26.3 Drilling Budget

A summarized budget for the drilling program at Bisie has been compiled by Alphamin (Table 26-3).

Table 26-3
Summary Drilling Budget.

Task	Amount (m)	Unit cost (m)	Cost
Phase 1 drilling Gecomines	2,915	US$ 276.00	US$ 804,540
Phase 2 Drilling Gecomines	2,390	US$ 276.00	US$ 659,640
Phase 1 Drilling Golgotha	1,785	US$ 276.00	US$ 492,660
Metallurgical Drilling	1,907	US$ 276.00	US$ 526,332
Total	**8,997**		**US$ 2,483,172**
Helicopter support and admin			US$ 2,000,000
Program Total			**US$ 4,483,172**

In the QP's opinion, the high grade Sn mineralization at Gecomines and the significant occurrences of Sn, Pb and Zn mineralization at Golgotha warrants the expenditure as outlined in Table 26-3.

27 REFERENCES

Alphamin Meeting Minutes (2013). Meeting with Albert Kitenge – Alphamin Country Manager, Pangaea, Johannesburg. 16 April 2013. Unpublished.

Alphamin Press Release (2013). Alphamin Announces an Initial Inferred Mineral Resource for the Gecomines Prospect, Bisie Tin Project, Democratic Republic of the Congo. Accessed December 2014 on http://alphaminresources.com/alphamin-announces-initial-inferred-mineral-resource-gecomines-prospect/ .

Alphamin Report (2013). Bisie Tin Project Summary, February 2013. Accessed December 2014 from http://alphaminresources.com/wp-content/uploads/2012/09/Bisie-summary-update-Sept-2013_Revised.pdf .

Breiter, K. (2007). Mineralogical Composition of tin-bearing ore samples from Bisie and Kalimbi, D.R.C. Final Report, December 2007 *in* **Pearl, L.M.** (2011). Report on the Bisiye Tin Project (in compliance with NI 43-101) – Concessions: PR5266, PR5267, PR5270 and PR4246, Walikale Territory, North Kivu, Democratic Republic of the Congo for Alphamin Resources Corp. Revised 24 June 2011, Effective date 6 June 2011.

Garret, N. (2008). Artisinal Cassiterite Mining and Trade in North Kivu – Implications for Poverty Reduction and Security. CASM – Communities and Small-Scale Mining. Accessed December 2013 from the website: http://www.rcsglobal.com/documents/CASM_WalikaleBooklet2.pdf

MEG Mine Search (2013). Project Profile Report – Bisie. June 21, 2013. From:

MPC Report (2008). Review of Exploration Geological Work carried out at Bisiye – Walikali, Kivu North, Eastern Democratic Republic of the Congo. Unpublished report.

Pearl, L.M. (2011). Report on the Bisiye Tin Project (in compliance with NI 43-101) – Concessions: PR5266, PR5267, PR5270 and PR4246, Walikale Territory, North Kivu, Democratic Republic of the Congo for Alphamin Resources Corp. Revised 24 June 2011, Effective date 6 June 2011.

Wimmer, S.Z. and **Hilgert, F.** (2011). Bisie. A one-year snapshot of the DRC's principal cassiterite mine. IPIS Fatal Transaction. Accessed December 2013 on http://www.ipisresearch.be/att/20111128__Bisie_FHilgert_SZingg.pdf

28 DATE AND SIGNATURE PAGE

This report titled "Alphamin Resources Corporation, Bisie Tin Project, North Kivu Province, Democratic Republic of the Congo – NI 43-101 Technical Report – Mineral Resource Estimate" with an effective date of 26 November 2013, prepared by MSA on behalf of Alphamin Resources Corporation, dated 09 January 2014, was prepared and signed by the following authors:

	"signed and stamped"
Dated at Johannesburg, South Africa	Jeremy Charles Witley
09 January 2014	Pr.Sci.Nat., BSc (Hons)
	Principal Resource Consultant
	The MSA Group (Pty) Ltd

and

	"signed and stamped"
Dated at Johannesburg, South Africa	Russell Alexander Heins
09 January 2014	CEng BSc (Hons) FSAIMM MIOM3..
	Independent Metallurgical Consultant
	The MSA Group (Pty) Ltd

APPENDIX 1:

Glossary of Technical Terms

Glossary of Technical Terms

artisanal miner	A small-scale or subsistence miner, generally working independently, mining or panning for minerals.
assay	A qualitative or quantitative analysis of a metal or ore to determine its components; a substance to be so analysed; the result of such an analysis.
basement	The igneous and metamorphic crust of the earth, underlying sedimentary deposits.
blank sample	A quality assurance sample lacking the parameters of interest. A blank sample result is used to detect contamination during sample handling, preparation, and/or analysis. Examples of a blank sample include deionized water or a blank certified standard reference material.
botryoidal	A globular external form resembling a bunch of grapes.
brecciated	Condition applied to an intensely fractured body of rock.
bulk modal analysis	Performed by QEMSCAN using a linear intercept method – it is used to provide statistically abundant data for mineral identification, speciation, distribution and quantitification.
Carrière	From French - Mine or quarry.
cassiterite	A red-brown or black tin oxide mineral (SnO_2)
Chantier(s)	Illegal artisanal mining sites
chloritisation	The replacement by alteration into or introduction of chlorite
CNDP	Congrès National pour la Défense du Peuplé.
coltan	Short for columbite-tantalite; a dull black metallic ore from which the elements niobium and tantalum are extracted.
conglomerate	A rock type composed predominantly of rounded pebbles, cobbles or boulders deposited by the action of water.
craton	Large, and usually ancient, stable mass of the earth's crust comprised of various crustal blocks amalgamated by tectonic processes. A cratonic nucleus is an older, core region embedded within a larger craton.
CRM	Certified reference material - a standard material that has been certified for certain elements with a given range of uncertainty.
CV	Coefficient of Variation - A statistical measure of the dispersion of data points in a data series around the mean.
diamond drilling	Method of obtaining cylindrical core of rock by drilling with a diamond set or diamond impregnated bit.

dolomite	A mineral composed of calcium and magnesium carbonate; a rock predominantly comprised of this mineral is also referred to as dolomite or dolostone.
duplicate sampling	Sampling program initiated to validate previous sampling results.
FARDC	Forces Armées de la République Démocratique du Congo
fault	A fracture or fracture zone, along which displacement of opposing sides has occurred.
fold	A planar sequence of rocks or a feature bent about an axis.
Force Majeure	A French term literally translated as "greater force", this clause is included in contracts to remove liability for natural and unavoidable catastrophes that interrupt the expected course of events and restrict participants from fulfilling obligations.
gneiss	A coarse grained, banded, high grade metamorphic rock.
gossan	An iron-containing secondary deposit, largely consisting of oxides and typically yellowish or reddish, occurring above a deposit of a metallic mineral concentration.
granite	A leucocratic medium- to coarse-grained plutonic igneous rock composed principally of quartz and feldspar, with biotite and/or hornblende as the most common mafic minerals. Quartz forms between 20 % and 60 % of the felsic components and alkali feldspar forms 35 % to 90 % of the total feldspar.
imaging	Computer processing of data to enhance particular features.
Kriging	Mathematical method used to predict the value of a given point by using a model of the spatial characteristics of the data.
Landsat imagery	Photographs of the earth's surface, collected by satellite, and taken at different wave-lengths of light, processed to enhance particular features.
lithology	A description of a rocks' physical characteristics visible at outcrop, in hand or core samples or with low magnification microscopy, such as colour, texture, grain size, or composition.
mineralization	A natural concentration of a mineral of interest.
Mesoproterozoic	Middle Proterozoic era of geological time, 1,600 to 1,000 million years ago.
metamorphism	Alteration of rock and changes in mineral composition, most generally due to increase in pressure and/or temperature.
metasediments	A sediment or sedimentary rock that appears to have been altered by metamorphism.
Neoproterozoic	Late Proterozoic era of geological time, 1,000 to 545 million years ago.
Niton	A Thermo Scientific portable XRF analyser.
orogeny	A deformation and/or magmatic event in the earth's crust, usually caused by collision between tectonic plates.

Palaeoproterozoic	Lower / Early Proterozoic era of geological time, 2,500 to 1,600 million years ago.
Proterozoic	An era of geological time spanning the period from 2,500 to 545 million years before present.
QEMSCAN	Quantitative Evaluation of Materials by Scanning Electron Microscopy, a system that differs from image analysis systems in that it is configured to measure mineralogical variability based on chemistry at the micrometer-scale.
REE	A rare earth element or rare earth metal is one of a set of seventeen chemical elements in the periodic table, specifically the fifteen lanthanides plus scandium and yttrium.
satellite positioning system (global positioning system GPS)	An instrument used to locate or navigate, which relies on three or more satellites of known position to identify the operators location.
scattergram	A useful summary of a set of bivariate data (two variables), usually drawn before working out a linear correlation coefficient or fitting a regression line. It gives a good visual picture of the relationship between the two variables, and aids the interpretation of the correlation coefficient or regression model.
schist	A crystalline metamorphic rock having a foliated or parallel structure due to the recrystallisation of the constituent minerals.
Semi-variogram	Measure of spatial variability
smectite	A clay mineral (e.g. bentonite) which undergoes reversible expansion on absorbing water; any of a group of clay minerals of which montmorillonite and saponite are members.
Specific Gravity (SG)	A mineral's specific gravity is the ratio of its mass to the mass of an equal volume of water. Specific gravity measures the density of a material.
strike	Horizontal direction or trend of a geological structure.
tectonic	Pertaining to the forces involved in, or the resulting structures of, movement in the earth’s crust.
XRD	X-ray diffraction - The scattering of x-rays by crystal atoms, producing a diffraction pattern that yields information about the structure of the crystal.
XRF	X-ray fluorescence - is the emission of characteristic "secondary" (or fluorescent) X-rays from a material that has been excited by bombarding with high-energy X-rays or gamma rays. The phenomenon is widely used for elemental analysis and chemical analysis, particularly in the investigation of metals, glass, ceramics and building materials, and for research in geochemistry, forensic science and archaeology.

APPENDIX 2:

Inventory of Diamond Drillholes completed at Bisie

Hole No	Prospect	Easting m	Northing m	Azi	Dip	Start Date	Finish Date	HQ (m)	NQ (m)	End depth (m)
BGC001	Gecomines	582890	9885756	270	-60	1/7/2012	13/7/2012	43.5	103.5	147
BGC002	Gecomines	582885	9885858	270	-60	15/7/2012	22/07/2012	32.5	97.5	130
BGC003	Gecomines	582876	9885638	270	-60	21/8/2012	27/8/2012	39	87	126
BGC004	Gecomines	582913	9886002	270	-60	27/8/2012	2/9/2012	40.5	115.5	156
BGC005	Gecomines	582962	9885750	270	-60	2/9/2012	6/9/2012	43.5	107.5	151
BGC006	Gecomines	582910	9885708	270	-60	16/10/2012	20/10/2012	44.5	60.5	105
BGC007	Gecomines	582892	9885811	270	-60	21/10/2012	24/10/2012	44	52.5	96.5
BGC008	Gecomines	582870	9886151	270	-60	25/10/2012	28/10/2012	45	76	121
BGC009	Gecomines	582866	9886288	270	-60	29/10/2012	31/10/2012	43.7	45.3	89
BGC010	Gecomines	582949	9885856	270	-60	4/2/2013	4/16/2013	33.5	112	145.5
BGC011	Gecomines	582870	9885915	270	-60	4/17/2013	4/19/2013	20.5	0	20.5
BGC011A	Gecomines	582870	9885915	270	-60	4/19/2013	4/22/2013	54	56	110
BGC012	Gecomines	582843	9885953	270	-60	4/23/2013	4/25/2013	59.5	35.1	94.6
BGC013	Gecomines	582843	9885847	270	-60	4/26/2013	4/28/2013	60.5	24.5	85
BGC014	Gecomines	582852	9885808	270	-60	4/29/2013	5/1/2013	63	27	90
BGC015	Gecomines	582850	9885755	270	-60	5/2/2013	5/3/2013	65	0	65
BGC016	Gecomines	582855	9885705	270	-60	5/4/2013	5/6/2013	43.6	18.1	61.7
BGC017	Gecomines	582948	9885804	270	-60	5/6/2013	5/10/2013	61	81.5	142.5
BGC018	Gecomines	582953	9885704	270	-60	5/11/2013	5/16/2013	48.5	94	142.5
BGC019	Gecomines	582991	9885757	270	-60	5/17/2013	5/23/2013	40.3	119.03	159.33
BGC020	Gecomines	582991	9885704	270	-60	5/23/2013	5/28/2013	61.5	104.5	166
BGC021	Gecomines	582979	9885675	270	-60	5/28/2013	6/1/2013	68	94	162
BGC022	Gecomines	582904	9885681	270	-60	6/2/2013	6/5/2013	58.5	49.5	108
BGC023	Gecomines	582939	9885682	270	-60	6/6/2013	6/10/2013	52	78.9	130.9
BGC024	Gecomines	582985	9885808	270	-60	6/7/2013	6/12/2013	58	117.5	175.5
BGC025	Gecomines	582910	9885911	270	-60	6/10/2013	6/13/2013	61	74	135
BGC026	Gecomines	582956	9885912	270	-60	6/14/2013	6/19/2013	68.5	95.5	164
BGC027	Gecomines	582978	9885861	270	-60	6/14/2013	6/19/2013	48.5	111.2	159.7
BGC028	Gecomines	582843	9885883	270	-60	6/19/2013	6/24/2013	54.5	17	71.5
BGC029	Gecomines	582891	9885961	270	-60	6/20/2013	6/25/2013	50	89	139
BGC030	Gecomines	582919	9885958	270	-60	6/24/2013	6/28/2013	50.7	97.6	148.3
BGC031	Gecomines	582957	9885961	270	-60	6/25/2013	7/1/2013	59.5	108	167.5
BGC032	Gecomines	582864	9885684	270	-60	6/28/2013	7/2/2013	63.5	4.8	68.3
BGC033	Gecomines	582808	9885524	270	-75	7/2/2013	7/7/2013	57	51	108
BGC034	Gecomines	582957	9885961	270	-60	7/2/2013	8/7/2013	65	142	207
BGC035	Gecomines	582985	9885807	270	-75	7/7/2013	7/13/2013	59.2	138.8	198
BGC036	Gecomines	582955	9885913	270	-75	7/10/2013	7/13/2013	48	114.5	162.5
BGC037	Gecomines	582978	9885860	270	-75	7/14/2013	7/19/2013	53.3	168.02	221.32
BGH001	Golgotha	582735	9884640	270	-60	24/07/2012	31/07/2012	36.5	139	175.5
BGH002	Golgotha	582741	9884561	270	-60	31/07/2012	3/8/2012	40	55.5	95.5
BGH002A	Golgotha	582742	9884561	270	-60	1/11/2012	5/11/2012	50.2	74.8	125
BGH003	Golgotha	582708	9884743	270	-60	4/8/2012	9/8/2012	39.1	86	125.1

Hole No	Prospect	Easting m	Northing m	Azi	Dip	Start Date	Finish Date	HQ (m)	NQ (m)	End depth (m)
BGH004	Golgotha	582744	9884465	270	-60	9/8/2012	15/08/2012	45.5	23.5	69
BGH004A	Golgotha	582744	9884465	270	-60	15/8/2012	21/8/2012	38.5	82	121.6
BGH005	Golgotha	582711	9884900	270	-70	8/9/2012	13/9/2012	32	106.5	138.5
BGH006	Golgotha	582694	9884658	270	-60	14/9/2012	17/09/2012	39.5	42	81.5
BGH007	Golgotha	582781	9884649	270	-60	17/09/2012	21/09/2012	42	62	104
BGH007A	Golgotha	582782	9884649	270	-60	6/11/2012	16/11/2012	65.3	141.9	207.2
BGH008	Golgotha	582809	9884466	270	-60	22/09/2012	10/10/2012	44.5	185.5	230
BGH009	Golgotha	582760	9884370	270	-60	11/10/2012	16/10/2012	47.5	97.3	144.8
BGH010	Golgotha	582764	9884270	270	-60	18/11/2012	20/11/2012	39.5	0	39.5

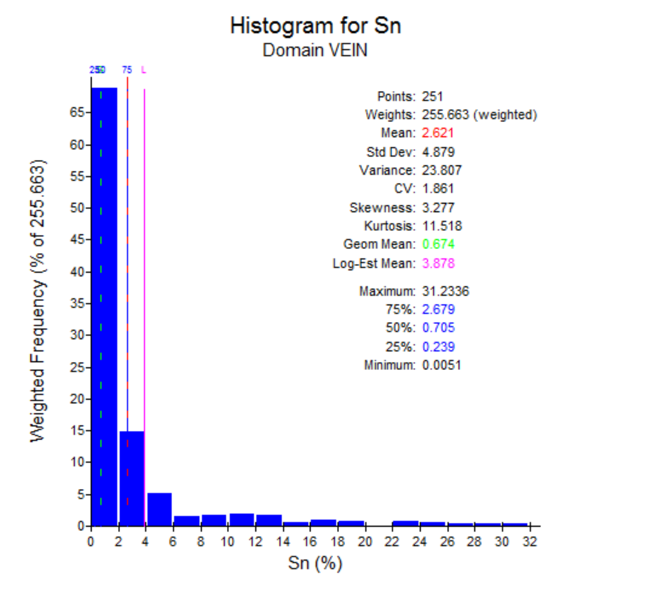
APPENDIX 3:

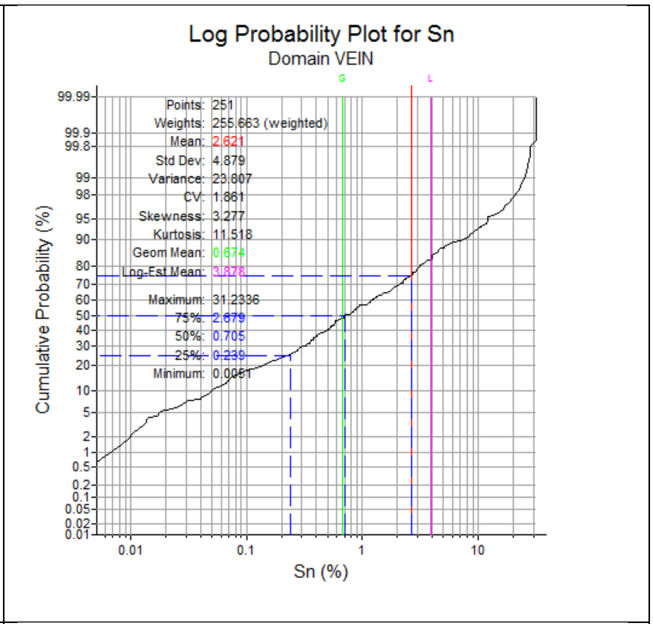
Inventory of Drillhole Intersections within the Mineral Resource

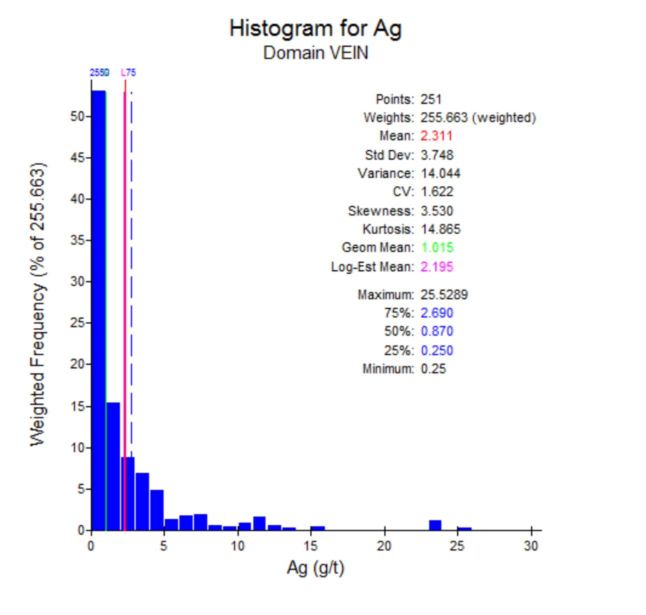
Hole Name	From m	To m	Easting m	Northing m	RL m	Sn %	Cu %	Zn %	Pb %	Ag g/t	As ppm	S %	Density t/m^3
BGC001	53.0	82.0	582857	9885757	732	2.23	0.11	0.10	0.008	0.6	17	0.86	3.00
BGC002	50.5	80.5	582854	9885856	721	2.55	0.35	0.08	0.005	1.2	71	0.70	3.22
BGC004	123.5	136.5	582848	9886003	671	0.26	0.09	0.03	0.004	0.3	51	1.00	3.08
BGC005	113.4	132.0	582903	9885750	648	1.07	0.17	0.20	0.008	1.6	49	1.14	3.11
BGC006	65.7	89.0	582872	9885708	719	0.77	0.11	0.08	0.005	1.6	18	0.58	3.08
BGC007	53.0	80.4	582858	9885812	729	1.95	0.27	0.10	0.006	1.5	110	1.00	3.13
BGC010	111.0	128.0	582892	9885855	644	1.15	0.09	0.03	0.007	0.5	54	0.66	3.11
BGC011A	36.2	38.5	582851	9885915	746	0.35	0.09	0.02	0.002	0.3	52	0.26	3.08
BGC011A	38.5	70.7	582843	9885914	731	0.02	0.03	0.03	0.003	0.3	24	1.02	2.88
BGC011A	70.7	74.0	582834	9885914	715	1.05	0.39	0.09	0.004	2.0	20	2.61	3.11
BGC017	100.0	119.0	582892	9885804	663	0.24	0.13	0.06	0.007	1.0	27	0.87	2.98
BGC018	100.0	123.0	582898	9885704	668	5.14	0.42	0.15	0.004	3.1	2730	1.16	3.28
BGC019	132.5	146.8	582919	9885758	623	2.05	0.55	0.21	0.004	3.9	2408	2.98	3.22
BGC020	137.7	146.0	582920	9885705	621	1.04	1.20	0.23	0.006	11.3	389	3.36	3.27
BGC021	130.0	147.5	582909	9885675	631	0.49	0.38	0.14	0.006	3.8	217	1.19	3.02
BGC022	58.5	88.3	582867	9885681	724	0.93	0.17	0.10	0.010	2.6	20	0.86	2.99
BGC023	91.5	118.0	582886	9885682	683	3.83	0.70	0.24	0.004	6.2	3531	3.07	3.34
BGC024	133.0	153.0	582916	9885808	613	2.67	0.24	0.08	0.006	1.6	570	0.96	3.09
BGC025	72.0	74.3	582873	9885911	691	0.65	0.02	0.03	0.004	0.3	29	0.28	2.97
BGC025	74.3	97.5	582867	9885911	680	0.02	0.02	0.02	0.001	0.3	49	0.46	2.99
BGC025	97.5	110.0	582858	9885911	665	2.78	0.42	0.07	0.007	1.7	115	0.87	3.08
BGC026	100.0	107.0	582904	9885911	642	0.81	0.02	0.10	0.005	0.3	55	0.17	3.07
BGC026	107.0	121.0	582899	9885911	633	0.02	0.00	0.03	0.002	0.3	216	0.10	3.06
BGC026	121.0	140.0	582890	9885911	619	7.33	0.11	0.07	0.011	1.4	157	0.65	3.24
BGC027	125.0	135.0	582913	9885863	621	2.54	0.13	0.08	0.006	0.9	23	0.54	3.11
BGC028	24.0	26.0	582831	9885883	771	0.84	0.02	0.00	0.004	0.3	22	0.05	2.91
BGC028	27.0	49.6	582824	9885883	760	0.04	0.04	0.02	0.006	0.3	8	0.04	2.81
BGC028	50.0	54.5	582817	9885883	748	0.63	0.17	0.05	0.004	1.8	4	0.03	2.92
BGC029	86.3	96.0	582846	9885961	695	0.01	0.04	0.03	0.003	0.3	27	0.99	2.90
BGC029	96.0	99.0	582843	9885961	690	0.39	0.13	0.05	0.001	0.4	114	2.16	3.05
BGC030	90.5	112.5	582868	9885958	675	0.04	0.02	0.02	0.003	0.3	82	0.88	2.89
BGC030	112.5	117.4	582861	9885957	663	0.29	0.04	0.04	0.001	0.4	165	0.62	3.07
BGC031	114.0	117.5	582898	9885961	647	0.36	0.01	0.03	0.002	0.3	8	0.26	2.96
BGC031	117.5	140.0	582891	9885961	636	0.01	0.01	0.02	0.002	0.3	116	0.47	2.87
BGC031	140.0	152.0	582883	9885961	621	2.99	0.38	0.07	0.010	1.9	111	1.06	3.18
BGC034	175.0	199.7	582909	9885961	566	9.88	0.05	0.31	0.060	4.2	105	0.69	3.50
BGC035	165.0	190.8	582940	9885807	566	4.85	0.60	0.16	0.002	5.3	669	1.84	3.25
BGC036	133.0	162.5	582917	9885913	589	3.00	0.10	0.21	0.012	0.8	22	0.40	3.12
BGC037	185.0	200.0	582927	9885860	548	10.56	0.60	0.20	0.002	4.5	164	1.73	3.38

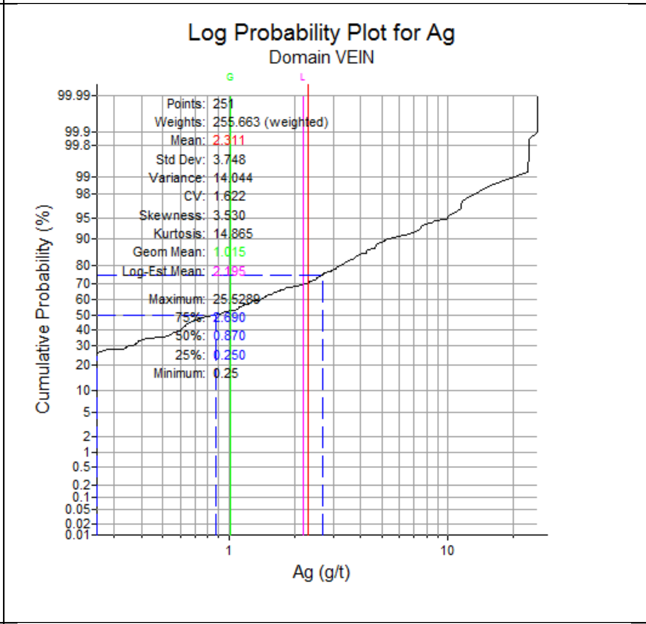
APPENDIX 4:

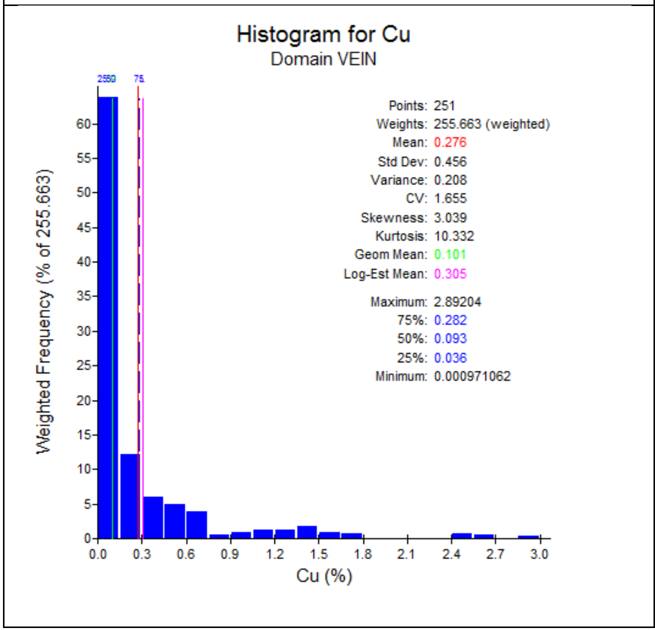
Histograms and Log Probability Plots

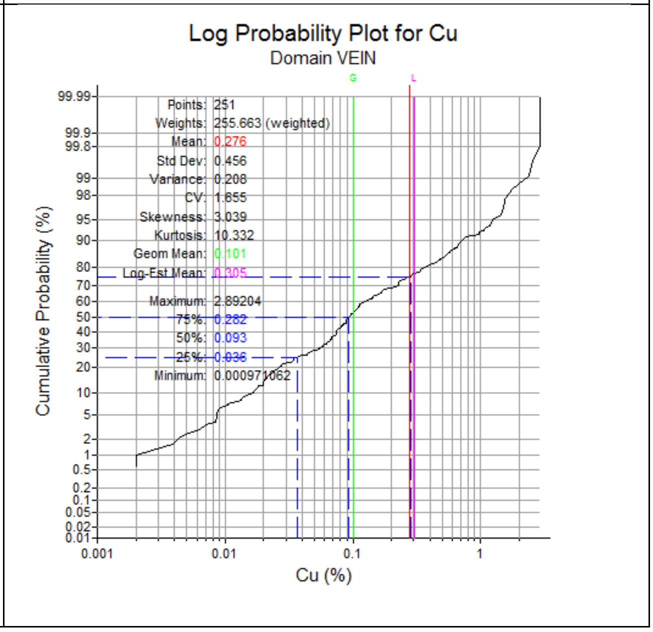

Histogram for Sn
Domain VEIN
Points: 251
Weights: 255.663 (weighted)
Mean: 2.621
Std Dev: 4.879
Variance: 23.807
CV: 1.861
Skewness: 3.277
Kurtosis: 11.518
Geom Mean: 0.674
Log-Est Mean: 3.878
Maximum: 31.2336
75%: 2.679
50%: 0.705
25%: 0.239
Minimum: 0.0051
Weighted Frequency (% of 255.663)
Sn (%)

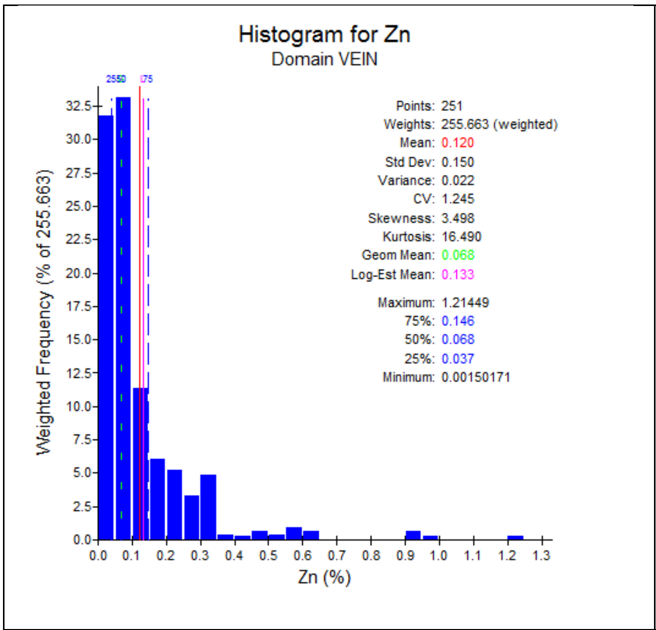

Log Probability Plot for Sn
Domain VEIN
Points: 251
Weights: 255.663 (weighted)
Mean: 2.621
Std Dev: 4.879
Variance: 23.807
CV: 1.861
Skewness: 3.277
Kurtosis: 11.518
Geom Mean: 0.674
Log-Est Mean: 3.878
Maximum: 31.2336
75%: 2.679
50%: 0.705
25%: 0.239
Minimum: 0.0051
Cumulative Probability (%)
Sn (%)

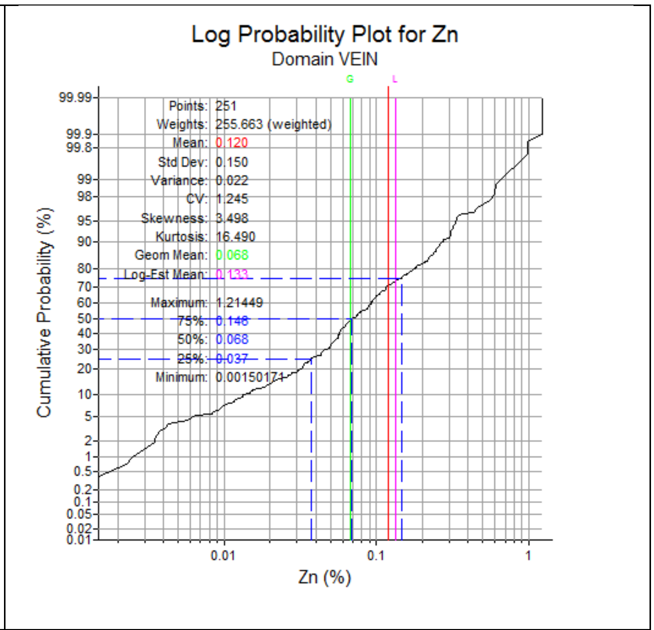

Histogram for Ag
Domain VEIN
Points: 251
Weights: 255.663 (weighted)
Mean: 2.311
Std Dev: 3.748
Variance: 14.044
CV: 1.622
Skewness: 3.530
Kurtosis: 14.865
Geom Mean: 1.015
Log-Est Mean: 2.195
Maximum: 25.5289
75%: 2.690
50%: 0.870
25%: 0.250
Minimum: 0.25
Weighted Frequency (% of 255.663)
Ag (g/t)

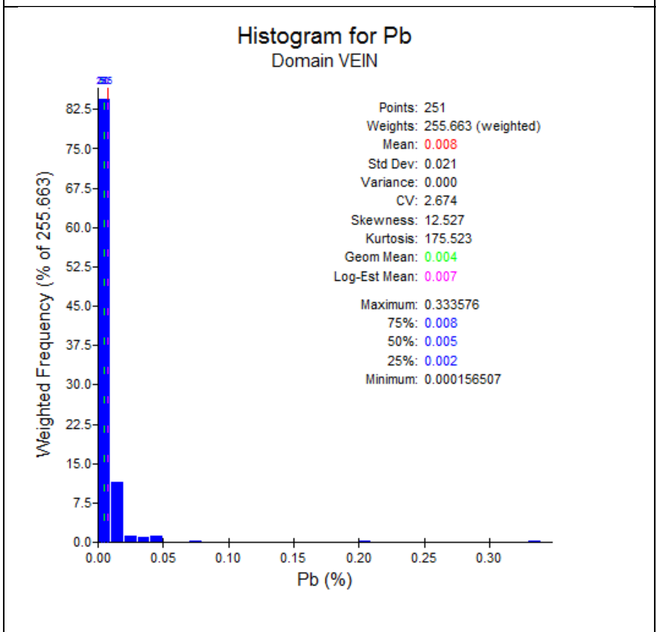

Log Probability Plot for Ag
Domain VEIN
Points: 251
Weights: 255.663 (weighted)
Mean: 2.311
Std Dev: 3.748
Variance: 14.044
CV: 1.622
Skewness: 3.530
Kurtosis: 14.865
Geom Mean: 1.015
Log-Est Mean: 2.195
Maximum: 25.5289
75%: 2.690
50%: 0.870
25%: 0.250
Minimum: 0.25
Cumulative Probability (%)
Ag (g/t)

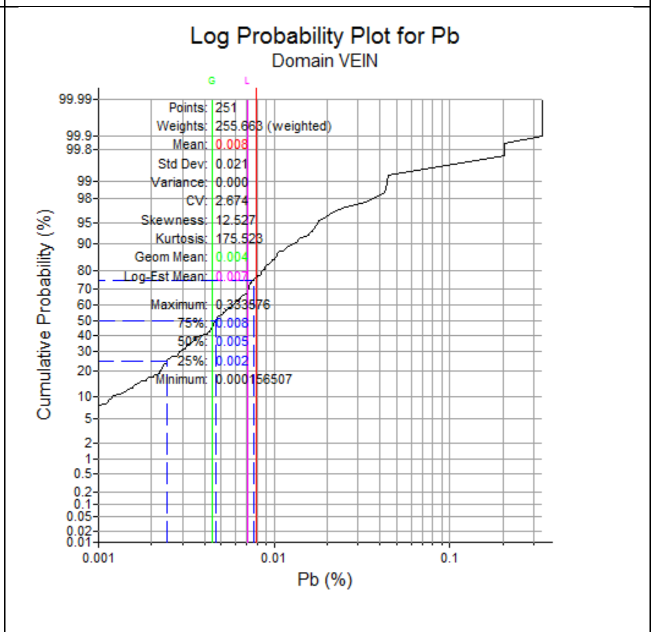

Histogram for Cu
Domain VEIN
Points: 251
Weights: 255.663 (weighted)
Mean: 0.276
Std Dev: 0.456
Variance: 0.208
CV: 1.655
Skewness: 3.039
Kurtosis: 10.332
Geom Mean: 0.101
Log-Est Mean: 0.305
Maximum: 2.89204
75%: 0.282
50%: 0.093
25%: 0.036
Minimum: 0.000971062
Weighted Frequency (% of 255.663)
Cu (%)

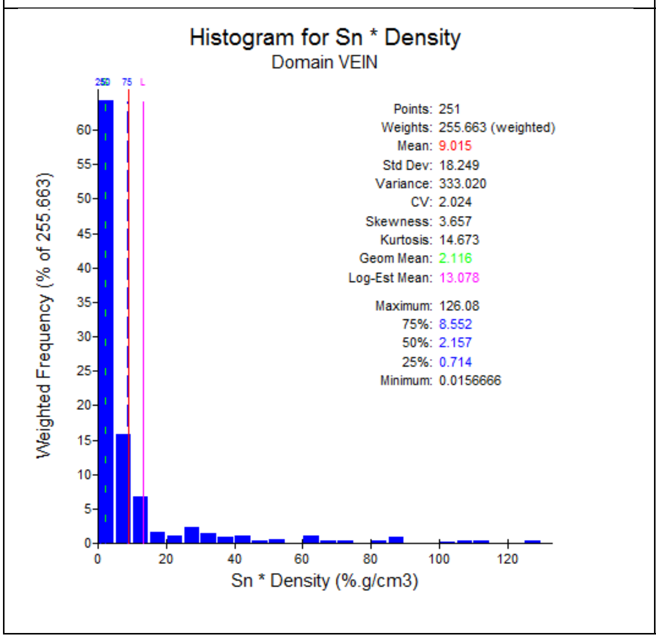

Log Probability Plot for Cu
Domain VEIN
Points: 251
Weights: 255.663 (weighted)
Mean: 0.276
Std Dev: 0.456
Variance: 0.208
CV: 1.655
Skewness: 3.039
Kurtosis: 10.332
Geom Mean: 0.101
Log-Est Mean: 0.305
Maximum: 2.89204
75%: 0.282
50%: 0.093
25%: 0.036
Minimum: 0.000971062
Cumulative Probability (%)
Cu (%)

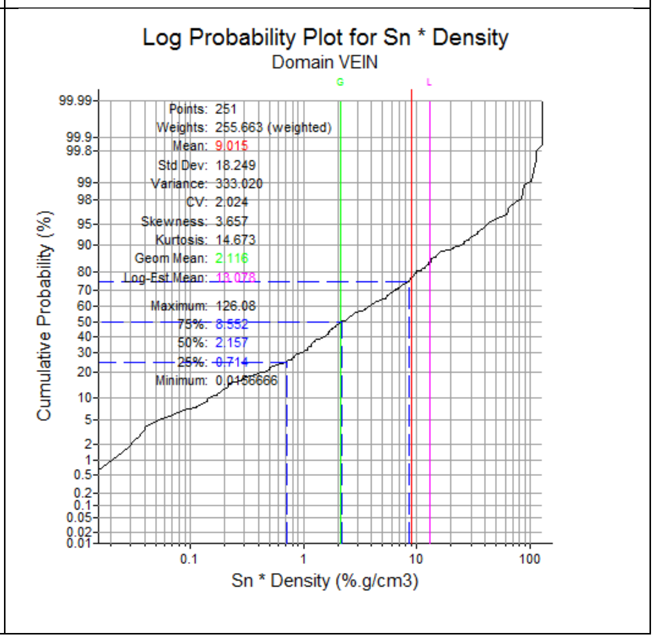

Histogram for Zn
Domain VEIN
Points: 251
Weights: 255.663 (weighted)
Mean: 0.120
Std Dev: 0.150
Variance: 0.022
CV: 1.245
Skewness: 3.498
Kurtosis: 16.490
Geom Mean: 0.068
Log-Est Mean: 0.133
Maximum: 1.21449
75%: 0.146
50%: 0.068
25%: 0.037
Minimum: 0.00150171
Weighted Frequency (% of 255.663)
Zn (%)

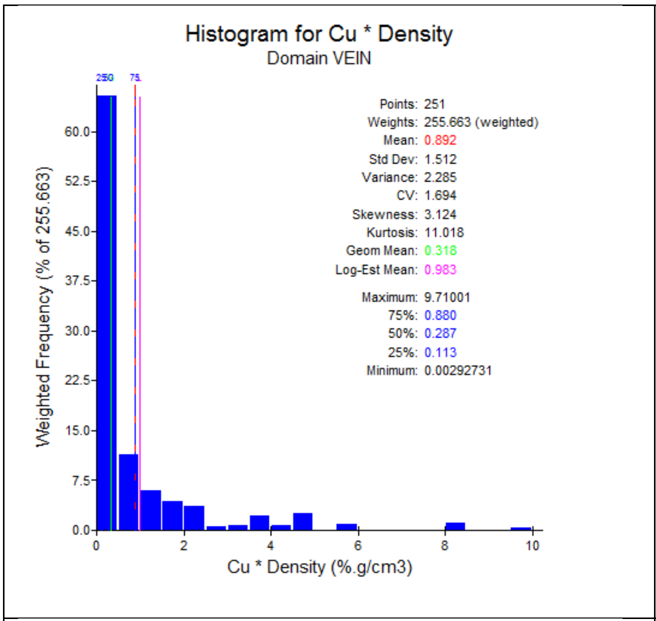

Log Probability Plot for Zn
Domain VEIN
Points: 251
Weights: 255.663 (weighted)
Mean: 0.120
Std Dev: 0.150
Variance: 0.022
CV: 1.245
Skewness: 3.498
Kurtosis: 16.490
Geom Mean: 0.068
Log-Est Mean: 0.133
Maximum: 1.21449
75%: 0.146
50%: 0.068
25%: 0.037
Minimum: 0.00150171
Cumulative Probability (%)
Zn (%)

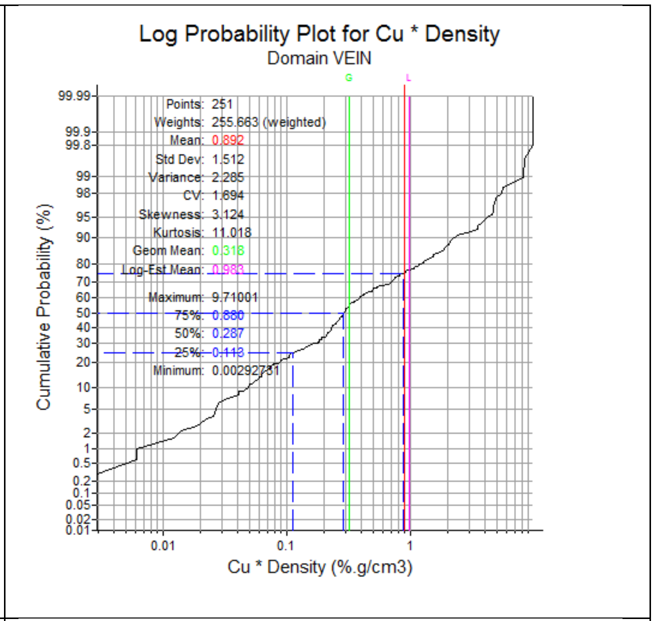

Histogram for Pb
Domain VEIN
Points: 251
Weights: 255.663 (weighted)
Mean: 0.008
Std Dev: 0.021
Variance: 0.000
CV: 2.674
Skewness: 12.527
Kurtosis: 175.523
Geom Mean: 0.004
Log-Est Mean: 0.007
Maximum: 0.333576
75%: 0.008
50%: 0.005
25%: 0.002
Minimum: 0.000156507
Weighted Frequency (% of 255.663)
Pb (%)

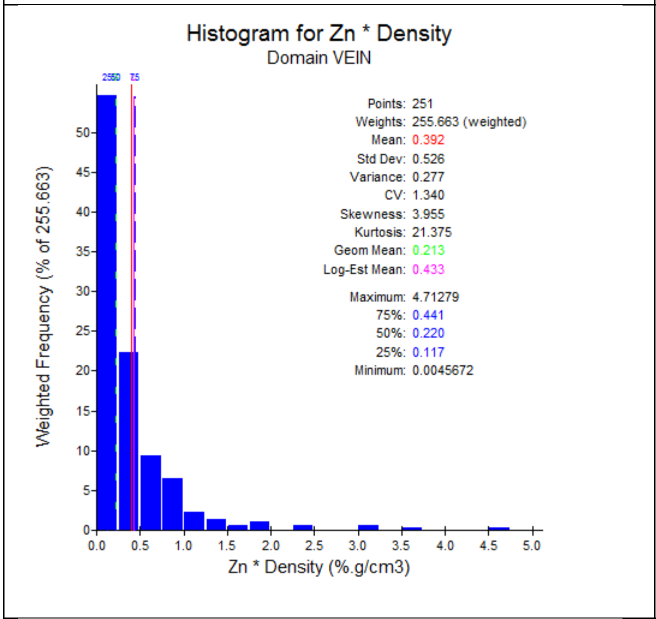

Log Probability Plot for Pb
Domain VEIN
Points: 251
Weights: 255.663 (weighted)
Mean: 0.008
Std Dev: 0.021
Variance: 0.000
CV: 2.674
Skewness: 12.527
Kurtosis: 175.523
Geom Mean: 0.004
Log-Est Mean: 0.007
Maximum: 0.333576
75%: 0.008
50%: 0.005
25%: 0.002
Minimum: 0.000156507
Cumulative Probability (%)
Pb (%)

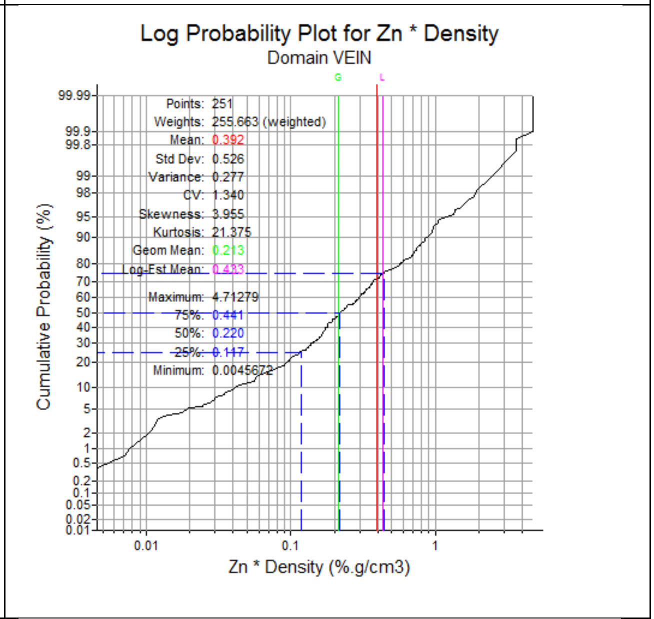

Histogram for Sn * Density
Domain VEIN
Points: 251
Weights: 255.663 (weighted)
Mean: 9.015
Std Dev: 18.249
Variance: 333.020
CV: 2.024
Skewness: 3.657
Kurtosis: 14.673
Geom Mean: 2.116
Log-Est Mean: 13.078
Maximum: 126.08
75%: 8.552
50%: 2.157
25%: 0.714
Minimum: 0.0156666
Weighted Frequency (% of 255.663)
Sn * Density (%.g/cm3)

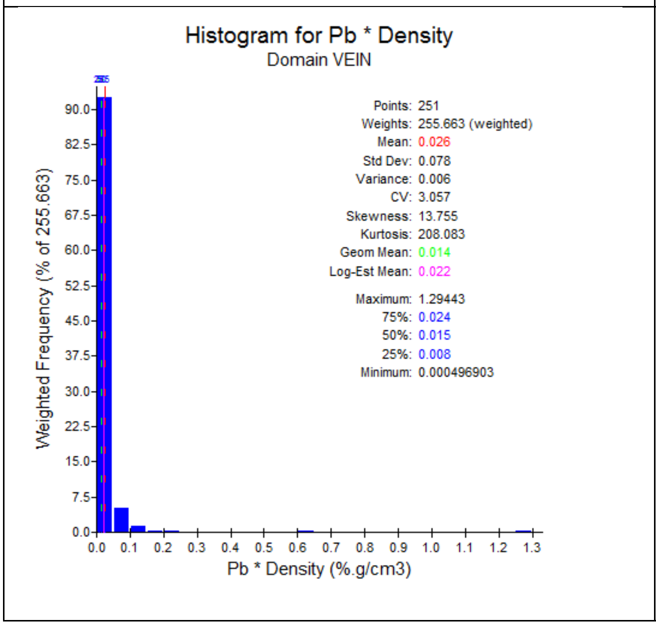

Log Probability Plot for Sn * Density
Domain VEIN
Points: 251
Weights: 255.663 (weighted)
Mean: 9.015
Std Dev: 18.249
Variance: 333.020
CV: 2.024
Skewness: 3.657
Kurtosis: 14.673
Geom Mean: 2.116
Log-Est Mean: 13.078
Maximum: 126.08
75%: 8.552
50%: 2.157
25%: 0.714
Minimum: 0.0156666
Cumulative Probability (%)
Sn * Density (%.g/cm3)

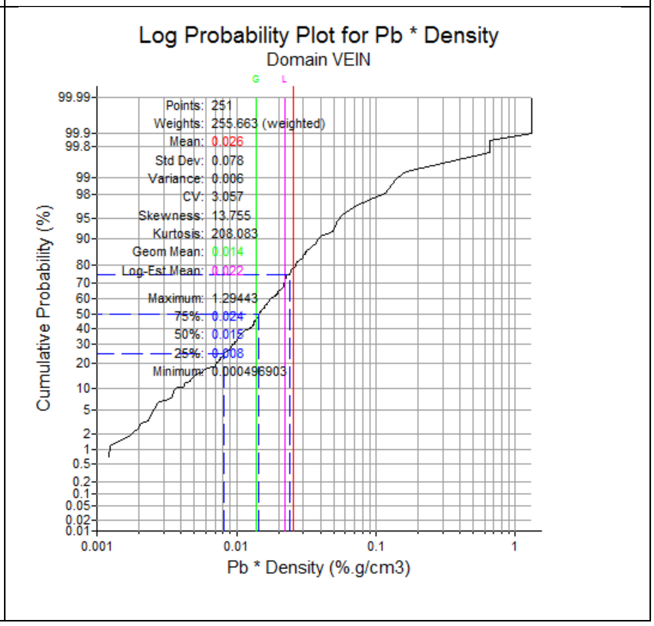

Histogram for Cu * Density
Domain VEIN
Points: 251
Weights: 255.663 (weighted)
Mean: 0.892
Std Dev: 1.512
Variance: 2.285
CV: 1.694
Skewness: 3.124
Kurtosis: 11.018
Geom Mean: 0.318
Log-Est Mean: 0.983
Maximum: 9.71001
75%: 0.880
50%: 0.287
25%: 0.113
Minimum: 0.00292731
Weighted Frequency (% of 255.663)
Cu * Density (%.g/cm3)


Log Probability Plot for Cu * Density
Domain VEIN
Points: 251
Weights: 255.663 (weighted)
Mean: 0.892
Std Dev: 1.512
Variance: 2.285
CV: 1.694
Skewness: 3.124
Kurtosis: 11.018
Geom Mean: 0.318
Log-Est Mean: 0.983
Maximum: 9.71001
75%: 0.880
50%: 0.287
25%: 0.113
Minimum: 0.00292731
Cumulative Probability (%)
Cu * Density (%.g/cm3)


Histogram for Zn * Density
Domain VEIN
Points: 251
Weights: 255.663 (weighted)
Mean: 0.392
Std Dev: 0.526
Variance: 0.277
CV: 1.340
Skewness: 3.955
Kurtosis: 21.375
Geom Mean: 0.213
Log-Est Mean: 0.433
Maximum: 4.71279
75%: 0.441
50%: 0.220
25%: 0.117
Minimum: 0.0045672
Weighted Frequency (% of 255.663)
Zn * Density (%.g/cm3)

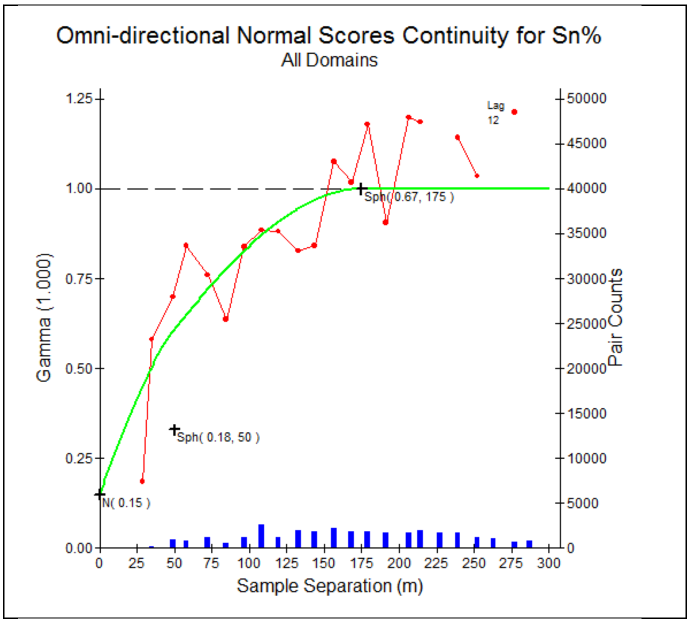

Log Probability Plot for Zn * Density
Domain VEIN
Points: 251
Weights: 255.663 (weighted)
Mean: 0.392
Std Dev: 0.526
Variance: 0.277
CV: 1.340
Skewness: 3.955
Kurtosis: 21.375
Geom Mean: 0.213
Log-Est Mean: 0.433
Maximum: 4.71279
75%: 0.441
50%: 0.220
25%: 0.117
Minimum: 0.0045672
Cumulative Probability (%)
Zn * Density (%.g/cm3)

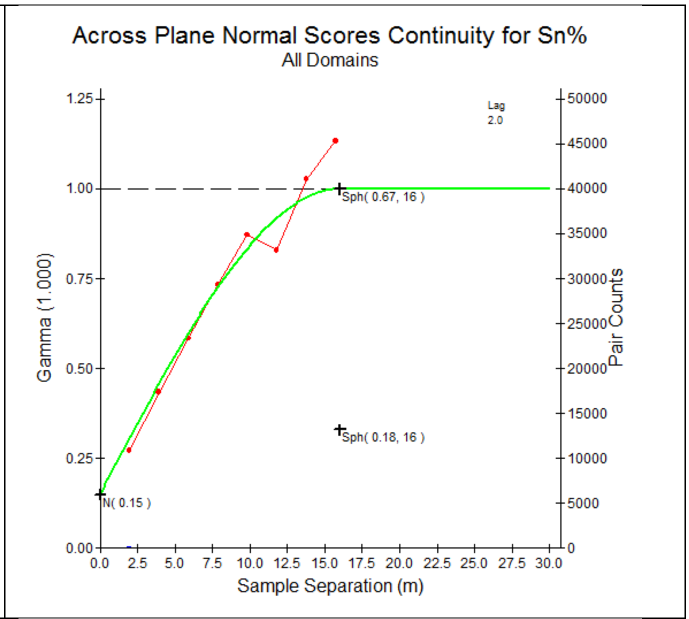

Histogram for Pb * Density
Domain VEIN
Points: 251
Weights: 255.663 (weighted)
Mean: 0.026
Std Dev: 0.078
Variance: 0.006
CV: 3.057
Skewness: 13.755
Kurtosis: 208.083
Geom Mean: 0.014
Log-Est Mean: 0.022
Maximum: 1.29443
75%: 0.024
50%: 0.015
25%: 0.008
Minimum: 0.000496903
Weighted Frequency (% of 255.663)
Pb * Density (%.g/cm3)

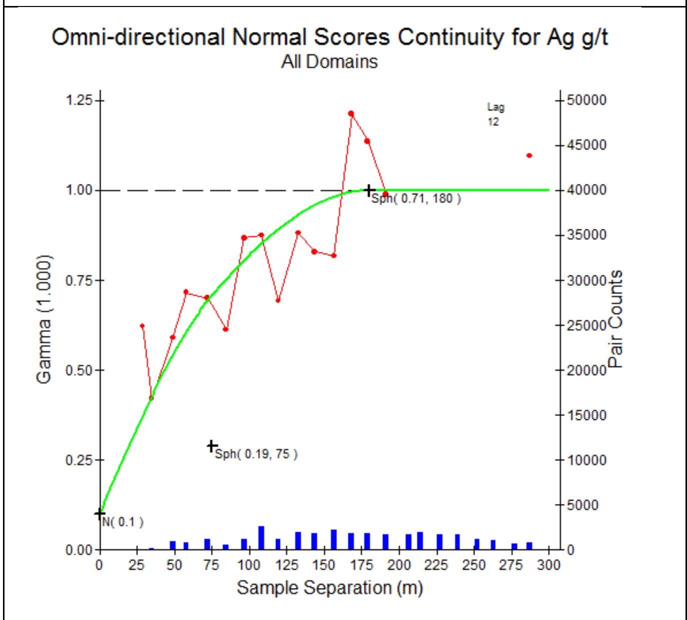

Log Probability Plot for Pb * Density
Domain VEIN
Points: 251
Weights: 255.663 (weighted)
Mean: 0.026
Std Dev: 0.078
Variance: 0.006
CV: 3.057
Skewness: 13.755
Kurtosis: 208.083
Geom Mean: 0.014
Log-Est Mean: 0.022
Maximum: 1.29443
75%: 0.024
50%: 0.015
25%: 0.008
Minimum: 0.000496903
Cumulative Probability (%)
Pb * Density (%.g/cm3)

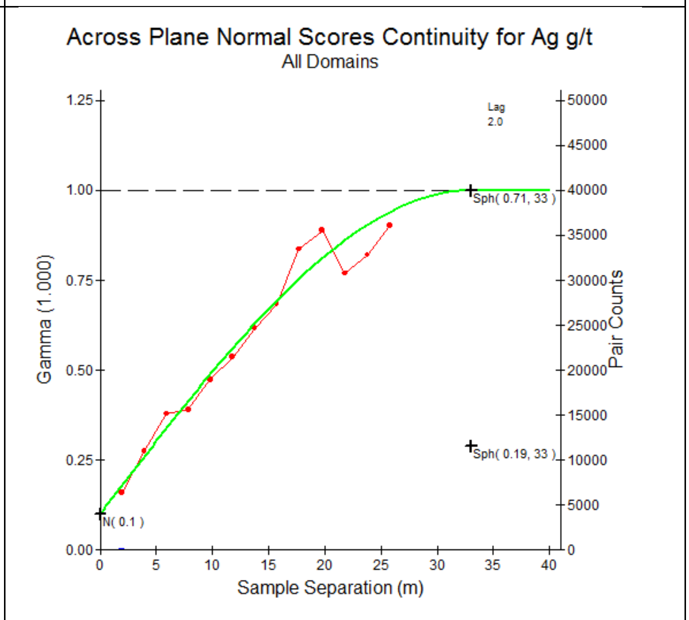
APPENDIX 5:

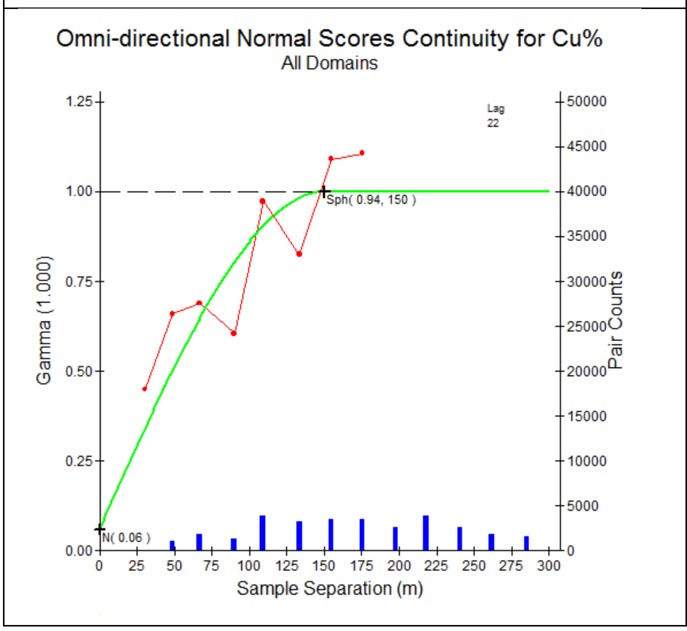
Semi-Variograms

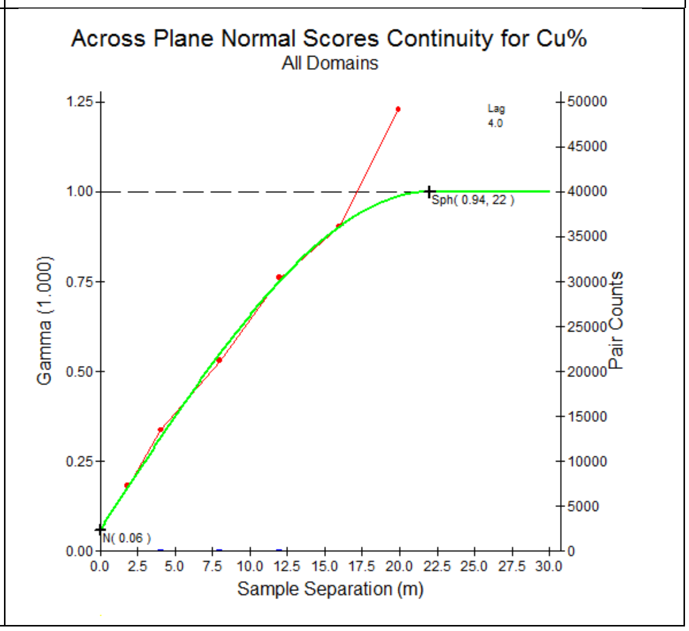

Omni-directional Normal Scores Continuity for Sn%
All Domains
Gamma (1.000)
Pair Counts
Sample Separation (m)
Lag
12
Sph(0.67, 175)
Sph(0.18, 50)
N(0.15)


Across Plane Normal Scores Continuity for Sn%
All Domains
Gamma (1.000)
Pair Counts
Sample Separation (m)
Lag
2.0
Sph(0.67, 16)
Sph(0.18, 16)
N(0.15)

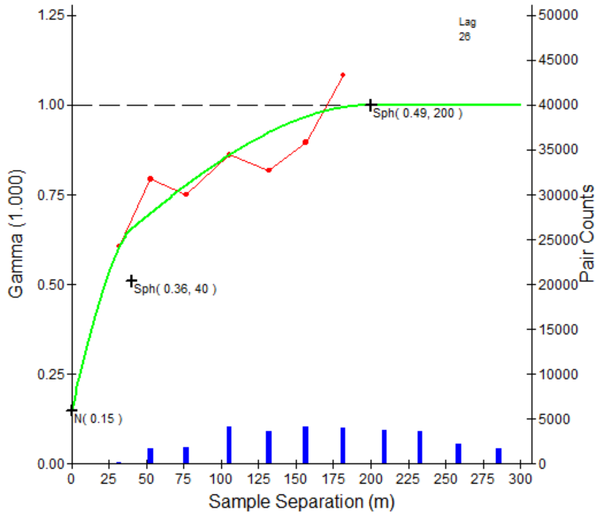

Omni-directional Normal Scores Continuity for Ag g/t
All Domains
Gamma (1.000)
Pair Counts
Sample Separation (m)
Lag
12
Sph(0.71, 180)
Sph(0.19, 75)
N(0.1)


Across Plane Normal Scores Continuity for Ag g/t
All Domains
Gamma (1.000)
Pair Counts
Sample Separation (m)
Lag
2.0
Sph(0.71, 33)
Sph(0.19, 33)
N(0.1)

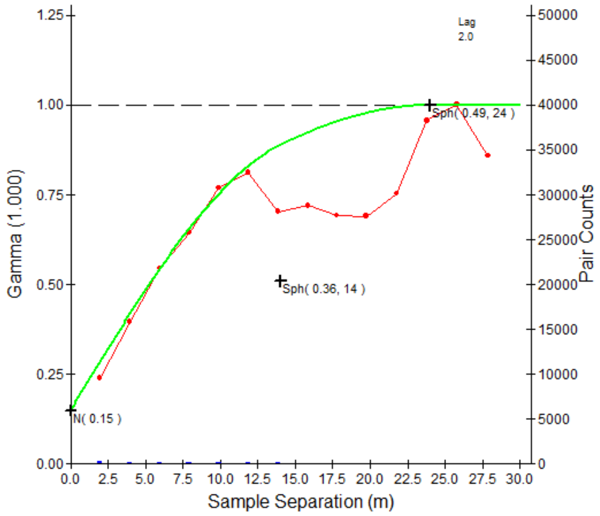

Omni-directional Normal Scores Continuity for Cu%
All Domains
Gamma (1.000)
Pair Counts
Sample Separation (m)
Lag
22
Sph(0.94, 150)
N(0.06)


Across Plane Normal Scores Continuity for Cu%
All Domains
Gamma (1.000)
Pair Counts
Sample Separation (m)
Lag
4.0
Sph(0.94, 22)
N(0.06)

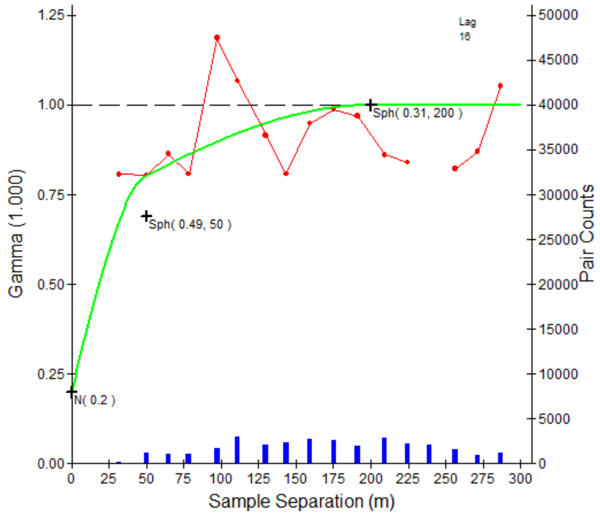
Omni-directional Normal Scores Continuity for Zn%
All Domains



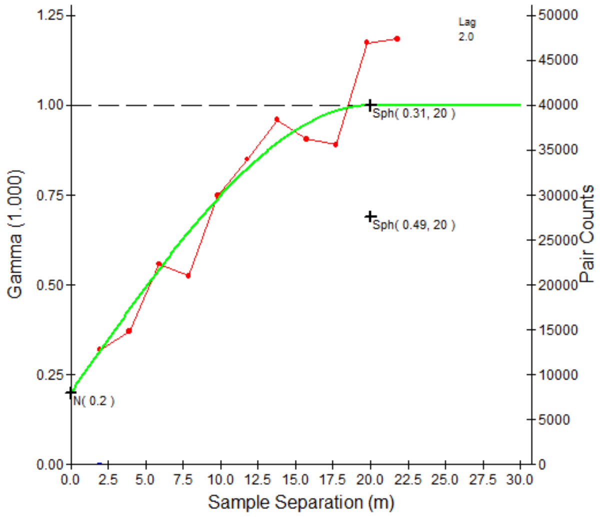
Across Plane Normal Scores Continuity for Zn%
All Domains



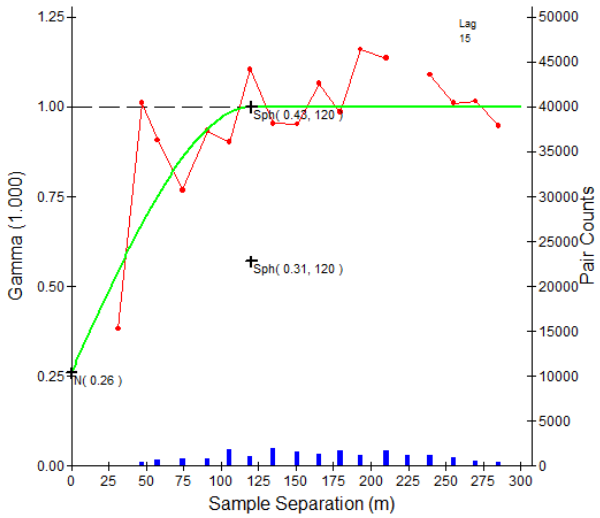
Omni-directional Normal Scores Continuity for Pb%
All Domains



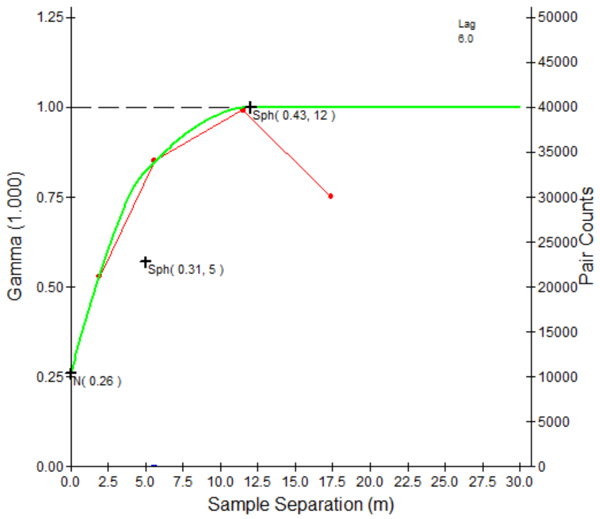
Across Plane Normal Scores Continuity for Pb%
All Domains

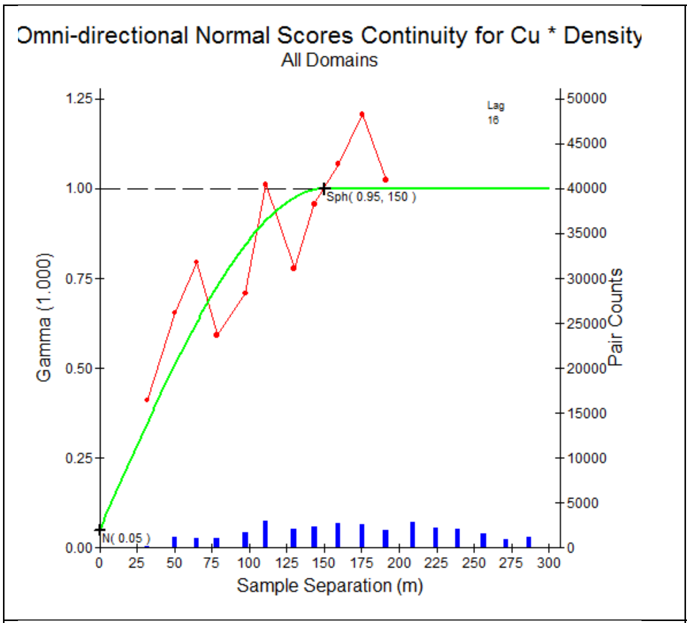


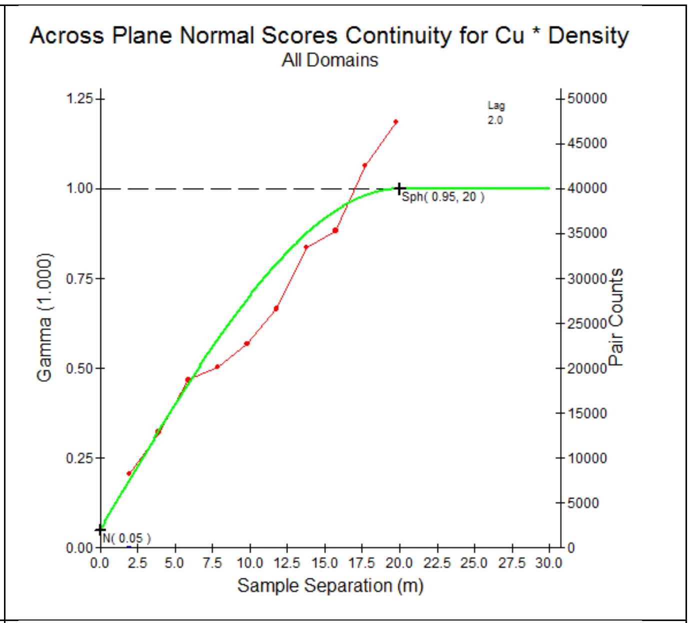
Omni-directional Normal Scores Continuity for Sn * Density
All Domains

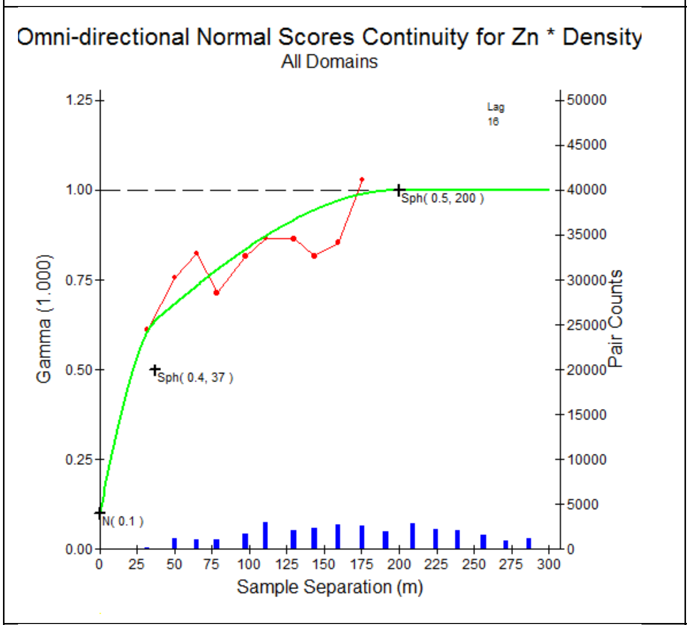


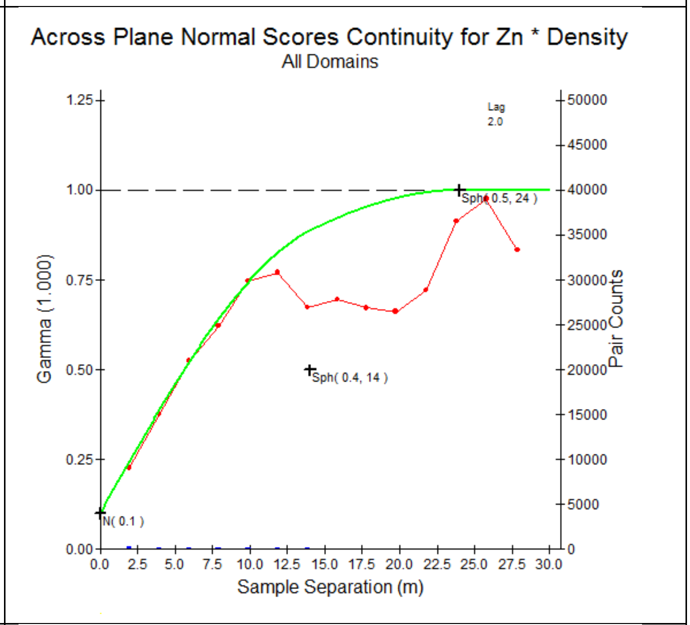
Across Plane Normal Scores Continuity for Sn * Density
All Domains

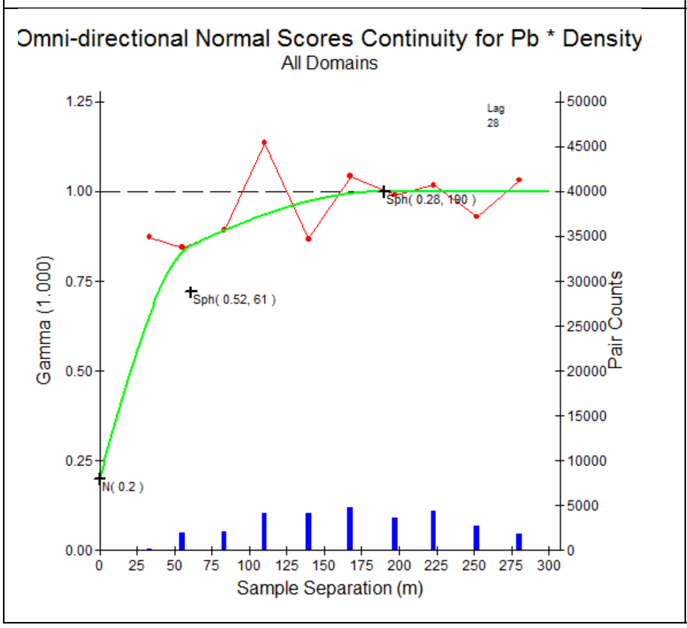


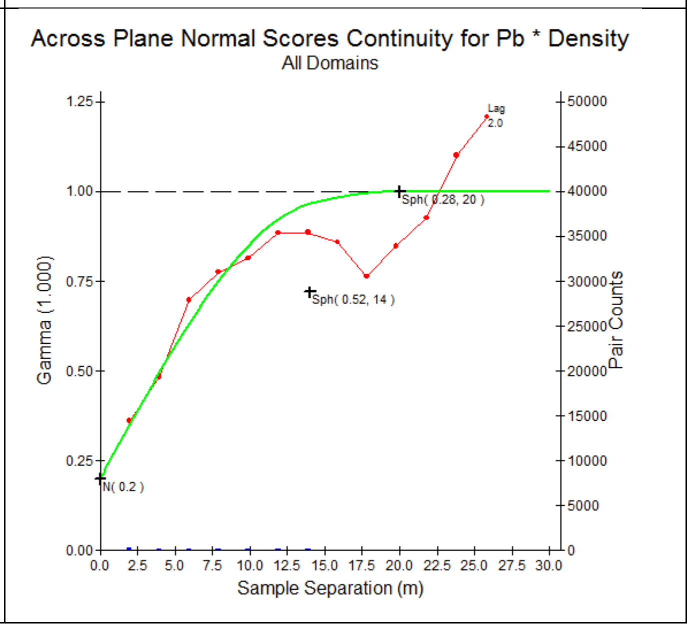

Omni-directional Normal Scores Continuity for Cu * Density
All Domains
Lag
16
Sph(0.95, 150)
N(0.05)
Gamma (1.000)
Pair Counts
Sample Separation (m)


Across Plane Normal Scores Continuity for Cu * Density
All Domains
Lag
2.0
Sph(0.95, 20)
N(0.05)
Gamma (1.000)
Pair Counts
Sample Separation (m)


Omni-directional Normal Scores Continuity for Zn * Density
All Domains
Lag
16
Sph(0.5, 200)
Sph(0.4, 37)
N(0.1)
Gamma (1.000)
Pair Counts
Sample Separation (m)


Across Plane Normal Scores Continuity for Zn * Density
All Domains
Lag
2.0
Sph(0.5, 24)
Sph(0.4, 14)
N(0.1)
Gamma (1.000)
Pair Counts
Sample Separation (m)


Omni-directional Normal Scores Continuity for Pb * Density
All Domains
Lag
28
Sph(0.28, 190)
Sph(0.52, 61)
N(0.2)
Gamma (1.000)
Pair Counts
Sample Separation (m)


Across Plane Normal Scores Continuity for Pb * Density
All Domains
Lag
2.0
Sph(0.28, 20)
Sph(0.52, 14)
N(0.2)
Gamma (1.000)
Pair Counts
Sample Separation (m)