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Report

Verkhuba Polymetallic Deposit Mineral Resource Estimate

East Star Resources

AMC Project 0224015
22 April 2024

Unearth a smarter way

Executive summary

East Star Resources (ESR or "the Client") commissioned AMC Consultants Pty Ltd (AMC) to prepare a Mineral Resource estimate (MRE) for the Verkhuba polymetallic deposit located in eastern Kazakhstan.

Exploration of the project area was carried out in 1970s through to the 1990s mostly by surface core drilling. ESR drilled six verification and infill diamond holes, surveyed the topography using Light Detection and Ranging (LiDAR) technology, updated historical drillhole collar locations, updated downhole survey data, and generated a lithological model for the deposit. The additional information and data that were received in 2023 prompted the update of the Verkhuba block model and the estimation of the Mineral Resources for the deposit. Historical exploration adits and drives have been developed at the deposit, but the database for underground channel sampling was not available. Mineralized zones consist of VHMS shallow dipping thin sheet-like bodies and lenses.

The Mineral Resources were reported in accordance with the JORC Code[1]. The Mineral Resource estimate was completed by Mr Dmitry Pertel, Principal Geologist of AMC. Dmitry assumes Competent Person status for the reported Mineral Resources. Dmitry has the necessary qualifications and relevant experience in the style of mineralization under consideration at Verkhuba to qualify as a Competent Person under the JORC Code.

The QAQC analysis was completed by Dr Mikhail Tsypukov, Consulting Geologist working for the Client. Mikhail assumes Competent Person status for the exploration data and QAQC analysis. Mikhail has the necessary qualifications and relevant experience in the style of mineralization under consideration at Verkhuba to qualify as a Competent Person under the JORC Code.

The estimate for the material that could potentially be subject to an underground mining method is reported as Inferred in Table I. The marginal cut-off grade of 0.86% CuEq was applied for reporting of the model. The Mineral Resource estimate effective date is 31 March 2024.

Table I Verkhuba Mineral Resource estimate as of 31 March 2024

Classification	Tonnes	Cu		Zn		Pb	
	(mt)	Grade (%)	Metal (kt)	Grade (%)	Metal (kt)	Grade (%)	Metal (kt)
Inferred	20.3	1.16	236	1.54	313	0.27	54

Notes:

- Mineral Resources have been classified in accordance with the guidelines of the JORC Code. All blocks were classified as Inferred.
- The Mineral Resource report assumes an underground mining method with the marginal cut-off of 0.86% Cu equivalent. The model was not constrained.
- A nominal dry bulk density value of 3.0 t/m^3 was assumed to be appropriate for the style of mineralization.
- Cu equivalent was calculated using the following metal prices: 3,050 $/t for Zn, 9,000 $/t for Cu, 2,250 $/t for Pb with metallurgical recoveries of 90% all elements.
- Tonnage is reported on dry basis.

In AMC's opinion, the Mineral Resource estimate shown in Table I has been determined in a manner consistent with the guidelines of the JORC Code. The Mineral Resource figures are provided at the appropriate level of precision for public reporting.

A total of 111 diamond drillholes define the Verkhuba polymetallic deposit representing a total of 46,616 m of drilling. Of that drilling, 69 drillholes were used for the

[1] Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. The JORC Code, 2012 Edition. Prepared by: The Joint Ore Reserves Committee of The Australasian Institute of Mining and Metallurgy, Australian Institute of Geoscientists and Minerals Council of Australia (JORC).

Mineral Resource estimate (MRE) as other holes did not intersect mineralization. The deposit area was sampled using diamond drillholes at variable spacings – from 200 m by 200 m to 100 m by 100 m spacing.

Geological modelling was completed by AMC. The interpretations resulted in wireframes for 56 mineralized zones for copper, 76 mineralized zones for zinc, and 39 mineralized zones for lead using corresponding cut-off grades of 0.40% Cu, 0.35% Zn and 0.25% Pb. Wireframes provided by ESR of the lithological model and fault planes were used to control the interpretation of each element. A block model constrained by the interpreted mineralized zones was constructed with a small parent cell size of 5 mE by 5 mN by 2 mRL with standard sub-celling using up to 5 divisions in all directions to maintain the volume resolution of the mineralized zones.

Drillhole sample intervals have been composited to 1 m length and were used to interpolate all main modelled grades (Zn, Pb, Cu) into the block model using ordinary kriging (OK) interpolation techniques after statistical and geostatistical analyses. Block grades were validated both visually and statistically.

A constant average bulk density value of 3.0 t/m^3 was applied to each model cell. The value was assumed based on work completed and documented in historical reports.

All modelling was completed using Micromine software.

AMC recommends the following actions are completed to support the ongoing evaluation efforts at the Verkhuba polymetallic deposit:

- Additional exploration drilling incorporating industry standard QAQC protocols to define the deposit geology, faults and location of mineralized zones. It is expected that a 50 m by 50 m exploration grid density incorporating closer spaced infill drilling (to test continuity) could potentially support classification of a portion of the Mineral Resources as Indicated.
- Routine measurements of bulk density to support subsequent Mineral Resource and Ore Reserve estimates.
- Logging and modelling of the oxidation profile related to weathering (if present) as it will impact the metallurgical properties, metal recoveries, and bulk densities.
- Scoping level mining study to estimate the potential economics of the project.
- Geometallurgical study to determine ore types, their potential beneficiation properties, and possible processing options.

Quality control

The signing of this statement confirms this report has been prepared and checked in accordance with the AMC Peer Review Process.

Project Manager	The signatory has given permission to use their signature in this AMC document **Dmitry Pertel**	22 April 2024 Date
Peer Reviewer	The signatory has given permission to use their signature in this AMC document **Ingvar Kirchner**	22 April 2024 Date

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If a Client wishes to publish a Mineral Resource or Ore / Mineral Reserve estimate prepared by AMC, it must first obtain the Competent / Qualified Person's written consent, not only to the estimate being published but also to the form and context of the published statement. The published statement must include a statement that the Competent / Qualified Person's written consent has been obtained.

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1 Introduction

1.1 Terms of reference

In March 2024, East Star Resources (ESR) commissioned AMC Consultants Pty Ltd (AMC) to prepare a Mineral Resource estimate (MRE) for the Verkhuba polymetallic deposit, located in the Rudny Altai Belt in Eastern Kazakhstan.

The scope of work provided by ESR required the following:

- Database import and validation.
- Classical statistical analysis.
- Interpretation and wireframing of mineralized zones separately for each main element (Cu, Zn and Pb) using selected and justified by statistical analysis for cut-off grades.
- Data selection and compositing.
- Block model development.
- Grade interpolation and model validation.
- Assignment of bulk density.
- Assignment of Mineral Resource classification in accordance with the JORC Code[2]

The deliverables under the scope of work included:

- A Mineral Resource estimate report compiled in accordance with the guidelines of the JORC Code.
- Block model for the deposit and associated key data files.

1.2 JORC Code compliance

The MRE for the Verkhuba polymetallic deposit is reported in accordance with the JORC Code and is therefore suitable for public release.

1.3 Sources of information and reliance on information

AMC has relied upon the accuracy and completeness of technical, and legal information and data provided by, or through, ESR and its representatives.

ESR has confirmed to AMC that, to its knowledge, the information provided by ESR (when provided) was complete and not misleading in any material respect. AMC has no reason to believe that any material facts have been withheld. Whilst AMC has exercised all due care in reviewing the supplied information, AMC does not accept responsibility for errors or omissions contained therein and disclaims liability for any consequences of such errors or omissions.

AMC's assessment of the Mineral Resource is based on information provided by ESR through the course of AMC's investigations, which in-turn reflect various technical and economic conditions prevailing at the date of this report and at the date of preparing the MRE. These can change significantly over time.

This report specifically excludes all aspects of legal issues, marketing, commercial and financing matters, insurance, land titles and usage agreements, and any other agreements and/or contracts ESR might have entered into.

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[2] Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. The JORC Code, 2012 Edition. Prepared by the Joint Ore Reserves Committee of The Australasian Institute of Mining and Metallurgy, Australian Institute of Geoscientists and Minerals Council of Australia (JORC).

1.1 Technical information and effective date

The effective date of this report is 31 March 2024 (Effective Date).

AMC was provided with the information listed in Table 1.1 to complete the scope of work.

Table 1.1 Sources of information

Data file	Description
COLLAR_VERKHUBA_DEPOSIT_V1.csv ASSAY_VERKHUBA_DEPOSIT_V1.csv SURVEY_VERKHUBA_DEPOSIT_V1.csv	Historical diamond drilling (DD) database and analytical data
ESR_DB_Drilling_2023.xlsx	Updated drillhole database
LiDAR Point Cloud_Verkhuba.las	LiDAR topography points
Pit Opt params.xlsx	Input economic parameters
Summary on Verkhuba deposit.docx Summary on Verkhuba MRE database.docx JORC report_Chapters V3.docx	Summary reports and documentation
GM-1 - BR.dxf, GM-1 - GR.dxf, GM-1 - LS.dxf, GM-1 - Q.dxf, GM-1 - Unknown.dxf, GM 4 copy - GM-1_Fault 03.dxf, GM 4 copy - GM-1_Fault 04.dxf, GM 4 copy - GM-1_Fault 05.dxf	Wireframes for lithological model and fault planes

1.2 Declaration

AMC will receive a fee for the preparation of this report in accordance with normal professional consulting practices. This fee is not dependent on the findings of this report and AMC will receive no other benefit for the preparation of this report. AMC does not have any interests that could reasonably be regarded as capable of affecting its ability to provide an unbiased opinion in relation to ESR's projects and assumptions included in the various technical studies completed by ESR, opined upon by AMC and reported herein.

While some employees of AMC and its subconsultants may have small direct or beneficial shareholdings in ESR or associated companies, neither AMC nor the contributors to this report nor members of their immediate families have any interests in ESR that could be reasonably construed to affect their independence. AMC has no pecuniary interest, association, or employment relationship with ESR.

None of the AMC consultants who are contributors to this report is an officer, employee, or proposed officer or employee of ESR or any group, holding or associated company of ESR.

AMC and the Competent Persons consider themselves to be independent of ESR, its directors, and senior management.

1.3 Qualifications of consultants and Competent Persons

AMC is a firm of independent geological, geotechnical, hydrogeological, mining engineering, metallurgical engineering, and business improvement consultants offering expertise and professional advice to exploration, mining, and mining finance industries from our offices in Australia, Canada, Russia, Singapore, and the United Kingdom.

AMC's experience-base covers all facets of mining from exploration and planning through to production and senior management roles. AMC has conducted a substantial number of evaluations of open-pit and underground mining projects and operations over a wide range of mineral commodities and is widely recognized as a technical leader in the global mining industry.

The MRE was completed by Mr Dmitry Pertel, Principal Geologist of AMC. Dmitry assumes Competent Person status for the reported Mineral Resources. Dmitry has the necessary qualifications and relevant experience in the style of mineralization under consideration at

Verkhuba to qualify as a Competent Person under The JORC Code. Dmitry Pertel has more than 38 years geological experience in mining, exploration and field work, office and operations establishment and management together with specific skills in mining and geological computer applications using Micromine, Datamine, and other software. He has been involved in database management, resource modelling and evaluation, economic analysis, consulting, due diligence studies, audits, software promotion and sales. He has a strong working knowledge of exploration and mining projects around the world. Dmitry Pertel is a Member of the Australian Institute of Geoscientists. Project management for the report was also undertaken by Mr Dmitry Pertel.

The QAQC analysis and the site visit were completed by Dr Mikhail Tsypukov, Consulting Geologist for the Client. Mikhail assumes Competent Person status for the exploration data and QAQC analysis. Mikhail has the necessary qualifications and relevant experience in the style of mineralization under consideration at Verkhuba to qualify as a Competent Person under The JORC Code. Mr Tsypukov is an independent Consulting Geologist (not associated with AMC).

This report has been peer reviewed in accordance with AMC's peer review policy. The peer reviewer was Mr Ingvar Kirchner AMC Geology Manager - Principal Geologist. Ingvar has more than 37 years of industry experience in drilling, Mineral Resource estimation and associated geostatistics, open pit and underground mining, reconciliation studies, technical audits and due diligence studies for a range of metal commodities and globally diverse projects. Ingvar will provide peer review for this technical component of the study. AMC has a formal peer review process for all projects which is done to provide an assurance of the quality of the work AMC performs for a client.

In preparing this report, AMC has relied on the accuracy and completeness of the data provided to it by ESR or its subsidiaries. ESR has undertaken that it has made AMC aware of all material information in relation to the projects.

AMC has not conducted verification of the standing of the tenure for exploration at any of the projects and has relied on ESR that it will hold adequate security of tenure for exploration and assessment of the projects to proceed.

1.4 Competent Persons and obligations of ESR for Public Reports

ESR has provided to AMC a validated drillhole database, QAQC data and reports, and geological descriptions for the Verkhuba polymetallic project.

For any Public Report (JORC Code clause 6 and clause 9) undertaken in accordance with the JORC Code regarding the Mineral Resource estimate, AMC Principal Geologist, Dmitry Pertel, will act as the Competent Person for the reporting of MRE, and Mikhail Tsypukov, Consulting Geologist, will act as the Competent Person for the QAQC analysis, site visit and exploration results.

For first time Public Reports regarding the MRE, the report can only be issued with the prior written consent of the Competent Persons as to the form and context in which it appears. The appropriate compliance statement will be given at that point for inclusion in the Public Report.

Other than for annual reports of the company's Mineral Resources and Ore Reserves, where ESR is re-issuing information previously issued with the written consent of the Competent Persons, it must state the original report name, the name(s) of the Competent Persons responsible for the original report and state the date and reference the location of the original source public report for public access. In these circumstances, ESR is not required to obtain the Competent Persons' prior written consent as to the form and context in which the information appears, but must confirm through the appropriate compliance statements (see the JORC Code Appendix 3) that:

- There is no new information or data that materially affects the information relevant to the original Public Report.

- All material assumptions and technical parameters underpinning the estimates in the relevant market announcement continue to apply and have not materially changed.
- The company confirms that the form and context in which the Competent Person's findings are presented have not been materially modified. Note that for the subsequent public presentation, it is the responsibility of ESR acting through its Board of Directors to ensure the form and context has not been materially changed.

Note that under ASX Listing Rules and the JORC Code, annual resource and reserve reports require separate and new consents from the Competent Persons for the annual Mineral Resource and Ore Reserve reports. This is essentially to confirm the currency of the conditions for reasonable prospects for eventual economic extraction (RPEEE) which have the potential to change with time and to ensure that any changes are understood and explained.

1.5 Abbreviations

The abbreviations used in this report are shown in Table 1.2.

Table 1.2 Abbreviations

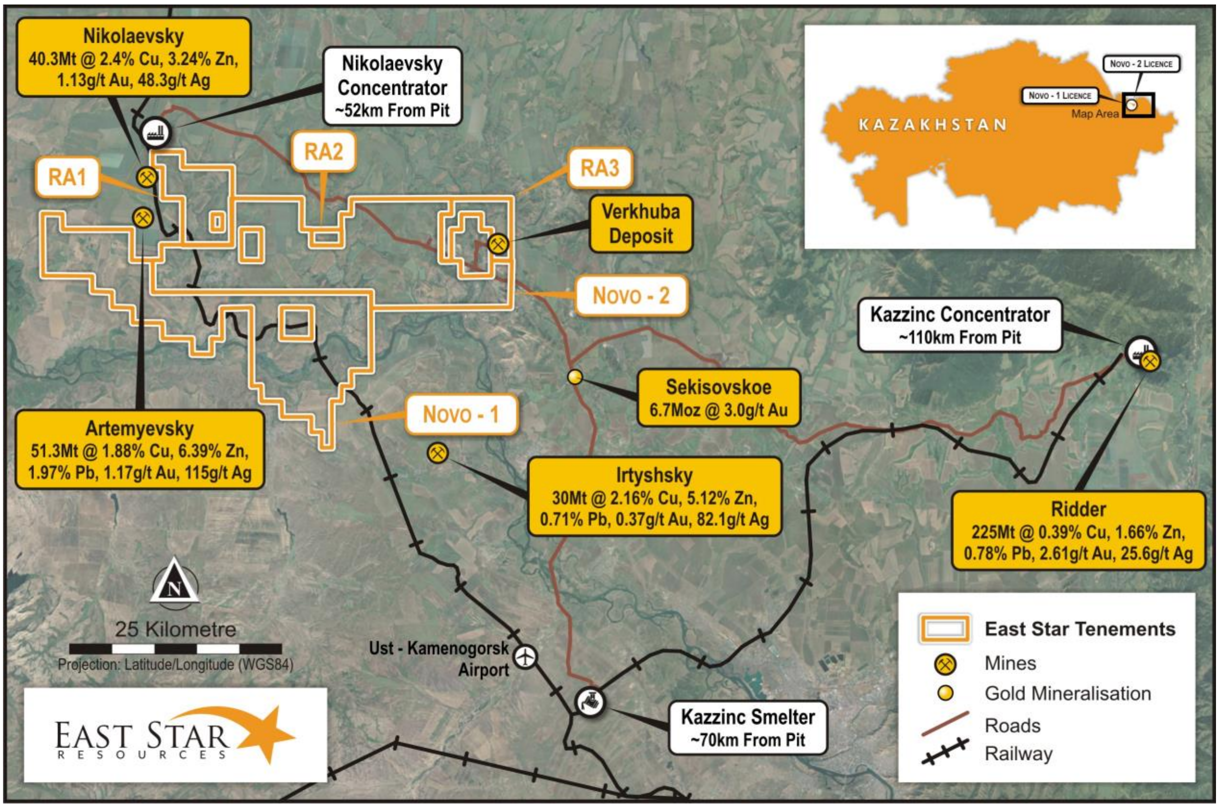
Abbreviation	Meaning
3D	Three dimensional
AAS	Atomic absorption spectroscopy
AMC	AMC Consultants Pty Ltd
AMSL	Above sea level
ASX	Australian Stock Exchange
CAOB	Central Asian Orogenic belt
COV	Coefficient of variation
CRM	Certified reference material
CuEq	Copper equivalent
DTM	Digital terrain model
DVK	Discovery Ventures Kazakhstan Limited
EIA	Environmental impact assessment
ESR	East Star Resources
ET	Exploration Target
G&A	General and administration
GSM	Gridded seam model
JORC	Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves
kt	Thousand tonnes
LOM	Life of mine
Mln $	Million dollars
Mt	Million tonnes
Mtpa	Million tonnes per annum
MRE	Mineral Resource estimate
NPV	Net present value
OK	Ordinary kriging
pa	Per annum
QAQC	Quality assurance and quality control
RAF	Revenue adjustment factor
RF	Revenue Factor
RPEEE	Reasonable prospects for eventual economic extraction
VHMS	Volcanogenic hosted massive sulfide

2 Project and exploration history

2.1 Project location and access

The Verkhuba polymetallic deposit is located in north-eastern Kazakhstan in the Shemonaikha District (Figure 2.1). The deposit area covers an eastern part of exploration licence 1795-EL (the "Licence"). The deposit can be accessed by dirt road from Verkuba village, located 2.6 km west of the deposit. The village is connected by local tarmac road with the regional Shemonaikha-Sekisovka tarmac road.

Figure 2.1 Location of the Verkhuba deposit



Source: ERS

2.2 Tenure

The Verkhuba polymetallic deposit is located in the eastern part of exploration license 1795-EL (the "License"). The license was issued to Discovery Ventures Kazakhstan Limited ("DVK") on 27 July 2022 for initial period of 6 years with a possibility of further five years extension subject to reduction of the license area by 40%. The license has an area of 37.1 km^2 and contains VHMS deposits Pokrovskoe-2 (mined out in the period 1960 to 1970) and Verkhuba and several other VHMS occurrences. No native title interests, historical sites, wilderness or national park and environmental setting identified by ESR appointed environmental consultants. DVK is a 100% owned entity of East Star Resources, a UK based company.

As far as the authors of the report are aware, the Ministry of Industry and Infrastructural Development of the Republic of Kazakhstan does not carry any negotiations with any other party in respect to the license area. All required documents including Exploration programme, Environmental impact assessment (EIA) and enhanced technical and economic calculations studies are completed by ESR and approved by the Kazakhstan mining authorities allowing ESR to perform exploration on the property.

According to Kazakh mining legislation, exploration licenses can be converted to mining licenses after completion of exploration in cases where the applicants are in compliance with qualification requirements of the Subsoil Use Code of the Republic of Kazakhstan.

2.3 Climate and physiography

The climate is continental, with long winters from mid-October to March and wet summers. The hottest months are June, July, and August with absolute maximum temperature of +40°C. The coldest months are January and February with absolute minimum temperature of -48°C (SRK ES, 2021).

The deposit area is located on a hilly range in the southwestern part of the Rudny Altai and belongs to the transitional type of low mountainous regions and hummocks with individual peaks. The relief of the region is characterized by low absolute heights and low relative elevations. According to the digital terrain model (DTM), the highest absolute high is Ostrukha mountain, 542 m AMSL, located in the northern part the deposit area. The lowest mark on the surface is in the northwestern part of the License at 289 m AMSL (Figure 2.2).

Figure 2.2 Typical landscape of the deposit area

The hydrographic network includes the Uba river, a right-bank tributary of the Irtysh river, that flows though the northern part of the License, approximately 1 km north of the deposit. Within the License, the Uba river splits into a main stream and several minor channels separated by islands. The Irtysh river valley is located 35 km southwest of the License.

The flora in the area is sparse and devoid of woody vegetation with the exception of small shrubs and grasses that inhabit the slopes of hills and valleys with a discontinuous cover and are represented by honeysuckle and wild rose. Significant areas of flat valleys and plains are seasonally ploughed and sown with grain crops. Approximately half of the License areas is covered by agricultural fields.

The fauna is scarce and is represented mainly by rodents: ground squirrels, jerboas, and foxes. Of the birds, owls and hawks are known whilst large birds of prey are less common.

There are no nature protection zones, reserves or national parks in the vicinity of the License.

2.4 Infrastructure

The regional centre; Ust'-Kamenogorsk is located 50 km to the south-southeast, and the local district centre; Shemonaikha city is located 42 km to the northwest of the deposit. The airport of Ust'-Kamenogorsk is located 55 km south of the deposit. A tarmac road connecting Shemonaikha and Sekisovka cities is located 3.7 km southwest of the deposit.

Aurora and Festivalnaya railway stations are located 26 and 33 km southwest of the deposit. Rulikha station is located 36 km to the west of the deposit. In the Licence area there is a network of dirt roads that are quite suitable for driving all year round. Verkhuba village is located 2.6 km west of the deposit. The village is connected with the Shemonaikha-Sekisovka road by a 2.5 km tarmac road.

2.5 Project history

Mineralization in the area of Verkhuba deposit was discovered between 1948-1949 (Yakovlev *et al*., 1950). Several exploration campaigns through 1950-1990s were carried out within the deposit area by East Kazakhstan Geological Enterprise (Table 2.1).

Table 2.1 Main exploration campaigns performed at Verkhuba deposit area

Principal author, year	Period	Exploration	Results
Yakovlev *et al*., 1951	1948-1950	Geological mapping	Geological map 1:10,000
Krysova *et al*., 1954	1953-1954	Geological mapping	Geological map 1:10,000
Yusupov *et al*., 1956	1956	Geological traverses, core drilling	Potential of oxidation zone
Anoshin *et al*., 1972	1971-1972	Geological, geochemical survey, shallow prospecting shafts and drilling, ground IP, EM, magnetics, core drilling	Follow-up targets, discovery of new mineralized zones at depth
Rodionov, Golubtsov, 1977	1974-1976	Geological traverses, deep core drilling	Follow-up targets, prognostic resources
Avdonin *et al*., 1977	1974-1977	Mapping of Devonian volcanic centres	Follow-up targets, maps of distal and proximal volcanic facies
Nazarov, San'kov, 1986	1982-1986	Geological mapping at scale 1:50,000, ground IP, EM, magnetics, diamond drilling on the anomalies	Prognostic resources

Principal author, year	Period	Exploration	Results
Radchenko *et al*., 1987	1985-1987	Grid drilling 800-400 x 400-200 m, geochemical sampling, ground IP, EM, magnetics	Follow-up targets, tracing of mineralization
Grigorovich *et al*., 1990	1986-1988	Infill diamond drilling 200 x 400, 100 x 200, 75 x 100-180 m, underground development (an adit and drives) totalling 3001 m, metallurgical testing	Completion of drilling database of the Verkhuba deposit for follow-up MRE
Ermolaev *et al*., 1990	1990	Technical economic consideration of Verkhuba deposit	Mineral resource estimate in P_1-C_2 categories (GKZ)
ESR	2023	Exploration Target estimate	Exploration Target estimate report (JORC)
ESR	2023	Drilling of 6 verification and in-fill holes, topography survey, development of lithological model	MRE report (this report)

To date, the deposit database includes 111 diamond drill holes with mineralized intervals that were drilled during these exploration programmes.

Underground exploration workings included 3,001 m of adits (Grigorovich *et al*., 1990). The adit and drives aimed to collect material for metallurgical test work. Some sampling intervals from underground workings and metallurgical test results were included in an historical MRE (Grigorovich et al., 1990, Ermolaev et al., 1990). However, no data for the underground development and sampling is available in the geological archives.

2.6 Previous Mineral Resource estimates

According to a summary of historical exploration prepared by Nazarov *et al*. (1996), mineral resources of the oxide zone and near surface mineralization of Verkhuba deposit were estimated during the early-stage exploration by Yusupov *et al*. (1956) and Rodionov *et al*. (1977). In both cases, polymetallic mineralization was determined to be uneconomic. No details of these estimates are available for ESR to review.

After additional drilling performed in 1987 to 1990 by Grigorovich *et al*. (1990), a Technical Economic Consideration supported by mineral resource estimate in line with GKZ categories C_2-P_1 was produced by Ermolaev *et al*. (1990). The mineral resource estimate considered three cut-off grades: 3.0%, 2.0% and 0.8% as a sum of metals expressed as Zn equivalent (ZnEQ), using a minimum thickness of mineralized bodies as 1.6 m and maximum internal dilution of 3 m. Results of the estimate are presented in Table 2.2 below.

Table 2.2 Verkhuba estimate results (1990)

ZnEQ Cut-off grade	Tonnes (kt)	Cu (%)	Pb (%)	Zn (%)	Cu (kt)	Pb (kt)	Zn (kt)	Au (t)	Ag (t)
3.0	2,714	1.84	0.27	4.65	49.90	7.41	126.25	0.81	38.50
2.0	5,445	1.34	0.22	3.19	74.62	4.73	173.94	1.66	77.30
0.8	10,897	1.14	0.14	1.91	124.22	15.68	208.54	3.27	154.70

Source: Ermolaev *et al*., 1990

Note: This estimate was not verified by AMC, and AMC does not accept any responsibility for the accuracy of the estimates.

The bulk density of mineralized material was estimated as 3.0 t/m^3 based on 500 samples collected from drill core and underground channels. In addition to the above estimate, average Au and Ag grades were calculated based on Au and Ag grades in technological sample №4 equal to 0.4 and 3.0 g/t Au, and 14.2 g/t Ag.

It was concluded by Ermolaev *et al*. (1990) that the mining could be profitable with 3.0% of sum of metals (ZnEQ) as a cut-off grade in accordance with the economic conditions, prices and costs of 1990.

According to Ermolaev *et al.* (1990) metallurgical test work was performed in 1990 on nine mineralized samples of four different compositions (Cu-Pb-Zn, Cu-Zn, Pb-Zn, Zn-pyrite), varying in weight from 14 kg to 1500 kg using several treatment schemes, producing Cu, Pb, Zn and pyrite concentrate with the recovery varying between 86-96% (Cu), 75-85% (Pb), 75-94% (Zn), 48-60 (pyrite). Based on test results, it was recommended to use bulk-differential flotation which provides 83-84% Cu and Zn recovery to concentrates. Au and Ag recovery to concentrates was below 50%.

A previous estimate of unclassified grades and tonnes was completed by AMC in February 2024 (Table 2.3). The marginal cut-off grades of 0.38% CuEq and 0.86% CuEq were applied to the model within the limits of the pit and outside of the pit limits (assumed underground target) respectively.

2.7 Mining status

No current or historical mining has occurred at the Verkhuba deposit. According to historical reports, the limited underground workings were focused on providing metallurgical sampling (Grigorovich et al., 1990).

Table 2.3 Summary table – Verkhuba unclassified grade and tonnage estimate for open pit and underground mining methods, February 2024

Mining Method	Tonnes	CuEq		Zn		Cu		Pb	
	(kt)	Grade (%)	Metal (kt)	Grade (%)	Metal (kt)	Grade (%)	Metal (kt)	Grade (%)	Metal (kt)
Open pit	7,006	1.82	127	1.11	78	1.41	99	0.11	8
Underground	14,010	1.53	215	1.42	199	0.98	137	0.31	43
Total	**21,016**	**1.57**	**342**	**1.27**	**277**	**1.08**	**236**	**0.23**	**51**

Notes:

- Estimation for the model is by ordinary kriging.
- The model assumes an open pit mining method with marginal cut-off of 0.38% CuEq and underground mining method with the marginal cut-off of 0.86% CuEq.
- Blocks for open pit mining were constrained by the ultimate pit shell.
- Block for underground mining method were below and outside of the ultimate pit shell and not otherwise constrained.
- Dry bulk density values of 3.0 t/m^3 were assigned to all mineralized zones.
- Cu equivalent was calculated using the following metal prices: 3,050 $/t for Zn, 9,000 $/t for Cu, 2,250 $/t for Pb.
- Tonnage is reported on dry basis.
- The model is unclassified and is not intended for use in public reporting.
- Totals may vary due to rounded figures.

3 Geological setting and mineralization

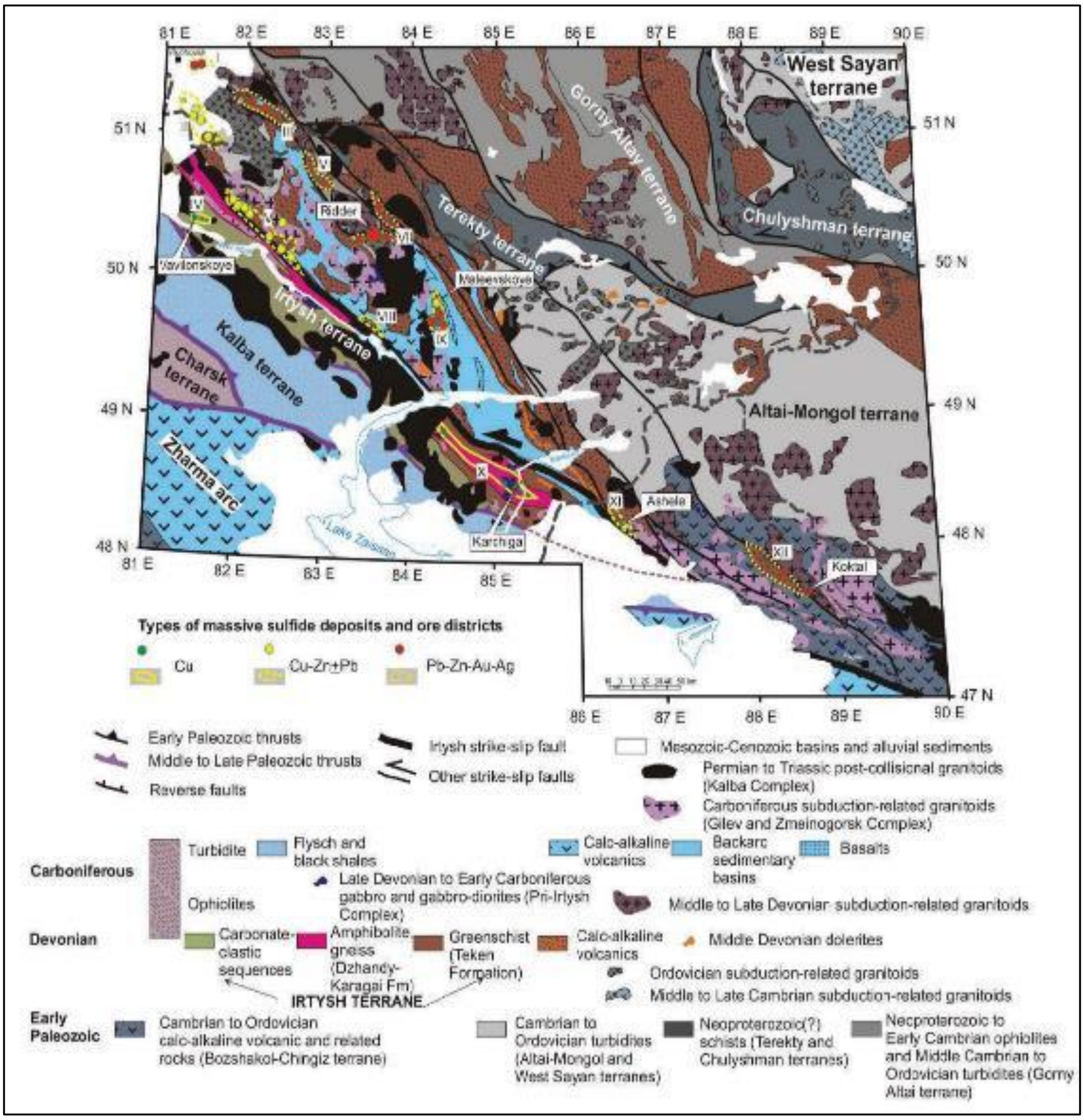
3.1 Regional geology

The Verkhuba mineralized district is located in the southwestern part of the Rudny Altai region.

The Rudny Altai region is a part of the Central Asian Orogenic belt (CAOB) and one of the largest volcanogenic-hosted massive sulfide (VHMS) provinces in the world. The Rudny Altai VHMS belt extends from southern Russia through eastern Kazakhstan to northwestern China over a distance of more than 500 km with a width of between 60-100 km. Total metal endowment of Rudny Altai VHMS belt, including historical production and remaining resource is estimated at a billion tons in 58 deposits comprising total of 14 deposits recognized as large (25-50 Mt), very large (50-100 Mt) and giant (>100 Mt) deposits (Dergachev, 2010; Lobanov *et al*, 2014).

Rudny Altai is considered as a tectonic block, separated from the Irtysh metamorphic terrane in the southwest by the Irtysh Shear Zone and from the Early Palaeozoic Gorny Altai in the northeast by regional shear zone (Lobanov *et al*., 2014). Both Irtysh and Gorny Altai terranes are classified as accretionary wedge terranes related to Palaeozoic subduction. The Rudny Altai terrane consists of island arc and marginal sea volcanic terrigenous complexes assembled and evolved during Palaeozoic collision and subduction. Formation of VHMS deposits of the Rudny Altai belt was related to island arc magmatism. All known VHMS deposits within the Rudny Altai belt are hosted by a Devonian basalt-andesite-rhyolite association and are recognized as "Kuroko" type (Chekalin and D'achkov, 2013; Lobanov *et al*., 2014).

Figure 3.1 Position of Rudny Altai terrane within central part of Central Asian Orogenic Belt

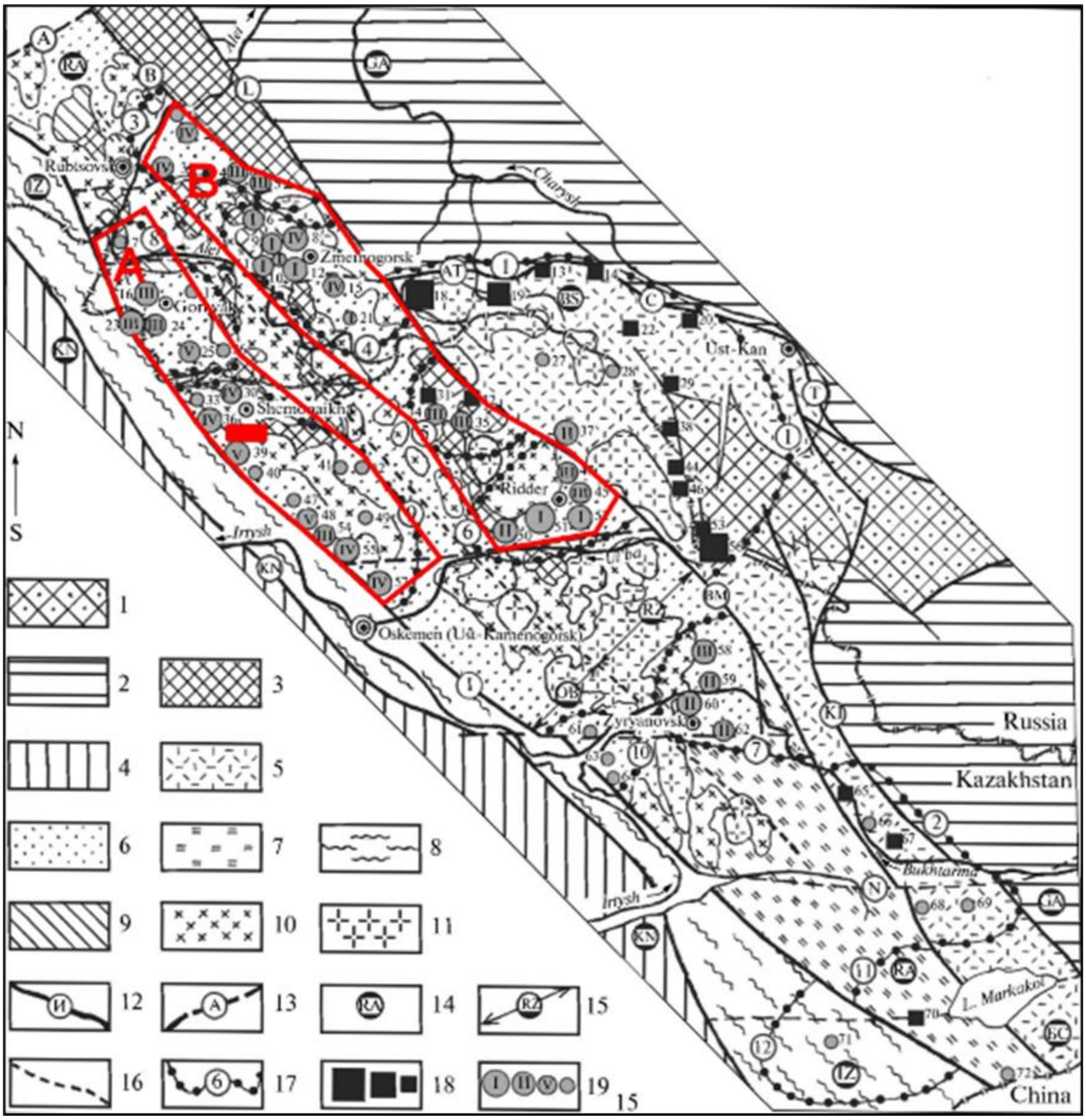


Source: (Lobanov et al., 2013)

There are two VHMS hosting metallogenic subzones in the Rudny Altai terrane; the Devonian Priirtysh volcanic belt in the southwest and Aleisky volcanic belts in the northeast (Figure 3.1 and Figure 3.2). The belts are separated by Shemonaikha horst-anticline structure composed of Lower Paleozoic (Ordovician) basement rocks intruded by and Upper Palaeozoic felsic and intermediate batholiths. Aleisky volcanic belt hosts Karablikhinskoe, Rubtsovskoe, Zakharovskoe, Zmeinogorskoe, Zarechnoe and several other deposits in Russia and Orlovskoe, Shemonaikhinskoe and Openyshevskoe and Verkubinskoe deposits in the Republic of Kazakhstan.

The Priirtyshsky volcanic belt hosts Artemovskoe, Nikolaevskoe, Rulikhinskoe, Belousovskoe, Beriozovskoe and other VHMS deposits.

Figure 3.2 Volcanic belt schematic map



Notes: Red contours: A-Priirtysh volcanic belt (Orlovka-Belousovka metallogenic subzone); B- Aleisk volcanic belt (Rubtsovsk–Zyryanovsk metallogenic subzone). Red rectangle – Licence areas

Legend: 1-Precambrian metamorphic rocks; 2-Caledonian flyschoid sequences; 3-Lower Paleozoic metamorphic schists; 4-Devonian–Carboniferous carbonate–terrigenous rocks; 5-Lower–Middle Devonian volcanic rocks; 6-Devonian volcanosedimentary rocks deposited in rift-related and island arc settings, unspecified ore forming lithotectonic complex; 7-Upper Devonian–Lower Carboniferous limestones and terrigenous flyschoid rocks; 8-dynamometamorphic schists variable in age; 9-Jurassic limnic coal bearing molasses; 10-Devonian and Carboniferous collisional granitoid plutons; 11-Permian–Triassic postcollision granites; 12, 13-northwestern 12-and near latitudinal 13-faults; 14-tectonic and metallogenic zones structures -; 15-metallogenic subzones; 16-inferred boundary between metallogenic subzones; 17-ore districts; 18-large, medium sized, and small iron deposits; 19-very large, large, medium sized, and small base metal VMS deposits; ore bearing levels of base metal VMS mineralization are indicated in circles. Symbols in circles. Faults: A-Alambay; B-Bugrinsky; L-Loktevsky; AT-Alei–Tigirek; C-Charysh; T-Terekty; KI-Kara-Irtysh; BM-Beloubinsky–Markakol; N-Narym; KN-Kalba–Narym; I-Irtysh. Tectonic and metallogenic zones: GA-Gorny Altai; BS-Beloubinsky–Sarymsakty; RA-Rudny Altai; IZ-Irtysh; KN-Kalba–Narym. Metallogenic subzones: RZ-Rubtsovsk–Zyryanovsk; OB-Orlovka–Belousovka. Ore districts: 1-Beloubinsky; 2-South Altai; 3-Rubtsovsk; 4-Zmeinogorsk; 5-Snegirikha; 6-Leninogorsk; 7-Zyryanovsk; 8-Zolotushinsky; 9-Irtysh; 10-Bukhtarma; 11-Markakol; 12-Kurchum. Deposits numbers in figure -: 1-West Zakharovo; 2-Zakharovo; 3-Rubtsovsk; 4-Talovka; 5-Stepnoe; 6-Maisky; 7-Loktevsky; 8-Korbalikha; 9-Sredny; 10-Petrovka; 11-Zarechensky; 12-Zmeinogorsk; 13-Rubezhny; 14-Chesnokovo; 15-Lazurny; 16-Zolutushinskoe; 17-Kamenka; 18-Beloretsk; 19-Inya; 20-Timofeevsky; 21-Semenovka; 22-Korgon; 23-Orlovskoe; 24-Novo-Zolutushinskoey; 25-Yubileynoe; 26-Kryuchkovo; 27-Osenny; 28-Raskatinsky; 29-Srednekedrovsky; 30-Shemonaikha; 31-Magnitny; 32-Karaguzhikha; 33-Kamyshinskoe; 34-Yubileiny–Snegirikha; 35-Anisimov Klyuch; 36-Artemovskoe; 37-Chekmar; 38-Stamovoe; 39-Nikolayevskoe; 40-Rulikha; 41-Pokrovka; 42-Verkhubinsky; 43-Strezhnaya; 44-Koksa-2; 45-Shubinka; 46-Koksa-1; 47-Chudak; 48-Novoberezovka; 49-Sekisovka; 50-Tishinka; 51-Ridder–Sokol’ny; 52-Novoleninogorsky; 53-Kul’da; 54-Berezovka; 55-Irtyshskoe; 56-Kholzun; 57-Belousovskoe; 58-Maleevsky; 59-Maisky; 60-Zyryanovsk; 61-Zavodinsky; 62-Grekhovka; 63-Dolinsky; 64-Bukhtarma; 65-Korobikha; 66-Pnev; 67-Rodionov Log; 68-Nikitino; 69. South Altai; 70-Markakol; 71-Karchiga; 72-Aleksandrovka.

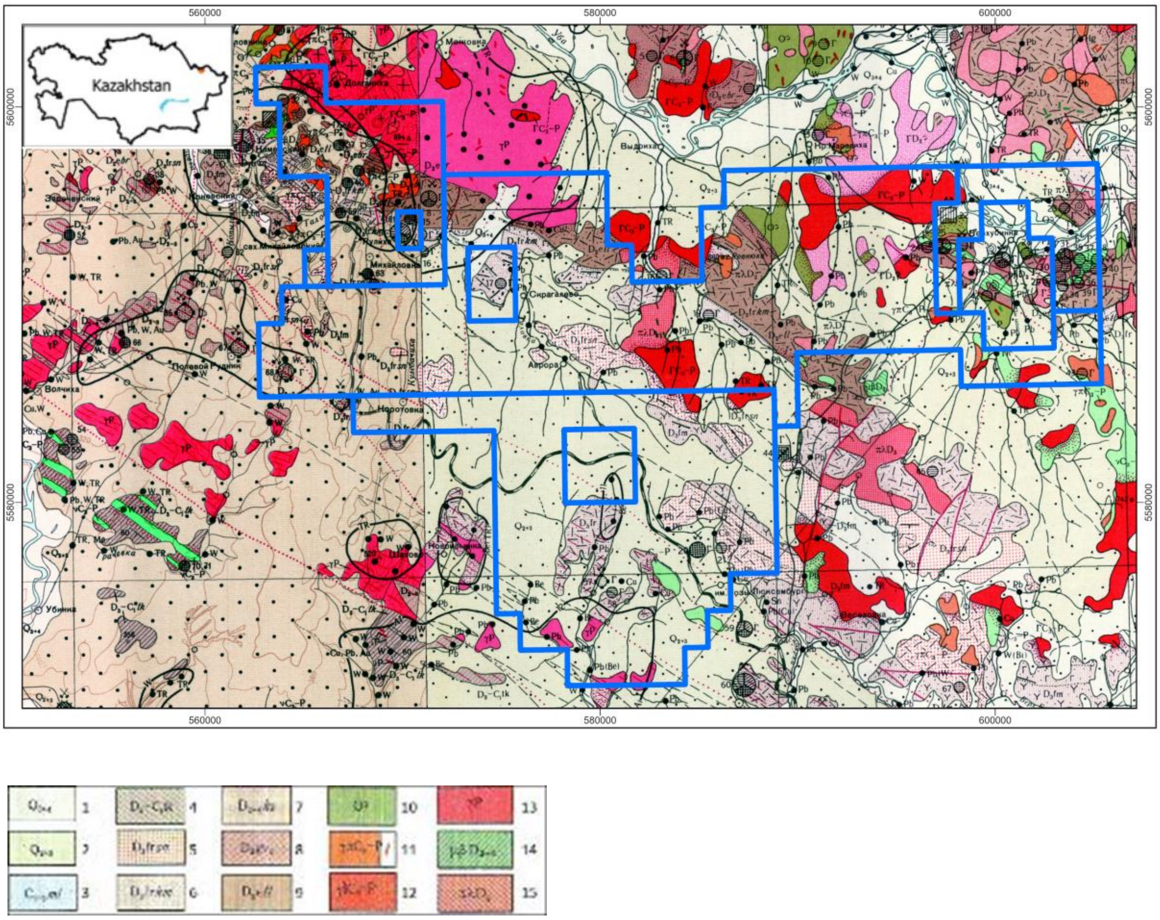
According to Avdonin *et al*. (1977), there are several volcanic centres recognized within the Priirtysh and Aleysky volcanic belts that include volcanic and sedimentary rocks proximal and distal to volcanic centres as volcanic neck facies, extrusive-lava complexes, volcano-tectonic cupolas and volcanic depressions. Volcanic neck facies are presented by felsic and intermediate porphyry (rhyolite, dacite, rhyodacite, andesite, andesite-basalt) with coarse/large phenocrysts of quartz, plagioclase and potassic feldspar. Proximal facies are represented by lava, lava breccia, and tuff of rhyodacite and andesite composition. Distal facies include volcanic-sedimentary rocks presented by tuffaceous siltstone, sandstone, limestone, and tuffite that were formed outside volcanic centres, related to the shoreline. The richest mineralization is located within volcanic craters, close to the volcanic neck, along the contact of felsic volcanic rocks with the volcano-sedimentary sequence that was formed within the volcanic caldera – e.g., the Nikolaevskoe, Kamyshinskoe, Rulikhinskoe deposits. Maximum mineralization was deposited during the period of attenuation of volcanic activity and burial of the volcano during the Emsian to Famennian ages.

According to Chekalin and Djachkov (2013), volcanogenic-terrigenous sequences hosting VHMS mineralization are located on five stratigraphic levels:

- Emsian - Early Eifelian Stages (D1e-D2ef1) – including Zmeinogorskoe and Ridder Sokolnoe groups of VHMS deposit.
- Late Eifelian Stage (D2ef2) - Chekmar, Tishinkoe, Zyryanovskoe groups of VHMS deposits.
- Early Givetian Stage (D2gv1) – Zolotushinskoe, Maleevskoe groups of deposits.
- Late Givetian Stage (D2gv2) – Atremovskoe, Korablichinskoe groups of deposits.
- Frasnian Stage (D3f) – Yubileinoe, Nokolaevskoe groups of deposits.

3.2 Local geology

Figure 3.3 Geological map at scale 1:200,000 of exploration licenses 847-EL, 914_EL, and 1795-EL, Rudny Altai, north-eastern Kazakhstan



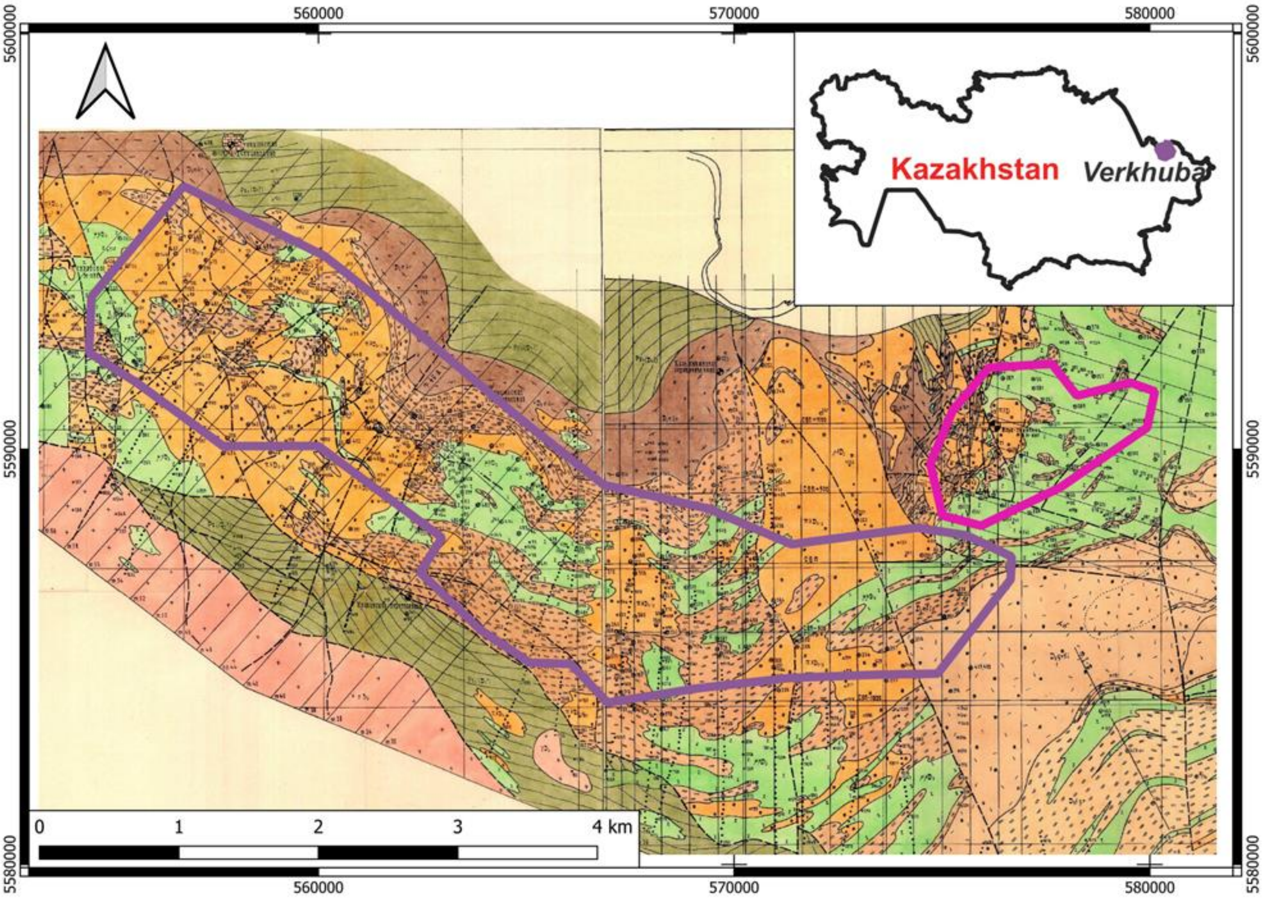
Source: Mineral maps of USSR M-44-XVI, M-44-XVII, 1956; SRK 2021

Notes: Exploration licences: 847-EL – black contour, 914-EL – blue contour, 1795-EL – violet contour. Legend: 1-Upper-Modern Quaternary alluvial deposits - sand, pebble, sandy clay, clay; 2-Middle-Upper Quaternary loess, clay, alluvial sand, pebble, clay; 3-Carboniferous Maloulbinskaya suite - conglomerate, sandstone, mudstone, carbonaceous mudstone, siltstone, felsic volcanic rock; 4-Upper Devonian-Lower Carboniferous Takirskaya suite, black carbonaceous-clayey shale, sandstone; 5-Upper Devonian Frasnian, Snegirevskaya suite - mafic, intermediate and felsic volcanic rocks, calcareous sandstone, cherty shale; at the Irtysh zone - quartz-feldspar sandstone, cherty-carbonaceous shale, felsic volcanic rocks; 6-Upper Devonian Frasnian, Kamenev suite - mafic and felsic volcanic rocks with lenses of sandstone, siltstone, cherty shale, limestone; 7-Middle-Upper Devonian Kestav-Kurchumskaya suite - siltstone, fine-grained sandstone, basalt lava; 8-Middle Devonian Givetian, Shepunovskaya suite - interbedding of mudstone and siltstone; 9-Middle Devonian Talovskaya suite - lava and tuff of rhyolite, rhyodacites with interlayers and lenses of siltstone, sandstone and siliceous shale; 10-Ordovician (?) schist, polymictic sandstone, carbonaceous and tuff-sandstones, marbled limestone; 11-Үπ C3-P – Upper Carboniferous – Permian - dikes and stocks of granite porphyry and plagiogranite porphyry; 12-Upper Carboniferous – Permian granodiorite, quartz diorite; 13-Permian leucogranite; 14-Middle-Upper Devonian subvolcanic gabbro-diabase, diabase, porphyrite; 15-Middle Devonian granite-porphyry and plagiogranite porphyry dykes

The Verkhuba VHMS deposit is located within the Verkhuba mineralized district that has an area of about 70 km^2 striking from west to east over 11 km of strike. Its width varies from 2 km in the western flank to 6 km in eastern flank (Figure 3.3 and Figure 3.4). It is considered as a tectonic block (Nazarov *et al*., 1987; Grigorovich et all., 1980), part of the Aleisky volcanic belt, composed of Devonian volcano-sedimentary suites. The suites contain disseminated, stringer, stockwork-type, and massive polymetallic sulfide mineralization on certain stratigraphic levels described in the previous chapter. The Verkhuba block is bordered by the regional Shemonaikha-Sekisovsky reverse fault in the southwest. In the northeast, it is adjacent to the

Medvedikhinskaya horst anticline structure composed of a Lower Paleozoic (Ordovician) schist formation.

Figure 3.4 Geological map of the deposit area at scale 1:10,000



Source: modified after Grigorovich *et al*., 1990

Notes:

Violet contour - distribution of VMS mineralization in Verkhuba mineralized district.

Red contour - the area of historical mineral resource estimate (Grigorovich et al., 1990).

The following Devonian volcano-sedimentary units compose the Verkuba Deposit area (from oldest to youngest):

- Beriozovskaya suite (D_1 e br) occurs in the basement of Middle Devonian sequence and is a felsic to intermediate tuff with interbeds and lenses of sandstone, gravelstone and clayey to calcareous-argillaceous siltstone. The thickness of the suite varies between 0 and 400 m.
- Losishinskaya suite (D_2 ef ls) is subdivided into two divisions. The lower part includes calcareous and carbonaceous sandstones and siltstones with bioherm reefs that contain polymetallic mineralization. The upper part is composed of carbonaceous cherts, clayey siltstones and sandstones, pyrite-rich mudstones, basalt and andesitic lava and lava breccia. The thickness of the suite varies from 500 to 800 m.
- Talovskaya suite (D_2 gv tl) is composed of felsic to intermediate tuff and lava breccias with minor siltstone interbeds; the total thickness was estimated between 500 to 700 m. The suite is outcropping in the south-eastern and eastern parts of the Verkhuba district.
- Gerikhovskaya suite (D_2 gv$_2$ – D_3 f gr) has a tectonic contact with the Talovskaya suite and is composed of coal, clayey siltstone, chert, sandstone, tuff, also containing interbeds of basalt, diabase, and andesite. The thickness was estimated as approximately 850 m. The suite is developed in the south-eastern part of Verkhuba district.

According to interpretation of Nazarov *et al*. (1986), the suites have tectonic contacts dipping south and south-east. The Devonian volcano-sedimentary sequence is confined at depth by the Kukushkinsky thrust fault that separates Devonian rocks and the Lower Palaeozoic basement schist formation. The thrust zone was intersected by several deep drill holes in the western and central parts of Verkhuba block at a depth more than 500 m below the surface.

Over most of the area, the Devonian rocks are covered by Cenozoic deposits which mainly include transported sediments varying in thickness from 1 m to more than 50 m.

Three major horizons of mineralization are recognized in the southwestern part of the Rudny Altai (including Verkhuba) district (Avdonin *et al*., 1977):

1 Losishinskaya suite, contact of the Beriozovskaya and Losishinskaya suites, including Verkhuba and Pokrovskoe-II deposits, Losishinskoe, Golovino-Ubinskoe, Zarechnoe, Levikhinskoe, Karelin and Maralikha, Pokrovskoe-I, Lunikhinskoe, Losishinskoe, Griaznushinskoe, Maralikhinskoe, Karelinskoe, Kozlovskoe totalling about 40% of resources.
2 Upper part of Talovskaya suite and contact with Gerikhovskaya suite, including Kamyshevskoe, Rulikhinskoe, Trubkinskoe, Vydrikhinskoe, Rudnikhinskoe, Rodnikovoe etc, totalling approximately 3% of resources.
3 Lower contact of Snegirevskaya suite, including Nikolaevskoe deposit, North-Nikolaevskoe, South-Nikolaevskoe and other deposits totalling 57% of resources.

According to historical drilling, VHMS mineralization hosted by the Losishinskaya suite was traced intermittently over the whole Verkhuba district. The Verkhuba district has a block structure controlled by regional and deposit-scale faults. A significant number of faults and thrusts are present in the area as shear/breccia/gouge zones. There are also Middle-Upper Devonian to Upper Carboniferous dykes and sills intruded along preexisting faults. Significant movements along some faults are recognized (up to 800 m).

3.3 Verkhuba VHMS deposit geology

Mineralized bodies in the Verkhuba VHMS deposit are represented by shallow dipping thin sheet-like bodies and lenses located at bioherm and siltstone levels within Lower and Upper divisions of the Losishinskaya suite respectively. The bioherm level is composed of calcareous and carbonaceous sandstones and siltstones, while the siltstone level is represented by carbonaceous cherts, clayey siltstones and sandstones, pyrite-rich mudstones, basalt and andesite-basalt lava and felsic lava breccia.

According to Grigorovich *et al*. (1990), the Verkhuba deposit hosts a total of 104 individual mineralized bodies some of which outcrop at surface. Mineralized zones were traced between 75 to 950 m down dip, and 100 to 1,150 m along strike with typical thicknesses varying between 0.35 to 9.32 m (average 0.5 to 2.0 m). The ore bodies are sub horizontal or dip eastward with an average dip of 30°.

Sulfide mineralization occurs as disseminated, veinlet-disseminated, stockwork and massive mineralization, normally containing Cu/Pb/Zn with the ratio of 1/1/3. Beside mineralized bodies at bioherm and siltstone levels, there are mineralized lenses hosted by quartz-feldspar porphyry and diabase sills above and below the main horizons. Within the main mineralized intervals, the amount of mineralization increases upwards with a maxima along the boundary between bioherm and siltstone levels (Grigorovich *et al*., 1990). The majority of Zn mineralization (98%) is equally distributed within the bioherm level, while the siltstone level contains only 2% and is represented mainly by pyrite and chalcopyrite mineralization.

Sulfide mineralization is represented by pyrite, chalcopyrite, sphalerite and galena with minor marcasite, pyrrhotite, magnetite, bornite, rutile and leucoxene. Gangue minerals include quartz-carbonate, chlorite, epidote, actinolite, garnet, pyroxene, plagioclase, talc, barite, sericite, sphene phlogopite. Mineralized zones at bioherm and siltstone levels are accompanied by alteration that includes garnet-pyroxene, quartz-epidote-actinolite, quartz-carbonate-chlorite and quartz-chlorite-sericite assemblages (Nazarov *et al*., 1996).

There is an weathering-related oxidation zone developed in the deposit that is represented by brown Fe-rich rock containing disseminated malachite, cuprite, tenorite and chalcopyrite cut by quartz veins with polymetallic mineralization. According to Nazarov *et al*. (1996), weathered rocks were subjected to silicification at a later stage.

Subvolcanic intrusives are widespread in the deposit area including Middle to Late Devonian sills and laccoliths of rhyolite porphyry, quartz porphyry and its volcanic and explosive breccias, dacites, andesite and diabase porphyry. Less common are Late Devonian granite and granodiorite dykes and Middle to Late Carboniferous plagiogranite porphyry, granite porphyry dykes and stocks.

According to historical geological sections, the volcanic-sedimentary rocks are cut by series of steep faults of different orientation that show some displacement. The structure of the deposit is complicated by a thrust zone that was intruded by Upper Devonian andesite porphyry (Radchenko *et al*., 1987).

3.4 Deposit type

The Verkhuba polymetallic VHMS deposit was formed in Devonian time within the Rudny Altai VHMS province as a result of hydrothermal activity in the vicinity of a spreading centre or subduction zone (Avdonin *et al.*, 1977, Chekalin and Diachkov, 2013).

Mineralized bodies are represented by shallow dipping thin sheet-like bodies and lenses hosted mainly by volcanogenic sedimentary rocks including tuffaceous siltstone and sandstone, marl, carbonate rock, felsic tuff and lava (Grigorovich *et al.*, 1990, AMC Consultants, 2024).

Mineralization is considered as distal to a volcanic centre due to the significant amount of sedimentary rocks. Mineralized bodies are controlled by a contact of Berezovskaya and Losishinskaya suites (Eifelian-Frasnian stages) and are hosted in disseminated sulfides, stringer veinlets and massive Cu-Zn mineralization (Avdonin *et al.*, 1977, Chekalin and Diachkov, 2013, Grigorovich *et al.*, 1990).

Most of the VHMS deposits in Rudny Altai, including Verkhuba, are classified as Kuroko-type deposits. According to Taylor et al. (1995), Kuroko-type deposits are typically developed in intermediate to felsic volcanic rock and are generally interpreted to have formed in extensional environments associated with arc volcanism above subduction zone (ensimatic island arcs). They are commonly high grade and can be very large. They generally have high contents of zinc, lead, silver, and antimony, which reflects the composition of their felsic volcanic host rocks. They have mound-like morphology and the abundance of coarse clastic sulfide minerals within many of these deposits attests to a moderately high energy, seafloor depositional setting. Kuroko-type deposits also tend to be underlain by copper-rich stringer zones and commonly have well developed geochemical zonation with progressive zinc, lead, and silver enrichment both vertically and laterally away from vent centres.

4 Sampling techniques and data

This section addresses the requirements for JORC Code Table 1, Section 1.

4.1 Data collection cut-off date

The Mineral Resource block model was prepared using all drilling data available as of 31 March 2024 as supplied by ESR. The data files have been stored in Micromine and Microsoft Excel databases.

4.2 Drilling techniques

Double barrel wireline system was used in historical diamond drilling. The upper 10 to 20 m of slope deposits were drilled by 132 mm diamond drill bit, followed by 112 mm bit up to a depth of 35 to 70 m below the surface. After casing of the drill hole using 89 mm casing pipes, the drilling was continued with a 76 mm bit (core diameter 57 mm), followed by 59 mm drill bit (core diameter 42 mm).

ESR contracted Everest Sondaj Mühendislik Ind. Co. Ltd. for verification drilling in 2023. The drilling was performed using a ZRV-1500 drill rig and HQ wireline double tube core barrel system (core diameter 63.5 mm). The length of most drill runs was 3 m. All core was structurally oriented using a Reflex Act III instrument.

4.3 Sampling techniques

4.3.1 Historical programmes

Whole core sample intervals were used for testing. However, mineralized and non-mineralized intervals were managed differently.

Mineralized intervals were identified by visual core logging and downhole geophysics (X-ray radiometric and/or electric downhole logging).

- The 59 mm core was sampled in full.
- 76 mm core was cut in half with one half of the core was sampled for assay. The remaining half of the core was used for metallurgical testing, bulk density and moisture content, field duplicates for QAQC monitoring of laboratory results, ore petrography and whole rock chemistry.
- Mineralized core of different mineralogy was sampled separately at intervals ranging from 0.1 to 2.0 m in length. In cases of low core recovery (<50%), the sampling intervals were increased to 3 m to provide enough sampling material for chemical studies. Host rocks in the hanging wall and footwall of mineralization were sampled using 1 m long sampleswhere 2 to 3 samples were collected from each contact. The optimal weight of mineralized core samples was close to 10 kg per sample.

Non-mineralized core was sampled by 10 m long composite core samples ("geochemical samples") by collecting rock chips every 10 cm of core for rock chemical and mineralogical studies.

- Each lithology was sampled individually.
- The length of non-mineralized core samples reduced to 5 m approaching the mineralized zones.
- The expected weight of geochemical sample was approximately 0.3 kg .

In addition to this, 0.25 to 0.30 kg samples were regularly collected from the remaining half core (76 mm) of mineralized samples and analyzed for whole rock chemistry and presence of crystalline silica. Hand-size samples were also collected for petrographic and mineralogical study.

Other composite samples were collected from similar lithologies using regular core samples and assayed for Au, Ag and rare metals.

4.3.2 2023 programme

All ESR 2023 drilling was performed by ZRV-1500 drill rig using HQ wireline double tube core barrel system (core diameter 63.5 mm). The sampling was performed on mineralized intervals identified by visual core logging and portable XRF (pXRF) measurements. The pXRF measurements were taken every 20 cm over the whole length of the core. Length of sampling intervals on mineralized core varied from 0.5 to 1.0 m. Sampling intervals were marked in accordance with lithological contacts. Three samples were usually collected from both the hanging wall and the footwall of the mineralized zones, and these were sampled using 1.0 to 2.0 m intervals.

The core selected for sampling was cut in half using a diamond saw. During the routine sampling, one-half of the core was sampled. Where a field duplicate was required, the half-core sample was cut in half again, and the quarter core portions were used for both a main sample and field duplicate. The remaining half of the core was stored in core boxes available for reference and further studies.

4.4 Logging

4.4.1 Historical programmes

During the historical exploration, all drill holes were geologically logged except upper sections of drill holes within transported sediments. However, only limited original logging information from geological archives has been obtained to date.

No results of historical geotechnical logging were available.

Historical logging was qualitative, in many cases, rock nomenclature was not confirmed by rock chemistry and by subsequent exploration campaigns.

No core photos were taken during historical exploration and no reference core is left.

4.4.2 2023 programme

During ESR verification drilling, the following information was collected by ESR geologists using the coding system:

- Information of drill hole (collar coordinates, azimuth, dip angle, length, starting and completion date) and drilling runs (from-to, length, core recovery provided by drillers).
- Drill hole deviation on 7 to 10 m intervals recorded by drillers using Reflex Gyro instrument.
- Geotechnical logging for each drill run, including core recovery (TCR), rock quality designation (RQD), solid core recovery (SCR), and Alpha and Beta angles for use with structurally oriented core.
- Lithology.
- Mineralization.
- Alteration.
- Structures.
- Veining.
- Bulk density measurements using water immersion method.
- Sampling.

All drill core was photographed in wet and dry conditions after the drilling and after completion of logging with sampling intervals marked.

4.5 Subsampling techniques and sample preparation

4.5.1 Historical programmes

Mineralized samples and geochemical samples were prepared separately. Sample preparation procedures of mineralized material included the following stages:

- Two staged crushing and sieving of 10 kg core sample, using jaw crusher and producing -3 mm sieved material.
- 1st size reduction producing 5 kg sample and 5 kg reject.
- Roll mill crushing and sieving to produce -1 mm material.
- 2nd size reduction to produce 2.5 kg sample and 2.5 kg coarse crush duplicate.
- 3rd size reduction to produce 1.25 kg sample and 1.25 kg reject.
- Pulverizing of 1.25 kg sample to 0.07 mm (200 mesh).
- Splitting of pulverized sample into 0.612 kg analytical sample and 0.612 kg pulp duplicate.
- Up to three analytical subsamples were taken from each analytical sample including-
  - Routine analysis for base metals (50 g).
  - Internal laboratory control (60 g).
  - Fire Assay analysis (FAA) for gold and silver (500 g).
  - Each analytical duplicate was slit into 3 subsamples for control purposes, including internal and external control samples and a referee sample.

Geochemical samples (0.3kg) were subjected to 2 staged crushing and sieving using jaw and roll crushers producing 1 mm material, followed by pulverizing to 0.07 mm (200 mesh). The pulps were divided into analytical sample and pulp duplicate, 0.15 kg each. Analytical samples were used for primary analyses, pulp duplicates were used for QAQC purposes.

4.5.2 2023 programme

ESR uses ALS Kazgeochemistry LLP laboratory (ALS) for sample preparation (Ust'-Kamenogorsk) and analysis (Karaganda). ALS Kazgeochemistry LLP laboratory is part of ALS Limited (Australia) that provides analytical services worldwide. Sample preparation included the following standard procedures:

- Received sample weight and log into the system (Laboratory codes LOG-23/24, WEI-21)
- Sample preparation package, including drying at 105°C to 120°C for 12 hours, crush to 70% less than 2mm, split sample using Boyd Rotary splitter for a split and crush duplicate (3500g), pulverize split to better than 85% passing 75 microns (Laboratory code PREP-31BY). For 1 m long half-core sample (4.5 kg) the weight of pulverized split is approximately 1 kg and the crushed duplicate is approximately 3.5 kg.
- Laboratory subsample (100 gr) (Laboratory code SPLIT-Z).

Laboratory subsamples remained in the laboratory for analysis, while pulp duplicates, pulp split duplicates and crush duplicates were returned to client.

4.6 Analytical methods

4.6.1 Historical programmes

Core samples were analysed for assay using the following methods:

- Semiquantitative spectral analysis for 16 elements (SSA) – all samples.
- Semiquantitative spectral analysis for Au and Ag (SSA-Au) – all samples.
- Atomic Absorption Spectrometric (AAS) analysis for Cu, Pb, Zn, Fe, Ba, total and sulfide sulfur, Cd, Co, Se, Te, In, Ge, Ga, Bi, Tl, Sb, Ni, As (AAS) – mineralized samples.
- Whole rock geochemical analysis for major oxides and rare elements - selected samples.
- Determination of crystalline silica - selected samples.
- Copper phase analysis – selected samples (1 sample in each second drill hole).

All geochemical samples (non-mineralized rocks) were studied by the following methods:

- SSA.
- SSA-Au.
- Spectral analysis for Hg.

All composite core samples were assayed using:

- AAS.
- Fire assaying for Au and Ag (FAA).

All samples collected for bulk density, moisture and porosity were assayed by AAS for Cu, Pb, Zn, Fe, Ba, total sulfur and sulfide sulfur.

Semiquantitative spectral analysis was used to pre-divide core and geochemical samples into the grade classes. The grade classes were used for QAQC programme.

4.6.2 2023 programme

ALS analytical methods (2023) included:

- Routine method applied to all samples - Aqua Regia digest followed by -inductively coupled plasma atomic emission spectroscopy (ICP-AES) for determination of 35 major and rare elements including Cu, Pb and Zn. The required analytical sample size was 10 g (laboratory code ME-ICP41).
- Where Cu, Pb or Zn grades exceeded 1% (upper limit of detection of the Aqua Regia digest with ICP-AES finish method), the ore grade analytical method was applied using four acid digest followed by ICP-AES finish. Required analytical sample size was 10 g (laboratory codes X-OG62 and ME-OG62).
- Fire assay analysis with AAS finish was use for determination of Au (Laboratory code Au-AA23). The required analytical sample size was 150 g. (Laboratory code ME-ICP41).

4.7 Bulk density and moisture

All core samples (except highly crushed material), and channel samples collected in the underground workings were subjected to bulk density measurement using the Archimedean method. After weighing of core samples in air and in water, bulk density was calculated using formula:

- D=P1/(P1-P2), where:
  - D - bulk density.
  - P1 - weight in air.
  - P2 – weight in water.
  - P1-P2 – weight of displaced water (volume of sample).

In addition to this, 5 to 7 cm core samples were regularly collected from 76 mm duplicate half-core. Samples were then coated with paraffin wax and sent to Central Laboratory "VostokKazGeologia" for determination of moisture, porosity and bulk density.

The historical bulk density for Verkhuba mineralized material was estimated as 3.0 t/m^3 based on measurements of 500 samples from drill core and underground channels (Ermolaev *et al.*, 1990). There is no available information in the reports on moisture content.

For ESR drilling, all main rock types were systematically measured for bulk density using core pieces having lengths of approximately 20 cm. The Archimedean method was also used. A total of 364 core samples were measured during 2023 verification drilling programme, including 88 mineralized samples from 23 ore zones. Average bulk density value for ESR mineralized samples is 3.03 t/m^3 which is very close to historical results. ESR instructed AMC to use more conservative bulk density value of 2.9 t/m^3 for the MRE.

No moisture measurement was performed by ESR.

4.8 Verification of sampling and assaying

No verification sampling and assaying of historical core has been performed by ESR as no historical core was left.

Six verification drill holes were drilled by ESR, five of which twinned historical drill holes. The twinned holes confirmed both presence of mineralization and the local grades. Limited primary historical data is available at the time of preparation of the report. ESR identified collars of most of the historical drill holes on the ground and performed a Light Detection and Ranging (LiDAR) topographic survey, which allowed some correction of historical mineralized intervals. By comparison of historical drill holes and ESR twinned holes, it could be concluded that the position of mineralization and host lithology are similar in general. The verification drilling results confirmed the presence of mineralization, extents of the lenses and grades, so estimated grades and tonnes were classified as Inferred.

4.9 Location of data points

4.9.1 Topography data

Private company Aurora Geophysics Limited surveyed the topography using LiDAR technology. The survey was conducted on 19 and 20 May 2023 using an unmanned aerial vehicle (UAV) DJI Matrice 300 RTK Combo D-RTK 2 equipped with LiDAR DJI Zenmuse L1 system and Trimble R12 GNSS receiver on the ground. Mapping accuracy was reported as 2 cm horizontal (X, Y) and 5 cm vertical (Z).

4.9.2 Collar data

Initially coordinates of historical drill holes were digitized from georeferenced geological maps plotted at scale 1:10,000. To minimize errors, coordinates of each drill hole were taken from the actual maps of the specific exploration programme when the drill holes were drilled. No historical catalogues with drill holes coordinates were available during the preparation of the Report.

In 2023, ESR identified most of historical drill holes in the field and took GPS readings of the collars using handheld GPS Garmin 60s and Garmin GPSMAP 64 with accuracy of ±4 m.

Topographic survey of five ESR drill holes were conducted on 16 November by TOO Geomaster (Ust'-Kamenogorsk) using GNSS receiver Max GEO and base station Geokurs located in Ust'-Kamenogorsk (Table 4.1).

Drill hole VU-23-DD-006 was not surveyed due to its relatively remote location and lack of communication with the base station. The coordinates of five ESR drill holes surveyed by TOO Geomaster are presented in table below (WGS-84 UTM-44N).

Table 4.1 Coordinates of ESR verification drill holes (WGS-84 UTM-44N grid system)

Hole ID	X (m)	Y (m)	Z (m)
VU_23_DD_001	603,336.66	5,591,481.67	452.37
VU_23_DD_002	603,657.61	5,591,391.29	469.34
VU_23_DD_003	603,572.18	5,591,402.68	467.48
VU_23_DD_004	603,447.20	5,591,419.76	451.68
VU_23_DD_005	603,832.13	559,153,4.19	514.12

4.9.3 Downhole survey data

The inclination of the historical drill holes was digitized by ESR from historical cross sections where drill holes were plotted as vertical and horizontal projections at scale 1:10,000.

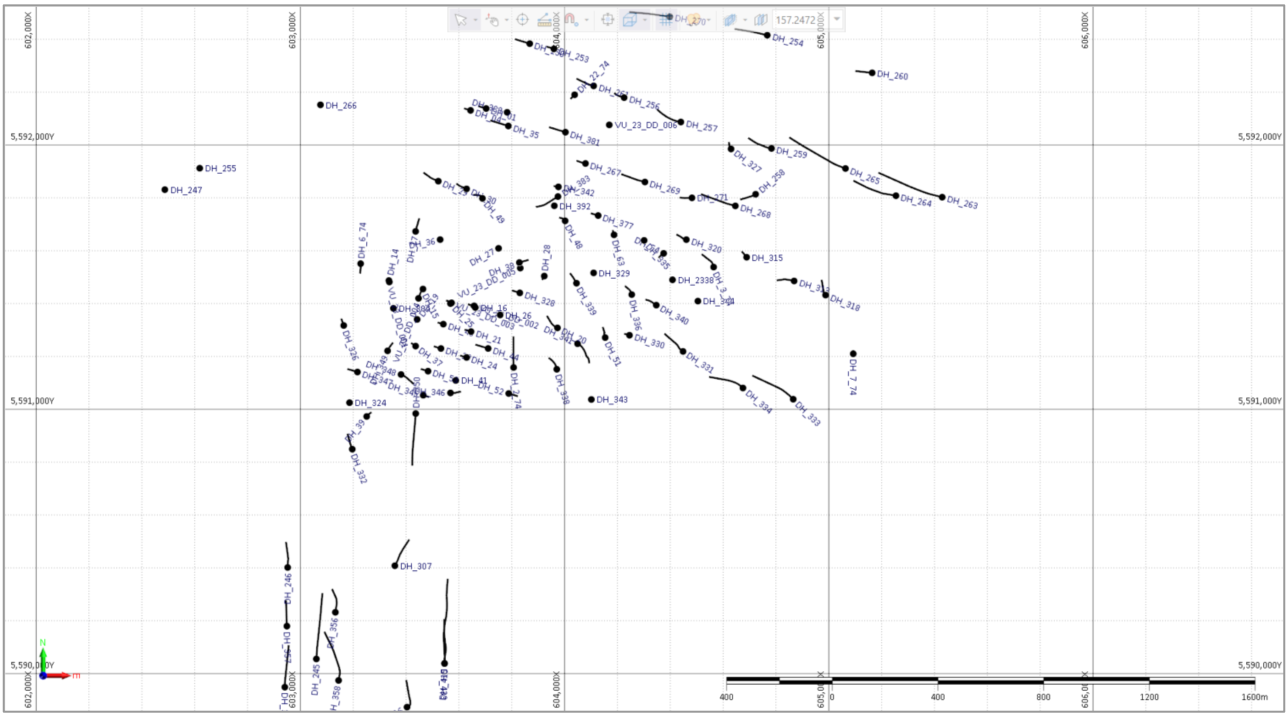
Deviation of ESR drill holes drilled in 2023 was measured by drillers using a Reflex GYRO inclinometer. The measurements were taken every 10 m during descent of the tool in cased drill hole and continuously during the ascent of the tool. The tool was calibrated before each survey.

4.10 Data spacing and distribution

The spacing between drill sections varies throughout the project. The most common drilling density for the is generally 200 m between exploration lines and 100 between holes along the lines (Figure 4.1). The south-western flank of the deposit was explored with a drilling density of 100 m by 100 m. All section lines were developed from north-west to south-east with an approximate azimuth of 108 degrees.

The section spacing is sufficient to establish the degree of geological and grade continuity necessary to support a Mineral Resource estimate.

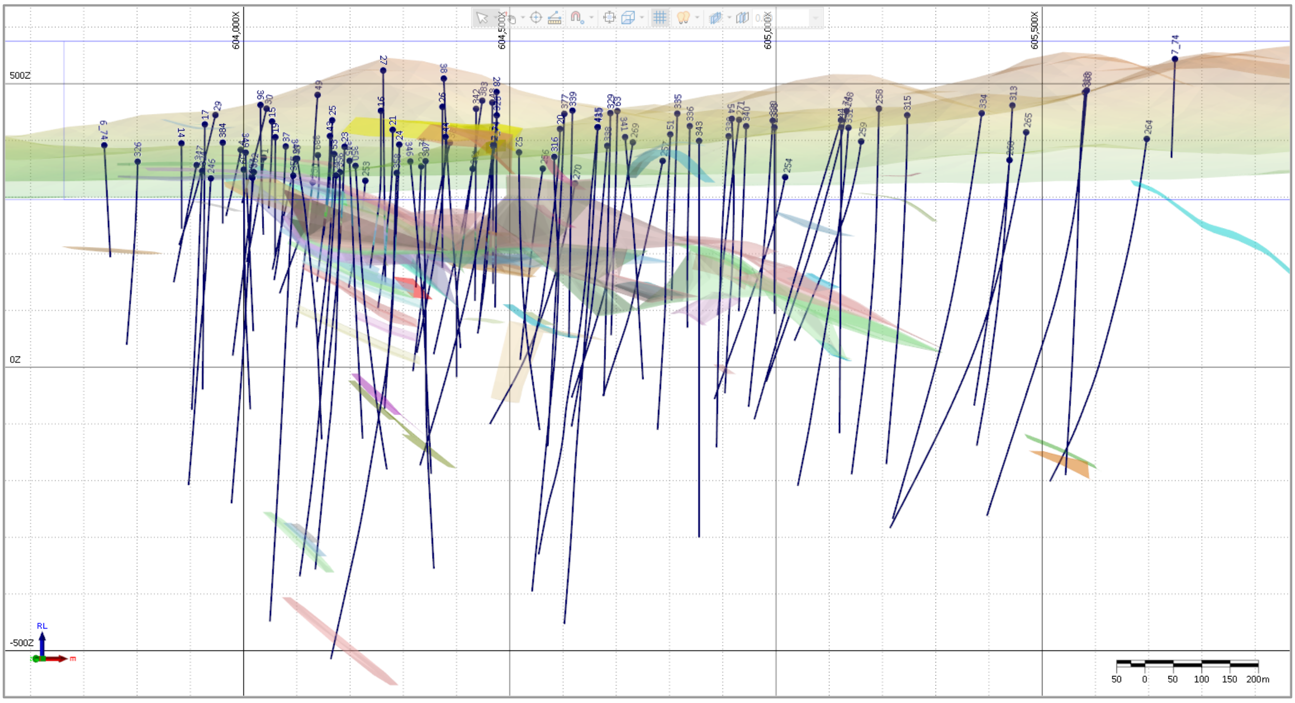
Figure 4.1 Exploration drilling density at Verkhuba (plan view)



4.11 Orientation in relation to geological structure

Most drill holes were either close to vertical or inclined with north-west dip of 75 to 90 degrees (Figure 4.2). The minimum hole depth was 120 m, maximum depth was 893 m, and average hole depth was 435 m. Most of the holes were drilled for optimal penetration through the mineralized bodies.

Figure 4.2 Exploration drilling density at Verkhuba (section view, looking north-east)



4.12 Sample and data security

Protocols relating to sample security for historical drilling are not documented.

All core obtained in 2023 was stored and logged in ESR core storage, a locked premises rented from an agricultural holding in Verkhuba village. Transportation of drill core from the drill pad to ESR core storage was conducted in accordance with ESR Standard Operation Procedures (SOPs), the core boxes were closed with lids during transportation and safely mounted inside the pickup truck. All samples were placed into cloth bags and marked before transportation. Transportation of samples from ESR core storage to ALS was performed by ESR personnel. All samples were checked against the ESR sample list before transportation to the laboratory and upon arrival at the laboratory.

4.13 Audits and reviews

No review of the sampling techniques and data was possible or completed by the Competent Person for the historical exploration data. Sampling techniques performed by ESR were not audited by any third party.

On completion of the drilling and logging, the ESR Competent Person reviewed all logging results and checked them against the actual core for accuracy and completeness.

4.14 Site and laboratory inspection

The site visit and laboratory inspection were completed by Dr Mikhail Tsypukov, Consulting Geologist for the Client. Mikhail visited the ALS laboratory in Karaganda several times in 2021 and 2022. Dr Tsypukov visited the site on August 15th during the drilling programme and on October 2nd, after the drilling had been completed.

5 QAQC

5.1 Summary of QAQC

The Verkhuba deposit was studied during several State exploration campaigns which used a similar approach in QAQC. Results of historical drilling and underground workings presented in these chapters are related to exploration carried out between 1974 to 1990 in the Verkhuba district that includes the Verkhuba deposit in its eastern part.

In 2023 ESR drilled 6 diamond drill holes on the deposits and applied a modern QAQC programme that included insertion of blanks, field, crush and pulp duplicates and Certified Reference Material (CRM) to control performance of ALS and measure the variability of the ore zones.

5.1.1 Historical exploration programmes

Historical QAQC on control samples included re-assaying of pulp duplicates in primary and umpire laboratories as internal and external control. Depending on analytical method, the following Kazakhstan laboratories were used as primary or umpire laboratories:

- Central Laboratory of Geological Enterprise "VostKazGeologia", Ust'-Kamenogorsk.
- Analytical Center of Altai Exploration Expedition, Semipalatinsk.
- Central Laboratory of Geological Enterprise "Irkutskgeologia", Irkutsk, Russian Federation.
- Central Laboratory of Geological Enterprise "Yuzhkazgeologia".
- Analytical laboratory of "Centerkazgeologia".

All laboratories except the laboratory in Irkutsk were subordinated to the Ministry of Geology of the Republic of Kazakhstan. Control assaying was performed once in every 6 to 12 months during the course of exploration. No analytical results on routine and duplicate samples were available for review or analysis. The QAQC programme included the following:

- 3% of samples analysed by semiquantitative spectral analysis were re-assayed in primary and in umpire laboratories. No statistics was made available for this type of control assays.
- 5% of samples assayed by quantitative AAS analysis were re-assayed in primary and in umpire laboratories.

No analytical results on routine and duplicate samples were made available to AMC for independent review and analysis.

5.1.2 ESR exploration programmes

ALS Kazgeochemistry (ALS) in Ust'-Kamenogorsk was used for sample preparation and analysis. Sample analysis was conducted in ALS Karaganda.

ESR analytical programme included the following method:

- Aqua Regia digest followed by Inductively coupled plasma atomic emission spectroscopy (ICP-AES) used for determination of 41 major and rare elements including Cu, Pb and Zn - a routine method for all mineralized samples. Upper detection limit (UDL) of the method for Cu, Pb and Zn is 1%.
- Four acid digest followed by ICP-AES finish; an ore grade method applied for the samples where routine analysis returned Cu, Pb or Zn grades exceeded 1%.
- Fire assay analysis with atomic absorption finish was use for determination of Au was used for selected samples.

A total of three sample batches were analyzed by ALS for base metals using the routine assay method, including 388 routine samples and 64 control samples which corresponds to 16.5% control samples. The control samples included:

- 21 duplicate samples (field, crush and pulp duplicate) – 5.4%.
- 23 blanks – 5.9%.
- 20 CRMs – 5.2%.

62 samples that returned grades >1% for Cu, Zn or Pb were re-assayed by ore grade assay method. The batch included 9 control samples (14.5%), including:

- 3 duplicate samples – 4.8%.
- 3 blanks – 4.8%.
- 3 CRMs – 4.8%.

77 selected samples, containing high, medium and low grades of base metals were assayed for gold. The batches included 9 control samples (11.7%), including:

- 3 duplicate samples (3.9%).
- 3 blank samples (3.9%).
- 3 CRMs samples (3.9%).

5.2 Sample recovery

For the historical exploration drilling, on undisturbed core, the recovery was estimated by dividing the core length by the length of drilling run reduced to 100%. Due to low overall core recovery and high fracturing of the core, the core recovery was measured using the weight method.

Core recovery on mineralized intervals was reported above the limit of 70% and above 60% within the bioherm sequence. To increase core recovery on mineralized intervals, the length of drilling runs was reduced to 1 m and drill bit load was also reduced. There were no requirements on core recovery on non-mineralized intervals and host rocks where core recovery varied from 23 to 40%.

A special study was performed on core loss in mineralization. No relationship between sample recovery and grade was reported nor it was apparent.

Core recovery in the later ESR drilling programme exceeded 95% for each drill run.

5.3 Blanks

No blanks were used during the historical exploration programmes.

ESR used coarse granite from the Mezhovsky intrusive complex as a blank material which is characterized by low grades of base metals averaging (SD-Standard Deviation) Cu–5.86 ppm (SD-4.51), Pb–5.78 ppm (SD-0.95), Zn-27.09 ppm (SD-1.11). Copper grades demonstrate significant variations in the low-grade range (0.05-20.0 ppm Cu) which is recognized as a "nugget" effect due to presence of disseminated copper minerals. Content of copper in blank granite is recognized as acceptable for QAQC purposes. A total of 29 blanks were inserted into sample batches containing 527 samples, which corresponds to 5.5%. Laboratory performance on Cu, Zn and Pb in blanks was within the acceptable limits.

5.4 Field duplicates

Field duplicates (half of 76 mm core) from historical exploration drilling were mainly used for metallurgical testing and composite sampling; no field duplicate assay results were made available to AMC for review and analysis.

During ESR verification drilling, 1/4 of the core was used both for field duplicates and main samples. A total of 12 field duplicates were analysed. Significant discrepancy in the content of Cu, Zn and Pb between the main samples and the duplicates was identified:

- 41.6% of duplicates (5 samples) are outside ±10% tolerance for Pb.
- 16.6% of duplicates (2 samples) are outside ±10% tolerance for Zn.
- 25% of duplicates (3 samples) are outside ±10% tolerance for Cu.

This discrepancy is related to uneven distribution of base metals in mineralized rocks ("nugget" effect) and does not influence the MRE.

5.5 Crush duplicates

According to information available from historical reports, no crush duplicates were used in Verkhuba resource drilling programme during historical exploration.

During ESR verification drilling programme 5 crush duplicates were collected by laboratory on ESR request. The crush duplicates performed within the expected limits.

5.6 Pulp duplicates

During the historical exploration 3% of pulp duplicates assayed by semiquantitative spectral analysis were re-assayed in primary and umpire laboratories. No results on assaying were made available to AMC. There were no statistics on the routine and control assays.

5% of samples assayed by quantitative atomic absorption spectroscopy (AAS) analysis were re-assayed in primary and umpire laboratories. It was reported that detected discrepancies between the main sample and the duplicate were within acceptable limits. However, for those elements and grade classes the duplicate results exceeded standard deviation limits:

- Cu 1.01-3.0%.
- Pb >2%.
- Zn>5%.
- Au 0.1-0.49 g/t.
- Ag 2.0-9.9 g/t.

For those elements and grade classes, a systematic error exceeded acceptable limits:

- Cu 0.51-1.0%.
- Pb 0.1-1.0%.
- Zn 0.5-5.0%.
- Au 0.1-0.49 g/t.
- Ag 30.0-100.0 g/t.

It was suggested that the majority of these grade classes do not play a significant role in the studied area or did not have sufficient number of samples to be statistically significant. Thus, no further studies had been performed.

During ESR verification drilling programme, a total of 10 pulp duplicates were used to control sampling, sub-sampling and analytical precision of the laboratory. All pulp duplicate results were within the expected limits.

5.7 Certified Reference Materials

The authors of this report are not aware of any Certified Reference Materials (CRMs) used in historical exploration for QAQC. According to historical reports and common practices of the State exploration in the Soviet Union, no independent CRM checks were performed. These functions were typically performed by the laboratories.

ESR used six CRMs of Australian ORE Pty Ltd (OREAS) suitable to control low grade (<0.3%), medium grade (0.3-1.0%) and high grades(>1.0%) mineralization for base metals using both Aqua Regia and 4 acid digest (Table 5.1).

Table 5.1 OREAS CRMs used in ESR verification programme

OREAS	Type	Au (ppm)	1SD	Method	Zn (%)	1SD	Cu (%)	1SD	Pb (%)	1SD
630B	VHMS	0.358	0.013	AR-ICP	1.11	0.03	0.05	0.0011	0.41	0.018
130	VHMS	no		AR-ICP	1.71	0.03	0.02	0.0009	0.13	0.004
609B	EP	4.97	0.26	AR-ICP	0.13	0.00	0.50	0.014	0.04	0.002
111	VHMS	no		4acid-ICP	0.42	0.02	2.37	0.11	0.04	0.003
111B	VHMS	no		4acid-ICP	0.43	0.02	2.47	0.13	0.04	0.002
927	MVT	no		4acid-ICP	0.07	0.00	1.08	0.024	0.02	0.001

Notes: Types – types of deposits: VHMS – Volcanic Hosted Massive Sulfide; EP – epithermal; MVT – Mississippi Valley Type. Methods: AR-ICP – Aqua Regia digest – ICP-AES finish; 4acid-ICP – four acid digest followed by ICP-AES finish.

Laboratory results for the CRMs on Cu, Zn, Pb analyzed by the routine method and Au demonstrated results within acceptable limits.

Laboratory results on Cu, Zn and Pb analyzed by ore grade method initially failed on CRMs and samples were re-assayed by ALS until acceptable results were obtained.

5.8 Umpire laboratory results

For the historical assaying, it was reported that 3% of control samples were assayed in an umpire laboratory for QAQC. No results were available to AMC for review and analysis.

No umpire laboratory was used by ESR at this stage.

5.9 Data quality assessment by Competent Person

The Competent Person's opinion is that sampling and sample preparation techniques and QAQC programme were relatively robust and suitable to ensure the quality of the assay data for the purpose of a estimating a Mineral Resource. This quality control programme was quite standard and worked well enough and allowed the geologists to identify and correlate mineralization between the drill holes for the whole Verkhuba district.

The Competent Person is of the opinion that geology of deposit was understood during the historical exploration. However, there was a limited amount of whole rock geochemical analysis and discrepancies in rock terminology between exploration campaigns. There was no geotechnical core logging available for review. Due to low core recovery and low quality of core, the tectonic setting of the district was not interpreted in full.

It was reported by ESR that all coordinates for historical drillholes and drillhole traces were mapped and digitized from the available geological plans and cross sections which may cause some issues related to the accuracy of located points. However, the Competent Person is of opinion that the potential discrepancy of several metres will not have a material impact of the global Mineral Resources. ESR's twinned drillholes confirm the presence and tenor of mineralized intersections.

6 Mineral Resource estimate

6.1 Introduction

AMC developed a block model and estimated the Mineral Resource using ordinary kriging (OK) process based on the available analytical database. As part of the modelling, AMC developed wireframe models for the deposit.

6.2 Software

The geological modelling and Mineral Resource estimation were generated by AMC using Micromine 2024 software version 2024.08.39.09 x 64 software.

6.3 Data import and validation

All drillhole data were imported into Micromine software. Validation of the data included checks for:

- Duplicate drillhole names.
- Any drillhole collar coordinates missing in the collar file.
- Either FROM or TO absent in the assay file.
- FROM > TO in the downhole intervals of the assay file.
- Consecutive sample intervals that are not contiguous in the assay file (gaps exist between the assays).
- Sample intervals that overlap in the assay file.
- First sample interval is not equal to 0 m in the assay file.
- No downhole survey orientation for the collar position (at depth 0 m).
- Several downhole survey records exist for the same depth.
- Azimuth is not between 0 and 360° in the downhole survey file.
- Dip is not between 0 and 90° in the downhole survey file.
- Azimuth or dip is missing in downhole survey file.
- Total depth of the holes is less than the depth of the last sample.

No errors were identified in the drilling data.

The provided topography points were imported and used to generate a digital topography model (DTM) and then validated to make sure that it covered the area of the modelled deposit. Drillhole collars were found to match with the topographic surface.

The validated and adopted data from the drilling database for the estimate are summarized in Table 6.1.

Table 6.1 Summary of supplied and validated data used for the Mineral Resource estimate

Category	Number
Holes	111
Metres drilled	46,616
Downhole survey records	978
Assays records	1,171
Assayed intervals for Cu	1,171
Assayed intervals for Pb	1,171
Assayed intervals for Zn	1,171

All intervals that had no assays but occurred within the modelled mineralized zones were assumed to be barren and therefore replaced with corresponding default 0.005 % Cu, Pb and Zn values.

6.4 Preliminary statistical assessment

Classical statistical analysis was implemented to estimate the distribution of unrestricted grades. Figure 6.1 to Figure 6.3 summarize the statistical properties of the unrestricted analytical databases for Cu, Pb and Zn. The populations of unrestricted grades for all elements in logarithmic scale demonstrate that there are most likely several populations for all key elements at the deposit.

- Copper grades have apparent boundary between two grade populations at approximately 0.4% Cu.
- Lead has populations with approximately 0.25% Pb cut-off.
- Zinc grades demonstrate a boundary between populations at approximately 0.35% Zn.

These cut-offs were selected to model mineralized lenses for each grade separately, though AMC made sure that all modelled mineralized lenses for different elements do not contradict each other. All mineralized zones have relatively sharp grade boundaries with the host rock.

Figure 6.1 Log histogram for unrestricted copper grades

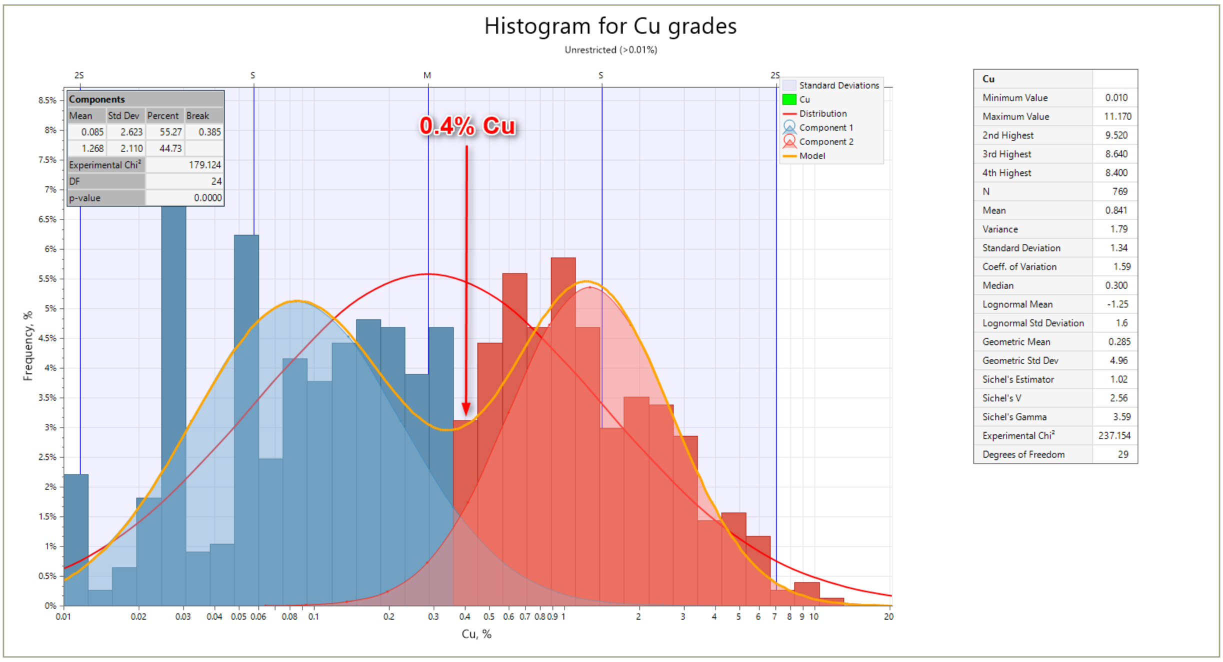


Figure 6.2 Log histogram for unrestricted lead grades

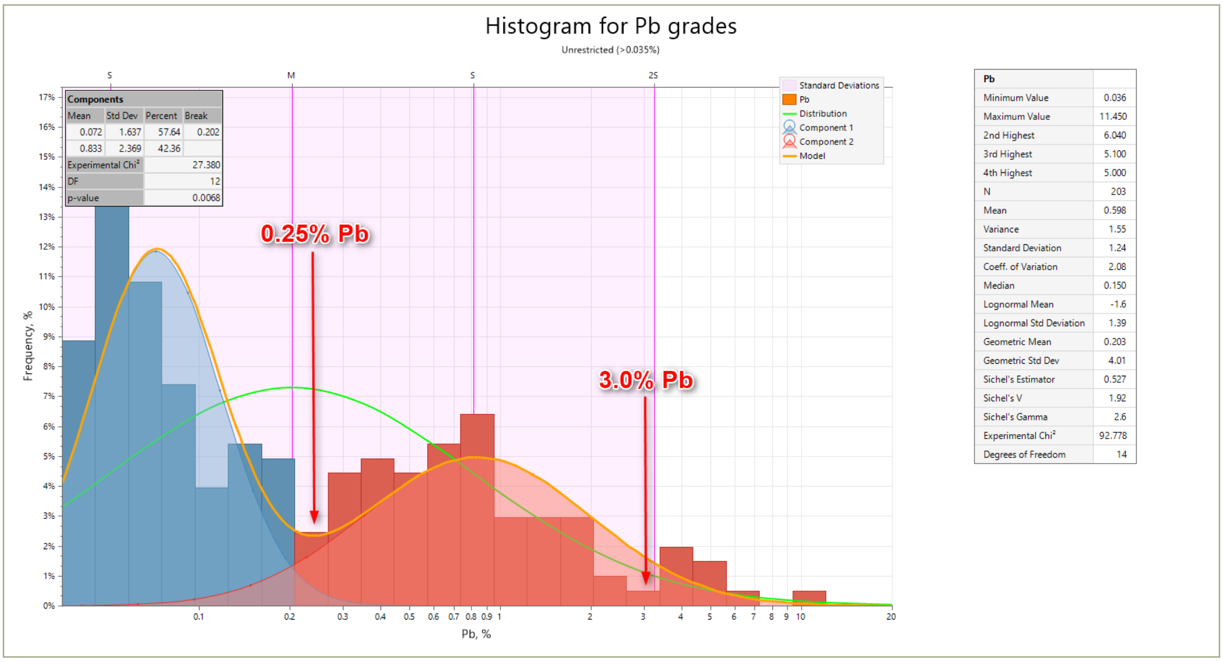
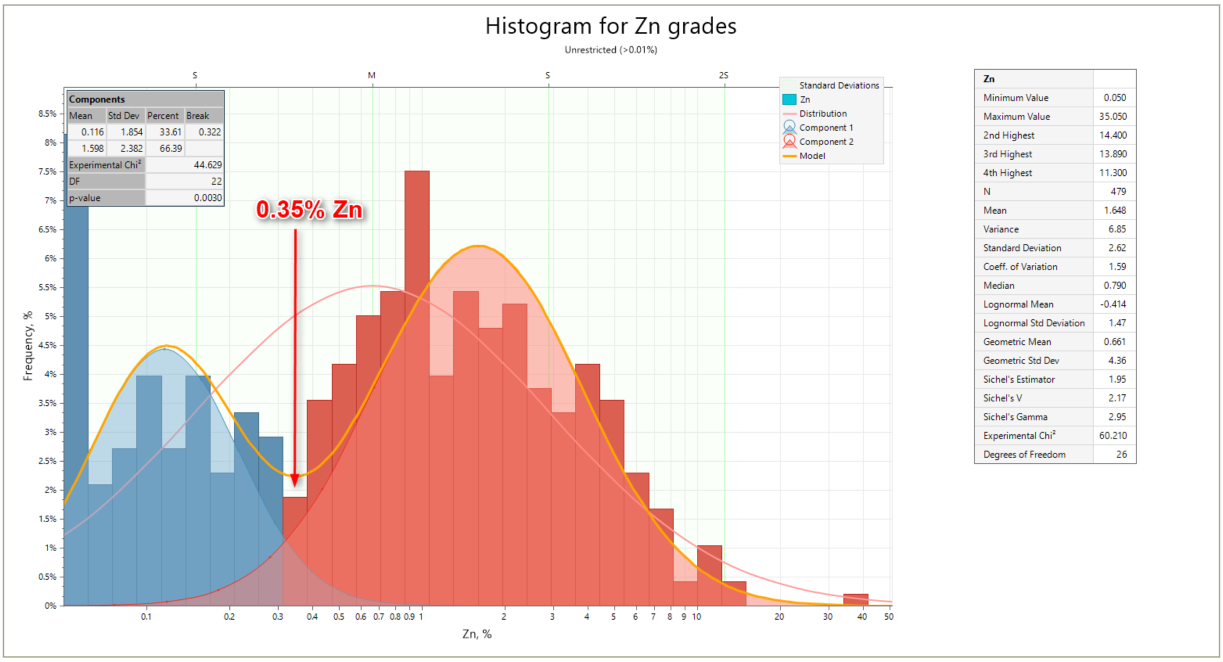


Figure 6.3 Log histogram for unrestricted zinc grades



6.5 Interpretations and wireframing

Interpretations of mineralized zones and their wireframing were completed by AMC for 15 vertical NW-SE cross sections using the available analytical data.

The interpreted mineralization was based on current drilling and analytical data and the full lithological model of the deposit provided by ESR. The interpretations were based on the current understanding of the geology and selected cut-off grades for each element mentioned in Section 6.4. Each element was modelled separately using lithological boundaries and fault planes that control mineralization (Figure 6.4).

The following techniques were employed while interpreting the mineralization:

- Grade composite files were created for the selected cut-off grades separately for each element.
- Each cross section was displayed on screen with a clipping window equal to half of the distance to adjacent sections. All digital cross sections with previously interpreted geology and mineralized zones were georeferenced and displayed together with desurveyed drillhole data.
- All interpreted strings were snapped to the corresponding drillhole intervals (i.e. the interpretation was used to constrain the data in the three dimensions).
- The interpretations were extrapolated to a distance equal to half of the distance between exploration lines perpendicularly from the corresponding first or last interpreted sections. The general orientation of the mineralized zones were maintained.
- If the mineralized zones outcropped, they were interpreted above the surface to avoid artificial gaps in the block model construction between the topography surface and the mineralized zone wireframes.
- All interpreted strings for each element were checked for consistency so that they do not contradict each other.

The interpreted strings for all mineralized bodies were used to generate 3D solid wireframes for each modelled element. Every cross section was displayed on the screen along with the closest interpreted section and the wireframes were then developed for all mineralized bodies of the deposit. Fault planes were honoured from the georeferenced cross sections and plans where possible. If the corresponding envelope did not occur on the next cross section, the former was projected to a half distance towards the next section where it was terminated. The nominal drill spacing varied between 80 m by 80 m and 200 m by 200 m.

Every interpreted zone was wireframed individually. The strings and wireframes that were created are shown in Figure 6.4 to Figure 6.6 where:

- Green strings are interpreted lenses for Cu.
- Purple are for Zn.
- Blue are for Pb.
- Red wireframes are fault planes.

56 mineralized lenses were wireframed for Cu grades, 76 for Zn grades, and 39 for Pb grades.

Figure 6.4 Example of the interpreted section 4A

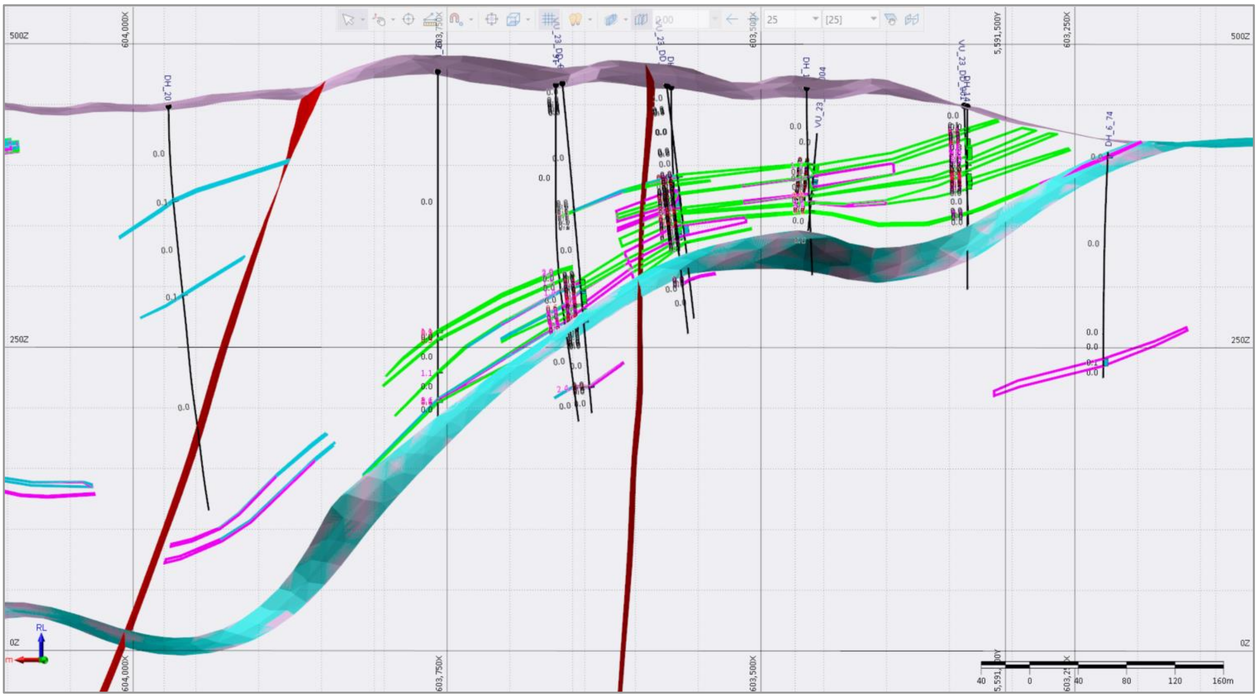


Figure 6.5 3D view of the interpreted mineralized lenses

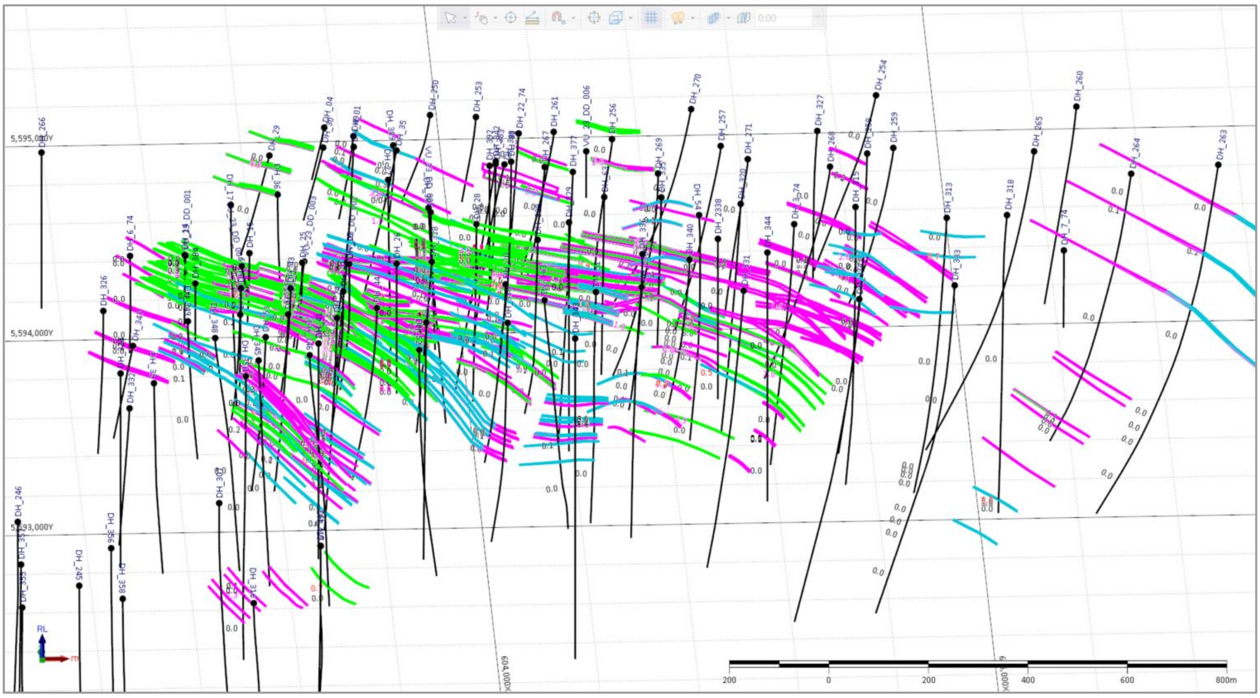
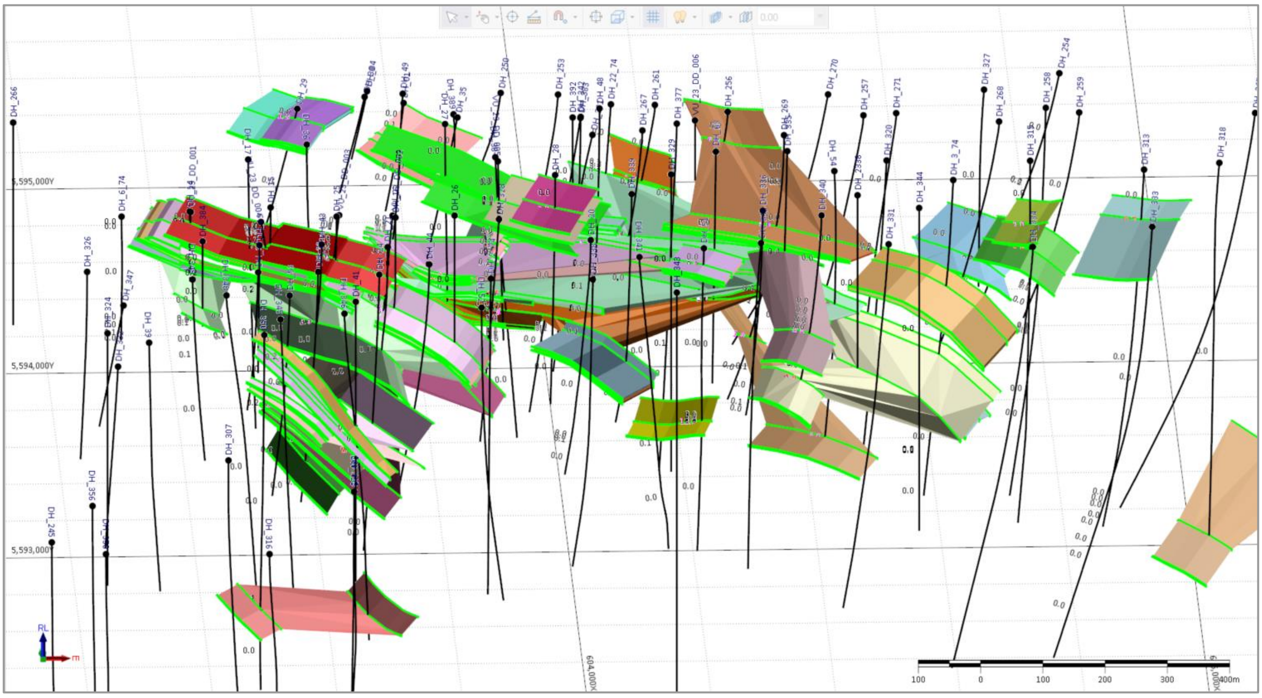


Figure 6.6 3D view of the wireframed mineralized lenses for Cu



6.6 Drillhole data coding and length compositing

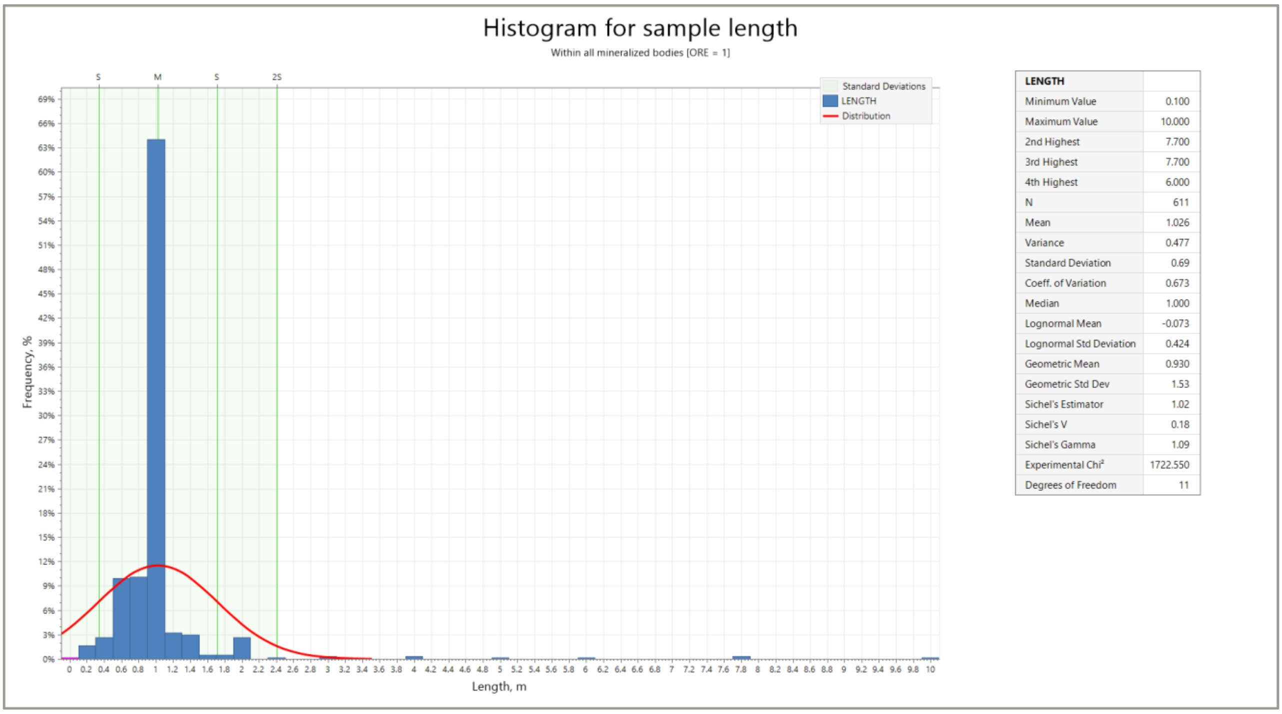
Selection and coding of drillhole data for the interpreted mineralized zones is a standard process for ensuring that correct data are used in statistical and geostatistical analyses. For this purpose, the solid wireframes for each modelled mineralized zone were used to select and flag the raw interval drillhole samples.

The average raw sample length within all mineralized zones was 1.03 m. Based on the sample length distribution histogram, the most common raw sampling interval length was 1 m (Figure 6.7).

After assay data coding, all intervals were composited downhole to an equal length of 1 m. The process of creating a composite interval ended at all boundaries between mineralized zones. If the spacing between samples was less than 10 cm, this gap was included into the composite interval. Where the gap was more than 10 cm, creation of the composite interval ended at this gap and started again from the next sample.

Basic statistics were then calculated for all composite intervals (Section 6.7) to review the zonal statistics.

Figure 6.7 Histogram of raw interval sample lengths within combined mineralized zones



6.7 Statistical analysis

AMC completed the statistical analyses for three main elements (Cu, Zn and Pb). Classical statistical analysis was completed for both raw and composited grades, including a separate report within each modelled element.

After completing interpretation of the mineralized zones and constructing wireframe models, classical statistical analysis was repeated, but only for those samples from within all mineralized zones. The statistical analysis for the modelled elements is shown Table 6.2. All intervals with missing assays were initially split into 1m intervals to ensure that sample centroids of unsampled large intervals will occur within the modelled mineralized zones. All intervals with missing assays were then assumed to be barren and, therefore, all of them were populated with grades equal to 0.005% Cu, or Pb, or Zn. The coefficients of variation (COVs) were greater than 1 for all elements. This indicated that top cutting should be reviewed for estimation of the elements.

Table 6.2 Classical statistics for major elements (weighted on sample length)

Element	Minimum	Maximum	No of points	Mean	Variance	Std. Dev.	COV	Median
Raw assays (unconstrained)								
Cu, %	0.0001	11.17	1,171	0.03	0.07	0.26	2.08	0.08
Zn, %	0.00	35.05	1171	0.03	0.11	0.32	2.72	0.0264
Pb, %	0.00	11.45	1171	0.01	0.01	0.09	5.05	0.01
Raw assays within all mineralized zones combined								
Cu, %	0.0005	11.17	612	0.97	1.90	1.38	1.41	0.5
Zn, %	0.00	35.05	612	1.07	3.36	1.83	1.91	0.40
Pb, %	0.00	11.45	612	0.17	0.35	0.59	3.69	0.03
Assay 1 m composites within all mineralized zones combined								
Cu, %	0.001	11.17	699	0.97	1.80	1.34	1.39	0.496
Zn, %	0.00	35.05	699	1.07	3.19	1.79	1.92	0.48
Pb, %	0.00	11.45	699	0.17	0.35	0.59	3.68	0.03

Element	Minimum	Maximum	No of points	Mean	Variance	Std. Dev.	COV	Median
Assay 1 m composites within mineralized zones for Cu								
Cu, %	0.001	11.17	457	1.39	2.16	1.47	1.05	0.97
Zn, %	0.00	35.05	457	0.80	3.03	1.74	2.68	0.05
Pb, %	0.00	11.45	457	0.12	0.33	0.57	5.02	0.025
Assay 1 m composites within mineralized zones for Zn								
Cu, %	0.002	11.17	401	0.63	1.45	1.21	1.90	0.2
Zn, %	0.02	35.05	401	1.85	4.21	2.05	1.34	1.05
Pb, %	0.00	11.45	401	0.24	0.46	0.68	3.19	0.03
Assay 1 m composites within mineralized zones for Pb								
Cu, %	0.02	7.4	96	0.71	1.64	1.28	1.69	0.19
Zn, %	0.00	35.05	96	1.72	4.05	2.01	1.90	1.04
Pb, %	0.042	11.45	96	1.12	1.53	1.24	1.31	0.69

6.8 High-grade cutting

A review of grade outliers was undertaken to ensure that extreme grades are treated appropriately during grade interpolation. Although extreme grade outliers within the grade populations of variables are real, they are potentially not representative of the volume they inform during estimation. If these values are not cut, they have the potential to result in significant grade and metal over-estimation on a local basis.

The input sample file was flagged by the modelled mineralized zones. The lognormal histograms and cumulative probability plots were analysed to determine the top cut grades to be applied to the input analytical data before sample compositing and geostatistical analysis. That was carried out for each element.

Figure 6.8 to Figure 6.10 show histograms for the three elements modelled. Potential high-grade cuts were reviewed but none were applied due to lack of significant outliers and the preliminary and conceptual nature of the study. It is expected that due to the nature of massive sulfides, some high grades are expected in the modelled mineralized zones and none exceeded the metal percentage for a possible predominant sulfide mineral.

Figure 6.8 Histogram for Cu grade distribution within mineralized zones for Cu

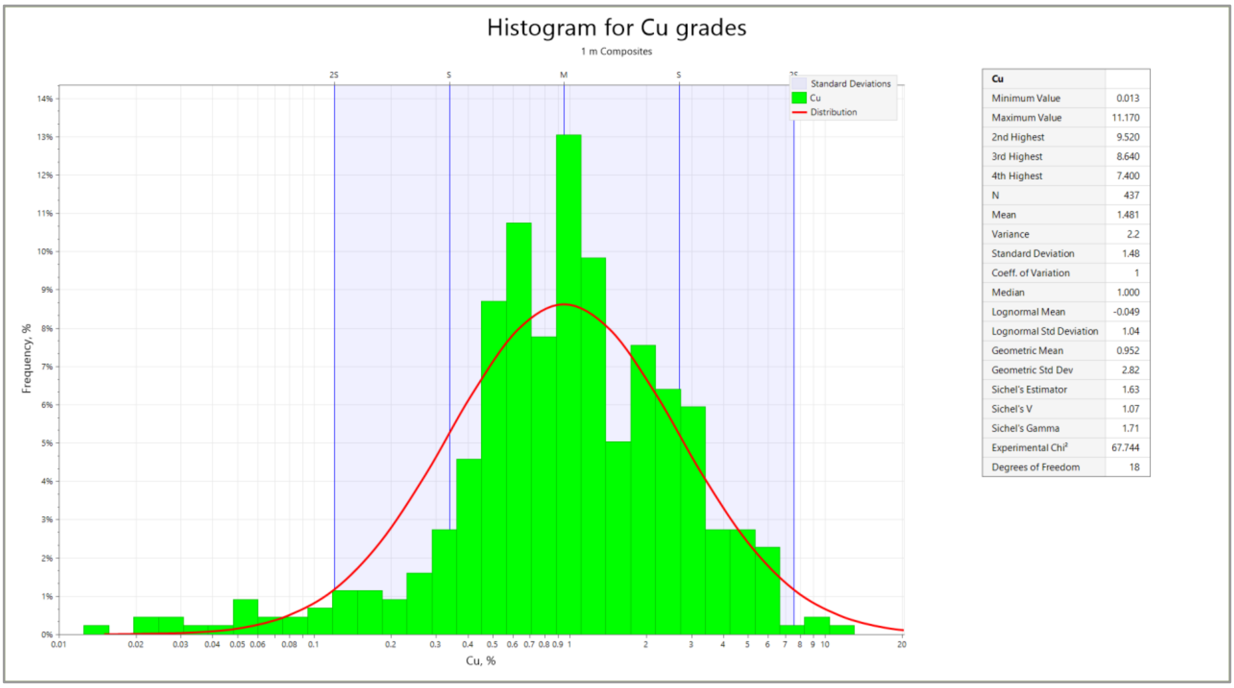


Figure 6.9 Histogram for Pb grade distribution within mineralized zones for Pb

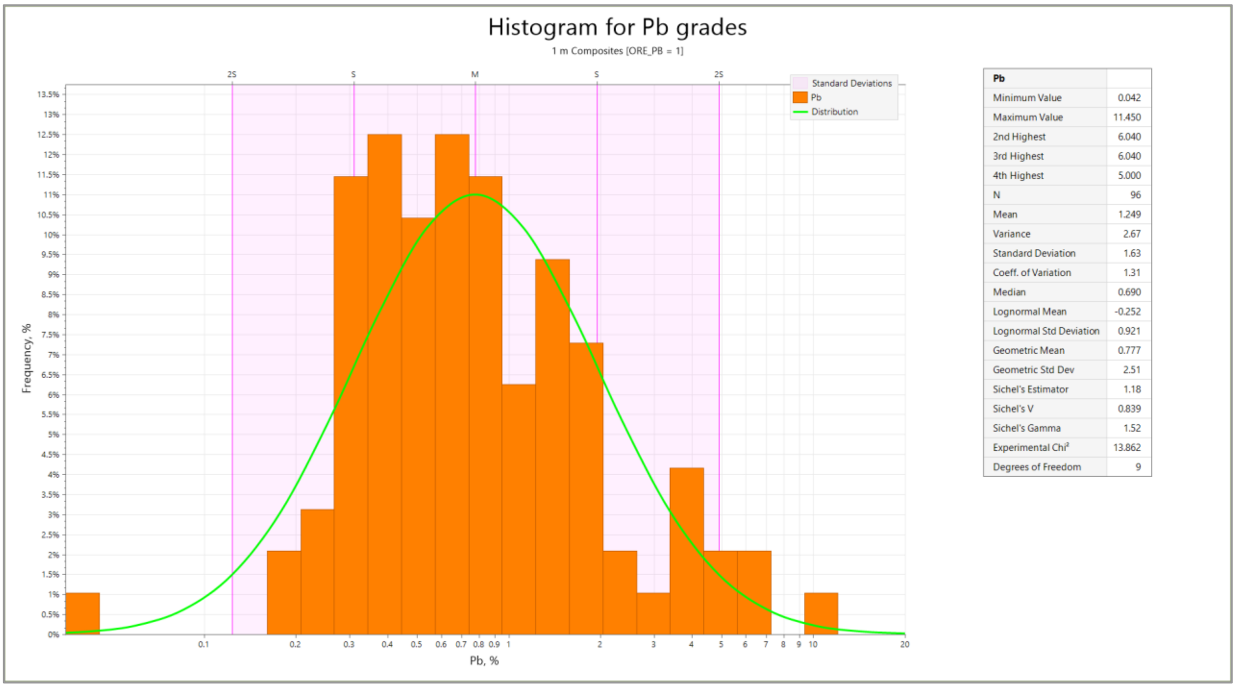
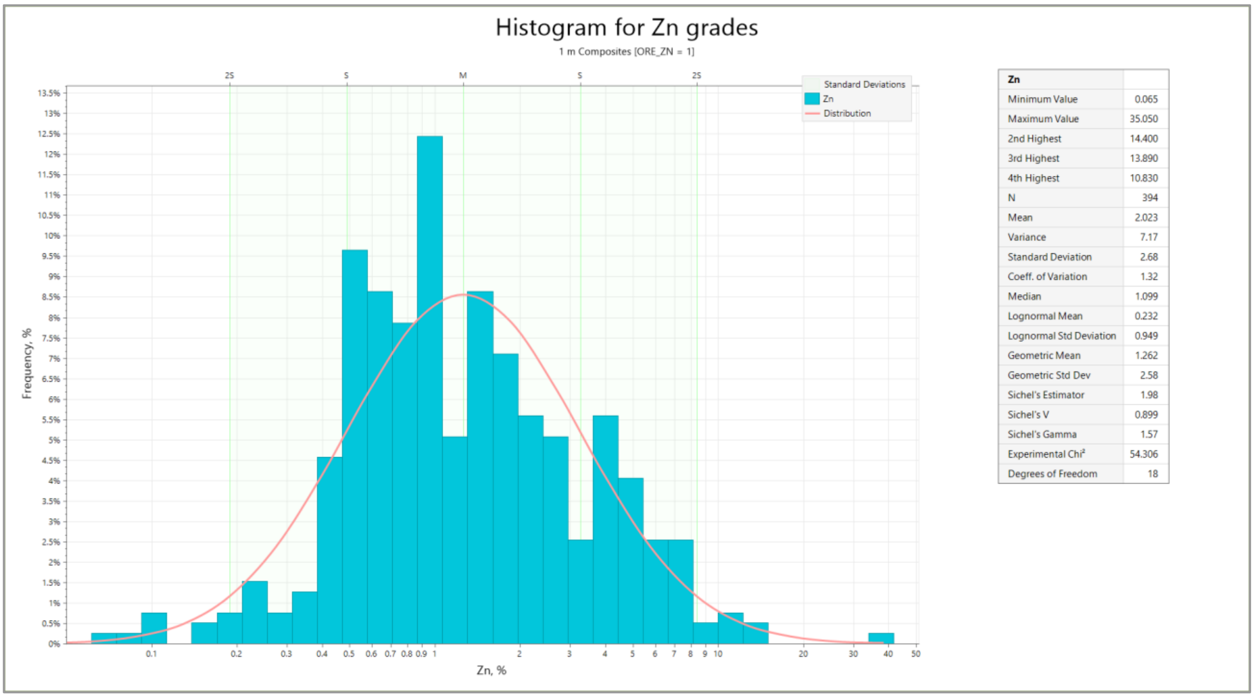


Figure 6.10 Histogram for Zn grade distribution within mineralized zones for Zn



6.9 Variography

The purpose of geostatistical analysis is to generate a series of variograms that can be used as the input weighting mechanism for the kriging algorithms. The variogram ranges determined from this analysis contribute to conceptual anisotropies of the search neighborhood.

All lenses were flattened to constant arbitrary horizontal plane and separated in vertical space to make sure that samples are not mixed between individual lenses. All variograms were calculated and modelled for the one-metre composited sample file constrained by the corresponding mineralized lenses. The geostatistical analysis was completed for all lenses combined to make sure that the number of samples is sufficient for robust geostatistical analysis. It was found that normal variograms were difficult to model for all elements, and therefore, pair-wise relative variograms were modelled.

The main axes for variogram modelling were selected using overall geological parameters of the deposit. All selected domains were flattened for geostatistical purposes. Azimuth of the major axis direction was 019° with no plunge and no dip (as all lenses were flattened). Azimuth of the semi-major direction was 109°. The minor axis direction was defaulted as perpendicular to the first two axes, i.e. 199° with a 90° dip.

All variogram models used spherical models with two nested structures. The parameters of the modelled semi-variograms are listed in Table 6.3 and shown in to Figure 6.13. It was found that all variogram models for the minor directions demonstrate a data-related zonal anisotropy for all elements (due to being thin zones in that direction). Therefore, nominal long ranges and variance were modelled in that direction.

The obtained variogram ranges were considered in selection of the anisotropoy of the search radii. Averaged long ranges of all variograms for all elements were used (162 m for the main direction, 151 m for the second direction, and 5 m for the third direction). The averaged ranges were used to define the search ellipse in the grade interpolation process.

Table 6.3 Semi-variogram characteristics (normalized)

Element	Type	Axis	Azimuth (°)	Dip (°)	Variance			Ranges	
					Nugget	Partial sills			
					C_0 (%)	C_1 (%)	C_2 (%)	R_1 (m)	R_2 (m)
Cu	Pair-wise relative variogram, spherical structure	Major	019	0	25	36	47	22	137
		Semi-major	109	0				19	123
		Minor	109	90				5	40
Pb		Major	019	0	25	51	51	64	177
		Semi-major	109	0				64	175
		Minor	109	90				7	80
Zn		Major	019	0	18	30	50	21	172
		Semi-major	109	0				21	155
		Minor	109	90				3	-

Figure 6.11 Directional variogram models for copper grades (major, semi-major, minor)

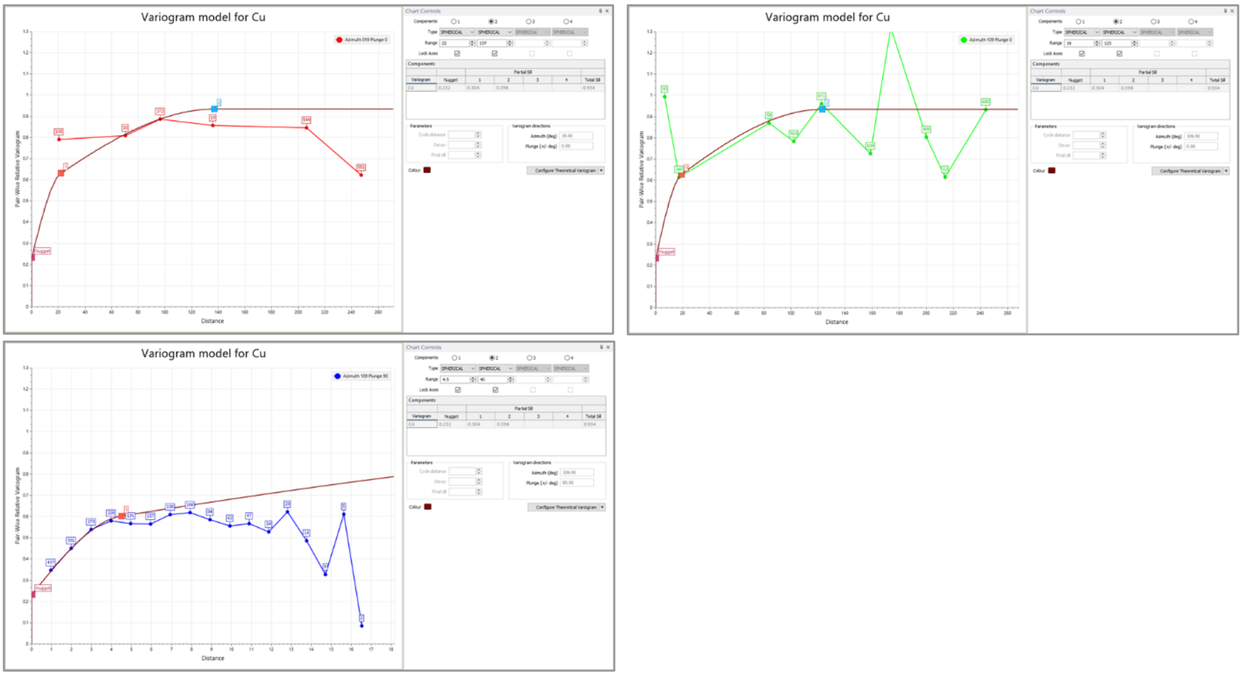


Figure 6.12 Directional variogram models for lead grades (major, semi-major, minor)

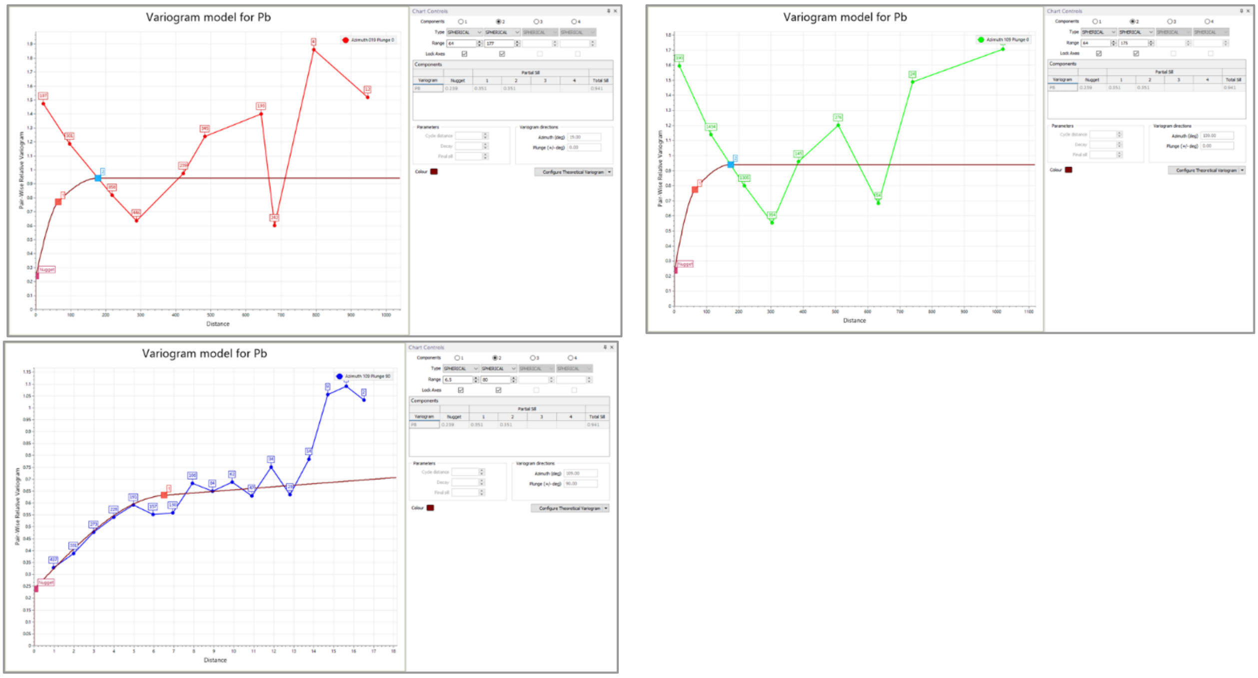
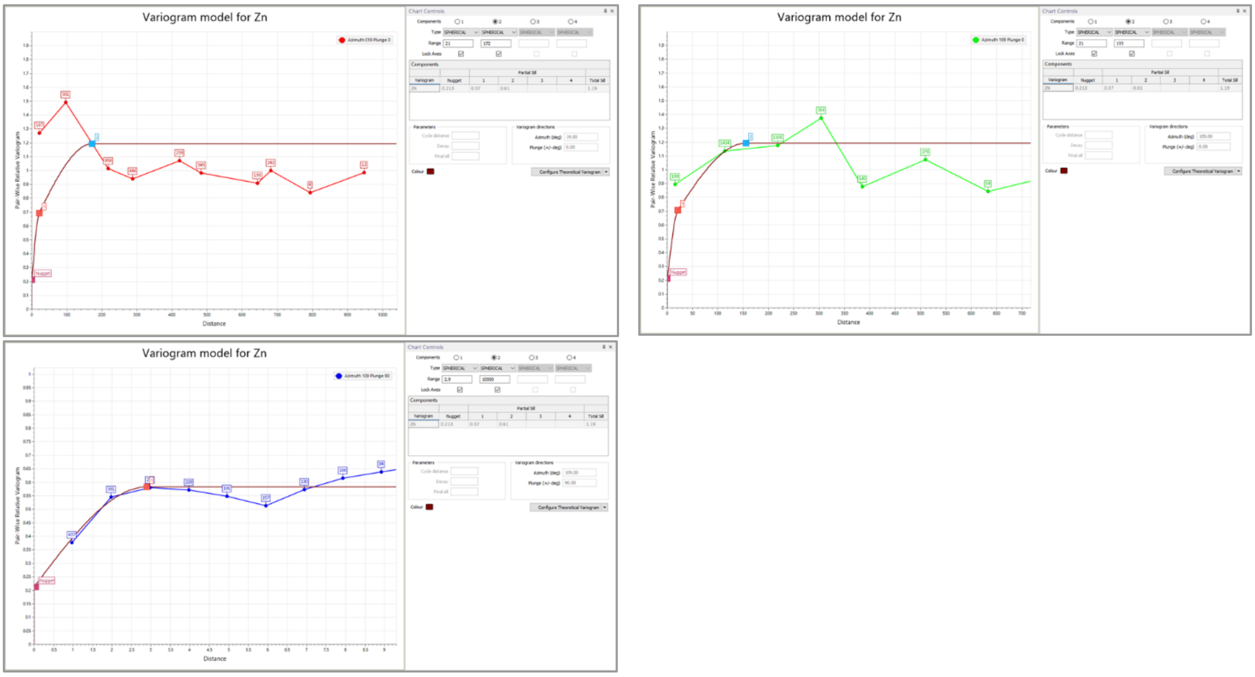


Figure 6.13 Directional variogram models for zinc grades (major, semi-major, minor)



6.10 Bulk density

ESR advised AMC that a bulk density of 3.0 t/m^3 was used in all historical reports and studies. In the absence of any other data, AMC has directly assigned this value to all blocks for the mineralized zones in the model. A default bulk density value of 2.75 t/m^3 was assumed for waste material (not incorporated as part of the block model).

6.11 Volume modelling/block model development

Block modelling was undertaken by AMC using Micromine software.

An empty block model was created separately for each element within the closed wireframe models. The resultant three models were combined. The model was coded according to the deposit individual mineralized zones. The block model was restricted to blocks below the topography surface (i.e., all model cells above the topography surface were deleted from the model file).

The block model used a small parent cell size of 5 m(E) x 5 m(N) x 2 m(RL) with sub-celling to 1 m(E) x 1 m(N) x 0.4 m(RL) to maintain the resolution of the mineralized zones. It was assumed that this parent block size would represent a nominal selective mining unit (SMU) for the underground mining at the deposit. Block model construction parameters are shown in Table 6.4, and the block model attributes are shown in Table 6.5.

The sub-celling occurred near the boundaries of the mineralized zones or where models were truncated with the topographic surface. The sub-celling size was chosen to maintain the resolution of the mineralized zones. The sub-cells were optimized in the model where possible to form larger cells.

Table 6.4 Block model parameters

Axis	Extent of parent cell centroids (m)		Block Size Dimension (m)	Maximum Sub-Cell Dimension (m)	No. of Parent Blocks
	Minimum	Maximum			
Easting	602,900	606,000	5	1	621
Northing	5,590,000	5,593,000	5	1	601
RL	-750	500	2	0.4	626

Table 6.5 Block model attributes and field names

Field	Description
EAST	Easting, m
NORTH	Northing, m
RL	RL, m
_EAST	Easting block size, m
_NORTH	Northing block size, m
_RL	RL block size, m
DENSITY	Density values (dry), t/m^3
ORE_CU	1 – blocks within wireframe models for Cu, 0 - outside
WF_CU	Cu mineralized lens name
ORE_ZN	1 – blocks within wireframe models for Zn, 0 - outside
WF_ZN	Zn mineralized lens name
ORE_PB	1 – blocks within wireframe models for Pb, 0 - outside
WF_PB	Pb mineralized lens name
PB	Pb grade field, %
CU	Cu grade field, %
ZN	Zn grade field, %
CU_EQ	Cu equivalent grade field, %
PIT	Flag for material within optimal pit shell (1 – within the pit, 0 – below and outside the pit)

Note: Calculation of the equivalent fields is discussed in Section 6.14.

6.12 Grade estimation

Copper, lead and zinc grades were interpolated into the block model using the ordinary kriging (OK) technique. All grades were interpolated without application of top cuts to the grades.

The block model and composites were coded for each mineralized lens and for each element; thus, each deposit modelled body was estimated separately using corresponding sample composites. Hard boundaries between the zones were employed. A "parent block estimation" technique was not used, as all zones were flattened, and the significance of the vertical dimension was lost in the process. All blocks were estimated initially within the modelled corresponding lenses for each element (Cu, Pb, Zn; e.g., Cu was estimated into Cu zones etc).

All zones for the various elements have Cu, Pb, and Zn grade estimates. For zones covered by other elements (e.g., Pb and/or Zn but not Cu) then block grades were generated for the element (e.g., Cu) from data constrained by the other element mineralized zones (e.g., Pb and/or Zn) i.e., grade estimates were also generated outside of the corresponding wireframes for the main element, but within the zones for all other elements.

The OK interpolation process was performed at consecutive expanded anisotropic search radii until all cells were interpolated. The search radii were determined by means of evaluation of the modelled variograms and the general strike of the deposit.

Considering that thin mineralized zones, a flat search ellipse was used to honour the distribution of mineralized material. The search ellipse was oriented to be consistent with the average strike.

The search parameters are summarized in Table 6.6.

Table 6.6 Interpolation parameters

Interpolation Method	OK			No. of Sectors Used	Maximum no. of composites per sector
Search Radii	**110 by 100 by 3 m**	**160 by 150 by 5 m**	**1,080 by 1,010 by 30 m**		
Minimum no. of composites	3	3	1	4 (quadrants)	4
Maximum no. of composites	16	16	16		
Minimum no. of composites per drillhole	2	2	1		

Four sectors were used with a maximum of 4 composites per sector. The following constraints were applied: a maximum of 16 composites were used from at least two drillholes, and a minimum of 3 composites for the first two runs. Block estimates used discretization of 2 by 2 by 2 points.

6.13 Model validation

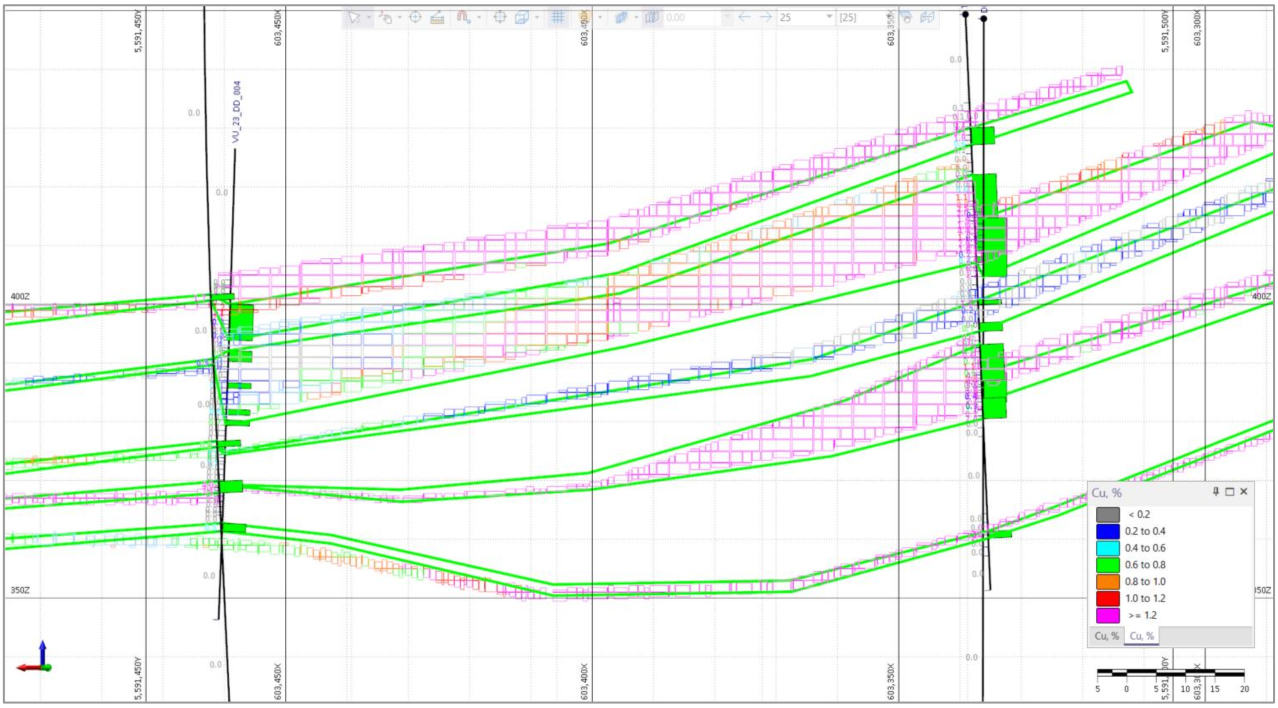
Validation of the grade estimates was completed by:

- Visual checks on screen in cross-sections to ensure that block model grades honour the grade of composite data.
- Statistical comparison of composite and block grades.
- Generation of swath plots to compare input and output grades in a two-dimensional process by easting, northing and elevation.

6.13.1 Visual validation

The block model with interpolated grades was displayed on screen along with the composite and block grades colour coded. Visual validation demonstrated close correlation between modelled grades and composites (Figure 6.14).

Figure 6.14 Visual comparison of copper grades in the model versus assays



6.13.2 Statistical validation

The average grades in the block model were compared with the average grades in the composite files. It was found that all modelled grades had relatively lower global average grades than the grades in the composited sample file. For example, modelled copper grades were 11% lower on a relative basis. The lower average grades could be explained by the data clustering of the relatively high-grade assays in various parts of the deposit and smoothing from the estimation process (volume-variance effect). The difference is expected and within the anticipated limits. More detailed analysis and validation of the modelled grades was carried out using swath plots. Results are shown in Section 6.13.3 below.

6.13.3 Swath plots

Swath plots were generated for each 10 m bench and each 50 m vertical section in east-west and north-south directions. The plots were generated separately for each element. Examples of the results of this validation for two main directions are shown in Figure 6.15 to Figure 6.17. The plots demonstrate close correlation between the modelled grades and sample composites.

Figure 6.15 Swath plot for copper grades

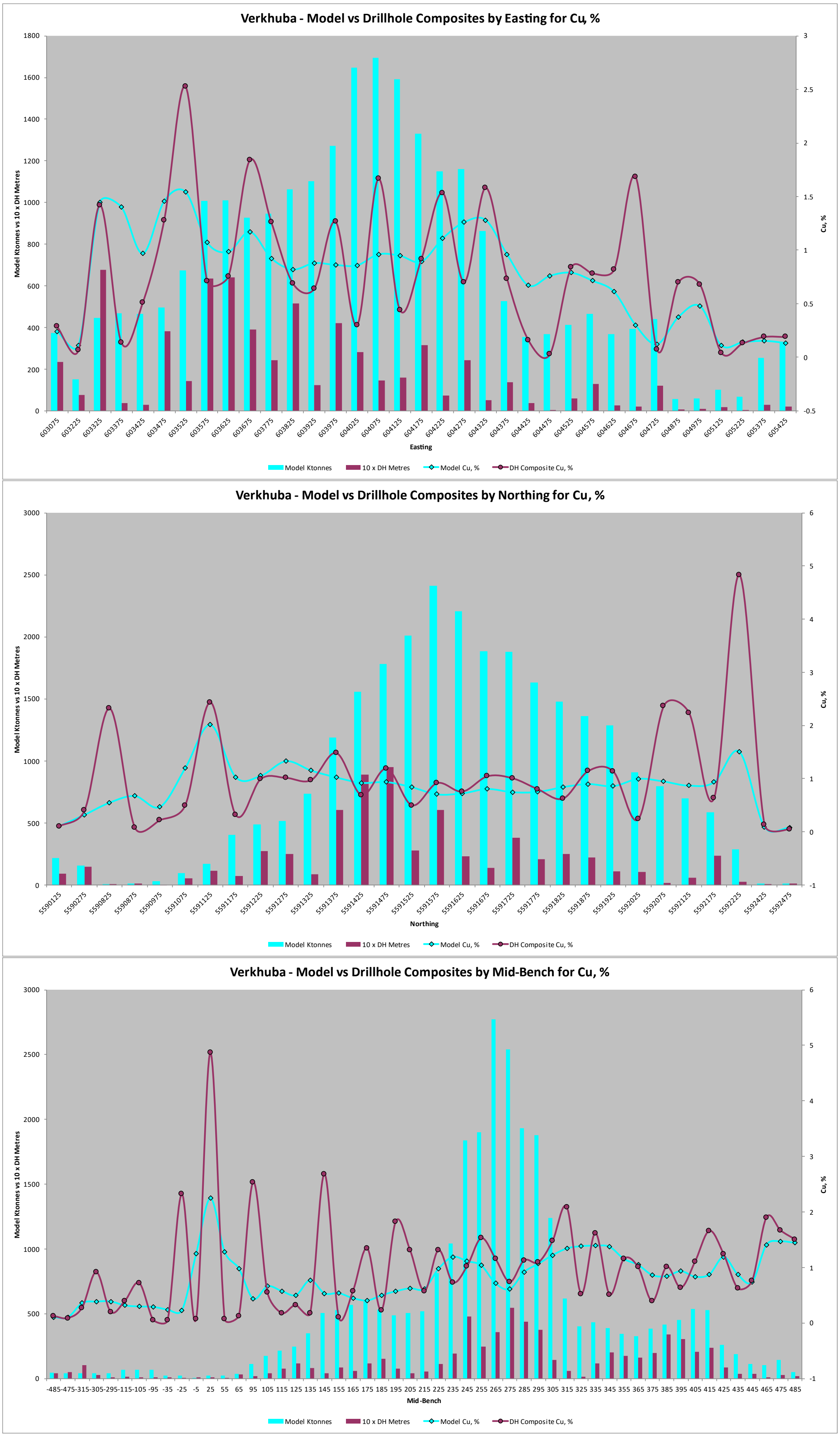


Figure 6.16 Swath plot for zinc grades

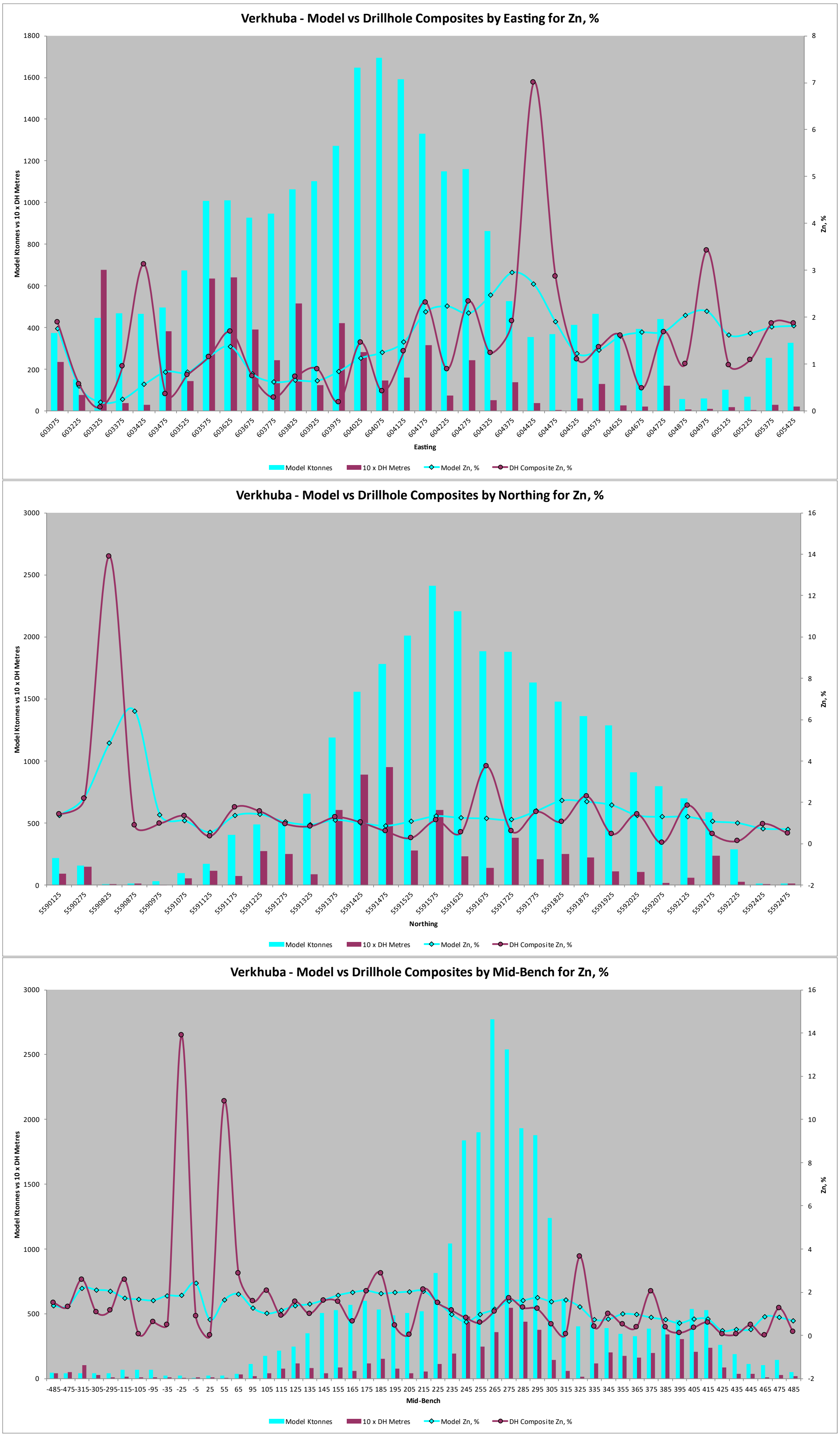
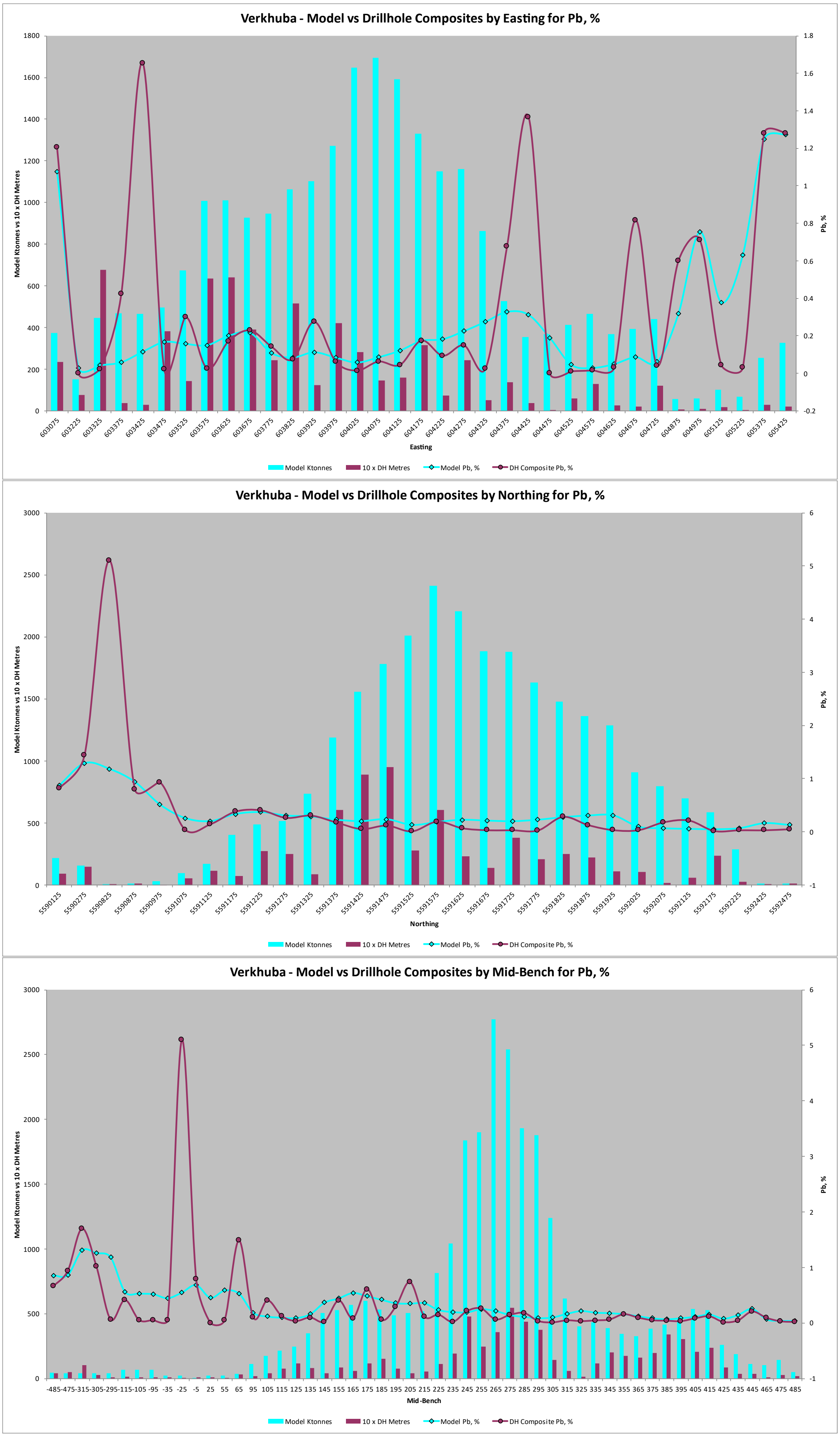


Figure 6.17 Swath plot for lead grades



6.14 Analysis for underground mining method and reporting cut-off

The provided input economic parameters were used to estimate the marginal cut-off that could be used for reporting of material that has potential for underground mining.

Verkhuba is a polymetallic deposit, therefore, it is not considered appropriate to apply a cut-off to a single element. A metal equivalent is calculated. It was decided that lead and zinc elements would be used in conjunction with copper to calculate the copper equivalent grades for reporting purposes.

In accordance with the JORC Code clause 50, the metal equivalent grades were calculated using metal prices and considering metallurgical recoveries. The metal prices and their metallurgical recoveries relative to copper recovery (Table 6.7) were used to calculate the conversion factors from Zn % or Pb % to Cu %; the resultant formula was:

$$CuEq = Cu(\%) +(Zn(\%) \times 0.33889) + (Pb(\%) \times 0.250000)$$

Table 6.7 Conversion factors

Element	Price (USD)	Recoveries (%)	Conversion Factor
Cu, %	9,000 $/t	90%	1
Zn, %	3,050 $/t	90%	0.338889
Pb, %	2,250 $/t	90%	0.250000

This formula was applied to all cells in the block model to calculate copper equivalent grades.

The next stage was to estimate reporting cut-off for underground mining method. The mining cost for underground development was assumed to be USD25/t, and the mining dilution and losses were 10%. Other input parameters assumed $20 for processing cost, taxes of 10.5% for Zn, 8.55% for Cu and 10.4% for Pb, and 20% of the metal prices for refining.

The calculated marginal cut-off grade was 0.86% CuEq for the underground operation.

AMC reviewed how coherent and continuous the blocks are that could potentially be subject for underground mining operation. The block model was filtered for all cells that had grade equal to or higher than 0.86% CuEq and it was found that most of the zones are continuous and could be suitable for an underground operation.

It is also apparent that some remote and isolated blocks above the selected cut-off would be impossible to mine using underground mining methods. However, that would be subject to subsequent mining studies and underground mine design to subdivide those blocks into mineable and un-mineable areas, and this level of analysis was not within the scope of the current study. All blocks above the selected cut-off were included into the tables in the reported Mineral Resource.

7 Mineral Resource reporting

7.1 Reasonable prospects test

Clause 20 of the JORC Code requires that all Mineral Resource estimates must have reasonable prospects for eventual economic extraction, regardless of the classification assigned to the Mineral Resource.

The Competent Person (Dmitry Pertel) considers there are reasonable prospects for eventual economic extraction on the following basis:

- The assumed conventional flotation processes with metallurgical recoveries of 90% for all elements is reasonable at this stage of the project development.
- The cut-off grade adopted for reporting of Mineral Resources for underground mining method (0.86% CuEq) is considered reasonable and justified with assumed economic parameters and metal prices.
- The material that could potentially be suitable for underground mining methods demonstrate continuous zones above the selected cut-off grade.
- All permits and licenses from the government are in good standing, although application for mining status will be required at some stage of the project development.
- The project area is reasonably serviced by infrastructure.

7.2 JORC Code Classification

The Mineral Resource has been classified based on the JORC Code. The classification is based upon an assessment of geological understanding of the deposit, geological and mineralization continuity, drillhole spacing, QAQC results, and search and interpolation parameters.

The following approach was adopted:

- **Measured Mineral Resources**: Not reported.
- **Indicated Mineral Resources:** Not reported.
- **Inferred Mineral Resources**: Inferred Mineral Resources are all model blocks that occur within the modelled mineralized lenses, that display reasonable strike continuity and down dip extension, based on the current drillhole intersections and understanding of the deposit geology.

7.3 Mineral Resource estimate report

The Mineral Resource estimate for the Verkhuba deposit is based on estimated grades in the block model spatially constrained by interpreted and modelled geological mineralized zones, which were modelled separately for each main element. The underground mining method is the preferred method given both the tenor of grades and depth of zones.

The Mineral Resource estimate for the deposit is reported in Table 7.1 where all material haas been classified as Inferred, using a cut-off of 0.86% CuEq applied to the model assuming an underground mining method. The statement also assumes flotation processing method. The effective date of the estimate is 31 March 2024.

Table 7.1 Verkhuba Mineral Resource Estimate as of 31 March 2024

Classification	Tonnes	Cu		Zn		Pb	
	(mt)	Grade (%)	Metal (kt)	Grade (%)	Metal (kt)	Grade (%)	Metal (kt)
Inferred	20.3	1.16	236	1.54	313	0.27	54

Notes:

- Mineral Resources have been classified in accordance with the guidelines of the JORC Code. All blocks were classified as Inferred.
- The Mineral Resource report assumes an underground mining method with the marginal cut-off of 0.86% Cu equivalent.
- A nominal dry bulk density value of 3.0 t/m^3 was assumed to be appropriate for the style of mineralization.
- Cu equivalent was calculated using the following metal prices: 3,050 $/t for Zn, 9,000 $/t for Cu, 2,250 $/t for Pb with metallurgical recoveries of 90% all elements.
- Tonnage is reported on dry basis.
- The underground Mineral Resource is not currently constrained by any nominal limits as most material above the cut-off grade appeared to be reasonably coherent.

7.4 Comparison with previous estimate

Previous estimate of unclassified grades and tonnes was completed by AMC in February 2024 (Table 2.3). The marginal cut-off grades of 0.38% CuEq and 0.86% CuEq were applied to the model within the limits of the pit and outside of the pit limits (assumed underground target) respectively.

Table 7.2 Summary table – Verkhuba unclassified grade and tonnage estimate for open pit and underground mining methods, February 2024

Mining Method	Tonnes	CuEq		Zn		Cu		Pb	
	(kt)	Grade (%)	Metal (kt)	Grade (%)	Metal (kt)	Grade (%)	Metal (kt)	Grade (%)	Metal (kt)
Open pit	7,006	1.82	127	1.11	78	1.41	99	0.11	8
Underground	14,010	1.53	215	1.42	199	0.98	137	0.31	43
Total	**21,016**	**1.57**	**342**	**1.27**	**277**	**1.08**	**236**	**0.23**	**51**

The relative difference between the current and previous estimates are shown in Table 7.3.

Table 7.3 Difference between the current and previous estimates

Difference (%)						
Tonnes	Zn		Cu		Pb	
(kt)	Grade	Metal	Grade	Metal	Grade	Metal
-4	+21	+13	+7	0	+15	+7

The differences between the previous estimates and the AMC March 2024 estimate could be explained by the following:

- New model is based on interpreted individual elements, while the previous estimate was based on interpreted metal equivalent.
- The interpretation of mineralized zones was updated using updated lithological model of the deposit.
- Previous statement was based on two cut-offs and two different mining methods.

7.5 Audits and reviews

Internal reviews were completed by AMC. AMC verified the technical inputs, methodology, parameters and results of the MRE. No external audit of the MRE has been undertaken.

8 Conclusions and recommendations

8.1 Conclusions

A Mineral Resource estimate has been prepared for the Verkhuba polymetallic deposit based on analytical results obtained during historical and recent exploration programmes, geological understanding of the deposit and the topographic surface provided by ESR.

AMC completed all major modelling steps and stages, including database import and validation, interpretation and wireframing of mineralized zones, statistical and geostatistical analyses, grade interpolation and model reporting. The complete analytical data file was used to perform classical statistical analysis. The analytical data was composited to 1 m downhole intervals, which was the most common length for routine sampling of the mineralization. Ordinary kriging approach was applied to estimate grades for Cu, Zn and Pb. Grades and tonnage have been reported above the cut-off grade of 0.86% for underground mining method.

8.2 Recommendations

AMC recommends the following actions are completed to support the ongoing exploration and evaluation efforts at Verkhuba:

- Additional exploration drilling with industry standard QAQC protocols to define the deposit geology, faults and location of mineralized zones. It is expected that a 50 m by 50 m exploration grid density incorporating some closer spaced infill drilling (to test continuity) could potentially support classification of a portion of the Mineral Resources as Indicated.
- Routine measurements of bulk density to support subsequent Mineral Resource and Ore Reserve estimates.
- Logging and modelling of the oxidation profile related to weathering (if present) as it will impact the metallurgical properties, metal recoveries, and bulk densities.
- Scoping level mining study to estimate the potential economics of the project.
- Geometallurgical study to determine ore types, their potential beneficiation properties, and possible processing options.

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Appendix A
JORC Code Table 1

Section 1 Sampling Techniques and Data

(Criteria in this section apply to all succeeding sections)

Criteria	JORC Code Explanation	Commentary
Sampling Techniques	• *Nature and quality of sampling (eg cut channels, random chips, or specific specialized industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling.* • *Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.* • *Aspects of the determination of mineralization that are Material to the Public Report.* • *In cases where 'industry standard' work has been done this would be relatively simple (eg 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases, more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralization types (eg submarine nodules) may warrant disclosure of detailed information.*	Historical exploration (1974 to 1990) • The deposit was explored by drilling producing 59 and 76 mm diameter core. Sampling was performed only on mineralized intervals identified by visual core logging and downhole geophysics (X-ray radiometric and/or electric downhole logging). • Mineralized core of different mineralogy was sampled separately at intervals ranging from 0.1 to 2.0 m in length. • 59 mm core was sampled in full, 76 mm core was cut in half, one half of core was sampled for laboratory studies. • Host rocks in hanging wall and footwall of mineralization were sampled by 1 m long samples, 2-3 samples were collected from each contact. • Non-mineralized core was sampled by 10 m long composite core samples by collecting rock chips every 10 cm of core for rock chemical and mineralogical studies. • In cases of low core recovery (<50%), sampling intervals were increased to 3 m to provide enough sampling material for chemical studies. ESR exploration (2023) • Five drill holes twinned historical drill holes. • Mineralized zones in core were identified by visual logging and pXRF measurements, which were taken every 20 cm over the whole length of drill core.

Criteria	JORC Code Explanation	Commentary
		• Mineralized zones were sampled by 0.5 to 1.0 m sampling intervals based on lithological contacts. • 3 samples 1 to 2 m each were usually taken from host rocks both on the hanging wall and footwall of mineralized zones. • Core was cut in half on sampling intervals, one half of the core was sampled. Geological duplicate as well as corresponding main sample were taken from ¼ core. In the opinion of the Competent Person, the sampling techniques were appropriate for the geology, scale of deposit, and are of an acceptable standard for the purpose of data used in estimating a Mineral Resource.
Drilling Techniques	• *Drill type (eg core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (eg core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc).*	Historical exploration (1974 to 1990) • Double barrel wireline system was used in Mineral Resource definition diamond drilling. • Upper 10 to 20 m transported deposits were drilled by 132 mm diamond drill bit, followed by 112 mm bit up to depth of 35 to 70 m below the surface. After casing of drill hole by 89 mm casing pipes, the drilling was continued by 76 mm bit (core diameter 57 mm), followed by 59 mm drill bit (core diameter 42 mm). • Most of the mineralized intervals were drilled with 59 mm drill bits. ESR exploration (2023) • The drilling was performed by ZRV-1500 drill rig using HQ wireline double tube core barrel system (core diameter 63.5 mm). • Length of the most of drill runs was 3 m. All core was oriented by Reflex Act III instrument. In the opinion of the Competent Person, the drilling techniques are suitable for estimating Mineral Resources: the core sizes are appropriate, but the standards of work completed in the Soviet era should be quantified and compared to the planned verification drill programme. The

Criteria	JORC Code Explanation	Commentary
		data obtained using the older drilling techniques is acceptable for the definition of a Mineral Resource.
Drill Sample Recovery	• *Method of recording and assessing core and chip sample recoveries and results assessed.* • *Measures taken to maximize sample recovery and ensure representative nature of the samples.* • *Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.*	Historical exploration (1974 to 1990) • On undisturbed core, the recovery was estimated by dividing of core length by the length of drilling run reduced to 100%. Most of the core was presented by broken and fragmented core and its recovery was measured using weight method. • To increase core recovery on mineralized intervals the length of drilling runs was reduced to 1 m and drill bit load was also reduced. • Core recovery on mineralized intervals was reported above the limit of 70% and above 60% within the bioherm sequence. • There were no requirements on core recovery on non-mineralized intervals and host rocks, where core recovery varied within 23-40% (1987-1990). • No relationship between sample recovery and grade was reported nor it was apparent. ESR exploration (2023) • Core recovery for each drill run exceeded 95%. In the opinion of the Competent Person, the drill sample recoveries are suitable for data used in estimating a Mineral Resource.
Logging	• Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.	Historical exploration (1974 to 1990) • All drill holes were geologically logged except upper sections of drill holes with transported sediments, however only limited original information from geological archives has been obtained to date.

Criteria	JORC Code Explanation	Commentary
	• Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography. • The total length and percentage of the relevant intersections logged.	• No results of historical geotechnical logging are available. • Historical logging was qualitative, in many cases rock nomenclature is not confirmed by rock chemistry and by other exploration campaigns. • No core photos were taken during historical exploration. ESR exploration (2023) • All drill holes were geologically logged, including lithology, alteration, mineralization, structures and veins and geotechnical logging. • Wet core and dry core marked for sampling was photographed. • Bulk density measurements of different lithologies were regularly performed using 20 cm whole core samples. In the opinion of the Competent Person, the available geological logging is sufficient to support estimate of a Mineral Resource.
Sub-sampling Techniques and Sample Preparation	• *If core, whether cut or sawn and whether quarter, half or all core taken.* • *If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.* • *For all sample types, the nature, quality and appropriateness of the sample preparation technique.* • *Quality control procedures adopted for all sub-sampling stages to maximize representivity of samples.* • *Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate/second-half sampling.* • *Whether sample sizes are appropriate to the grain size of the material being sampled.*	Historical exploration (1974 to 1990) • 57 mm core was cut along the core axe, half core subsamples were taken for control purposes. 42 mm core was sampled in full, no geological duplicates were available for control purposes. • Sample preparation was robust and included all necessary procedures, including multiple crushing controlled by sieving, staged size reduction, pulverizing and collection of one analytical sample and three duplicates of sufficient weight for analytical studies. • Sample size was appropriate to the grain size of the sampling material. ESR exploration (2023) • 63.5 mm core was cut in half along the core axe on mineralized intervals as well as host rocks on the hanging wall and foot wall of mineralized zones using diamond saw.

Criteria	JORC Code Explanation	Commentary
		• ¼ of core was sampled on the intervals where both routine sample and geological duplicate were taken. • Sample preparation was performed by ALS Geochemistry in Ust'-Kamenogorsk (Kazakhstan) using standard sample preparation procedures. The Competent Person's opinion that the subsampling techniques and sample preparation were suitable for data used in estimating a Mineral Resource.
Quality of assay data and laboratory tests	• *The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.* • *For geophysical tools, spectrometers, handheld XRF instruments, etc, the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.* • *Nature of quality control procedures adopted (eg standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie lack of bias) and precision have been established.*	Historical exploration (1974 to 1990) • Atomic absorption spectral analysis was used for determination of Cu, Pb and Zn. Fire assay analysis with atomic absorption finish was use for determination of Au and Ag. • Analytical test results for Cu, Pb and Zn on main and duplicate samples performed in main and umpire laboratories demonstrated discrepancy within the acceptable limits. • There is no available information on internal QAQC procedures in main and umpire laboratories. ESR exploration (2023) • Aqua Regia digest followed by Inductively coupled plasma atomic emission spectroscopy (ICP-AES) were used for determination of 41 major and rare elements including Cu, Pb and Zn. Fire assay analysis with atomic absorption finish was use for determination of Au. • In case content of Cu, Pb or Zn exceeded 1% (upper limit of detection of the method) the ore grade analytical method was applied including four-acid digest followed by ICP-AES finish. • The Analytical test results for Cu, Pb and Zn on main and duplicate samples performed in ALS laboratory were within the acceptable limits.

Criteria	JORC Code Explanation	Commentary
		• Laboratory performance on blanks demonstrated discrepancy within the acceptable limits. • Laboratory performance on CRMs assayed by routine analytical method was within the acceptable limits. • During the implementation of the ore grade analytical method ALS failed on CRMs, so the analytical batch was re-assayed with acceptable results. • No umpire laboratory was used by ESR. The Competent Person is satisfied that the overall quality of the assay results is acceptable and fit for the purpose of estimating a Mineral Resource.
Verification of Sampling and Assaying	• *The verification of significant intersections by either independent or alternative company personnel.* • *The use of twinned holes.* • *Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.* • *Discuss any adjustment to assay data.*	• Six verification holes were drilled by ESR which confirmed both presence of mineralization and grades. • Limited primary historical data is available at the time of preparation of the report. • ESR identified collars of most of historical drill holes within the deposit and performed a LiDAR (Light Detection and Ranging) topographic survey which allowed correction of historical mineralized intervals. • By comparison of historical drill holes and ESR twin drill holes it could be concluded that position of mineralization and host lithology are similar in general. The control or verification drilling results confirmed presence of mineralization, extents of the lenses and grades; thus estimated grades and tonnes were classified as Inferred.
Location of Data Points	• *Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.*	Historical exploration (1974 to 1990) • Initially location and deviation of historical drill holes was digitized from georeferenced geological sections and maps at scale 1:10,000, and then

Criteria	JORC Code Explanation	Commentary
	• *Specification of the grid system used.* • *Quality and adequacy of topographic control.*	verified in the field, which is considered as appropriate for Mineral Resource estimate. • Simplified lithology was digitized from historical sections. • By the time of preparation of the report no historical drill hole logs with collar coordinates were available. ESR is in the process of obtaining this information from geological archives. • Most of historic drill hole collars were found during ESR field work in April to June 2023 which allowed for correction of position of mineralization identified during historical exploration. • A high-resolution digital terrain model (DTM) was produced from high-density lidar data collected over the deposit area in 2023, so topography of the deposit area was presented as digital terrane model with sufficient resolution which is considered appropriate for Mineral Resource definition. The Competent Person is satisfied that the location of data points is fit for the purpose of estimating a Mineral Resource.
Data Spacing and Distribution	• *Data spacing for reporting of Exploration Results.* • *Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.* • *Whether sample compositing has been applied.*	• Data spacing is sufficient for delineation of a Mineral Resource Estimate of the deposit. • Historical and recent drilling data spacing, and distribution are sufficient to establish mineralized bodies, continuity of lithology and grade appropriate for delineation of a Mineral Resource Estimate. Verification drilling and twinning of some drill holes was completed by ESR to support a Mineral Resource Estimate in Inferred category. • The Exploration grid includes 111 diamond holes drilled with 200 m by 200 m to 100 m by 100 m spacing. • Most mineralized zones do not outcrop, but some of them do outcrop. Mineralized bodies were traced to a depth exceeding 800 m from the surface, using adit levels, vertical and inclined core drillholes. Drillholes were located along the profiles, oriented across the mineralized bodies

Criteria	JORC Code Explanation	Commentary
		strike, the profiles strike at 100–105º.Five historical drill holes were twinned by ESR in 2023. The Competent Person is satisfied that data spacing is appropriate for estimating a Mineral Resource.
Orientation of Data in relation to Geological Structure	• *Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.* – If the relationship between the drilling orientation and the orientation of key mineralized structures is considered to have introduced a sampling bias, this should be assessed and reported if material.	• Most of the drill holes were sub-vertical, intersecting flat lying lithology at steep angles. Thus, no correction of the width of mineralized intersections was applied which is considered appropriate to the considered deposit type. • The sampling orientation was appropriate for the reliable sampling of the identified structures, considering the mineralization type. • Drilling profiles were oriented across the mineralization. • The flat lying mineralized bodies were sampled by inclined or vertical drillholes, oriented across the mineralized zone strike. • Sampling bias from the orientation of the drilling was not identified. The Competent Person is satisfied that orientation of data in relation to geological structure is appropriate for estimating a Mineral Resource.
Sample Security	• *The measures taken to ensure sample security.*	Historical exploration (1974 to 1990) • Not able to comment on historical data, but sampling procedures were documented as following routine processes. All historical core and laboratory samples were disposed of shortly after completion of exploration programmes. ESR exploration (2023) • All core obtained in 2023 was stored and logged in the ESR core yard, a locked premises rented from an agricultural holding in Verkhuba village.

Criteria	JORC Code Explanation	Commentary
		• All ESR samples were packed appropriately and transported to ALS laboratory in Ust'-Kamenogorsk by ESR personnel.
Audits or Reviews	• *The results of any audits or reviews of sampling techniques and data.*	• As far as the Competent Person is aware, there were no audits or reviews of sampling techniques and data related to Verkhuba deposit performed by any independent third party. • Sampling techniques performed by ESR were not audited by any third party. • On completion of the drilling and logging, the ESR Competent Person reviewed all logging results and checked them against the actual core for accuracy and completeness.

Section 2 Reporting of Exploration Results

(Criteria listed in the preceding section also apply to this section)

Criteria	JORC Code Explanation	Commentary
Mineral Tenement and Land Tenure Status	• *Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.* • *The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.*	• Verkhuba deposit is located in the eastern part of exploration licence 1795-EL, owned by Discovery Ventures Kazakhstan Ltd. The licence was issued on 27 July 2022 for initial period of 6 years with a possibility of further five years extension subject to reduction of the licence area by 40%. The licence has an area of 37.1 km^2 and contains VHMS deposits Pokrovskoe-2 (mined out in 1960-1970th) and Verkhuba and several VHMS occurrences. No native title interests, historical sites, wilderness or national park and environmental setting identified by ESR appointed environmental consultants. • Discovery Ventures Kazakhstan Ltd is a 100% owned entity of East Star Resources. • All required documents including Exploration programme, Environmental impact assessment (EIA) and enhanced technical and economic calculations studies are completed by ESR and approved by

Criteria	JORC Code Explanation	Commentary
		the Kazakhstan mining authorities allowing ESR to perform exploration on the property. The Competent Person is satisfied that mineral tenement and land tenure status are appropriate for reporting of a Mineral Resource.
Exploration done by other parties	• *Acknowledgment and appraisal of exploration by other parties.*	• The deposit was discovered in 1948 to 1949 during a geological survey at scale 1:50,000 of topographic sheets M-44-57-D and M-44-69-B (Yakovlev *et al.*, 1950) • Several exploration campaigns through 1950 to 1990s were carried out within the deposit area by East Kazakhstan Geological Enterprise mostly by surface core drilling: – 1956-1957 (Yusupov et al., 1957); – 1970-1972 (Anoshin et al., 1973); – 1974-1976 (Rodionov et al., 1976); – 1985-1987 (Radchenko et al., 1987); – 1987-1990 (Grigorovich et al., 1990); – 2023 (ESR) • Exploration adit and drives totalling 3,001 m were also developed at the deposit, but the database for underground channel sampling and metallurgical sampling was not available. • Historical exploration was completed in 1990 by Technical Economic Consideration supported by Mineral Resource Estimate (Yermolaev *et al.*, 1990). • In 2023 ESR twinned five historical drill holes on two historical profiles, focused on shallow mineralization. One verification drill hole was drilled by ESR between two historical profiles to verify historical interpretation of mineralization.

Criteria	JORC Code Explanation	Commentary
Geology	• *Deposit type, geological setting and style of mineralization.*	• Verkhuba polymetallic deposit belongs to the Volcanogenic Hosted Massive Sulfide deposit type (VHMS), formed in Devonian time within the Rudny Altai VHMS province as a result of hydrothermal activity in the vicinity of spreading centre or subduction zone. • Mineralized bodies are represented by shallow dipping thin sheet-like bodies and lenses hosted mainly by volcanogenic sedimentary rocks including, tuffaceous siltstone and sandstone, marl, carbonate rock, felsic tuff and lava. • Mineralization is considered as a distal to a volcanic centre due to significant amount of sedimentary rocks. Mineralized bodies are controlled by the contact of Berezovskaya and Losishinskaya suites (Eifelian-Frasnian stages) and are represented by disseminated, stringer and massive Cu-Zn mineralization. The Competent Person is satisfied that geological understanding of this deposit is appropriate to support Mineral Resource estimation.
Drill hole Information	• *A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes:* – *easting and northing of the drill hole collar* – *elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar* – *dip and azimuth of the hole* – *down hole length and interception depth* – *hole length.* • *If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.*	• Verkhuba VHMS deposit had been explored by sub-vertical or steeply dipping drill holes that provided a grid of ca. 100 by 100 m in the central part of the deposit and 200 by 200 m on its flanks. • The area studied by drilling is approximately 1.7 by 1.7 km and contains 111 drill holes, totalling 46,616 m. The drill holes varied in length from 120 to 893 m (average length of 434 m). • Polymetallic mineralization was intersected on several stratigraphic levels at depth from to 13.5 to 849 m below the surface. • Information on historical drilling, including collar coordinates, drill hole inclination and length was extracted by ESR from georeferenced geology maps and geological sections at scale 1:10 000. Depth of mineralized intervals and grades were taken from historical mineral resource estimate reports (Ermolaev *et al*., 1990, Grigorovich *et al*., 1990) and

Criteria	JORC Code Explanation	Commentary
		require verification and correction during the follow-up exploration and delineation of JORC Code-compliant Mineral Resources. • Position of all historical ore bodies within the deposit was corrected based on LiDAR topographic survey results and ESR field traverses. • A table of updated drill hole collars and relevant mineralized intersections is presented in the report. • All the available geological information has been included into the report.
Data Aggregation Methods	• *In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (eg cutting of high grades) and cut-off grades are usually Material and should be stated.* • *Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.* • *The assumptions used for any reporting of metal equivalent values should be clearly stated.*	• Exploration results are not the subject of this report. • The following metal equivalent calculations were used: – The metallurgical metal recoveries were applied in the metal equivalent formula: 90% for all elements. – Copper equivalent was calculated using conversion factor of 0.338889 for zinc and 0.25000 for lead. Metal prices used were 9,000 US$/t for copper, 3,050 US$/t for zinc and 2,250 US$/t for lead, relative to copper metallurgical recoveries of all other elements were applied. – The resultant formula was: CuEq = Cu(%) + Zn(%) x 0.338889 + Pb(%) x 0.25000 – Where: CuEq – copper equivalent (%), Zn – in situ zinc grade (%), Cu – in situ copper grade (%), Pb – in situ lead grade (%). The Competent Person is satisfied that appropriate data aggregation methods have been applied to support Mineral Resource estimation.
Relationship between Mineralization	• *These relationships are particularly important in the reporting of Exploration Results.*	• New data is not being reported. Exploration results are not the subject of this report.

Criteria	JORC Code Explanation	Commentary
widths and intercept lengths	• *If the geometry of the mineralization with respect to the drill hole angle is known, its nature should be reported.* • *If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (eg 'down hole length, true width not known').*	• No true thickness of mineralization has been calculated in the current study. • Relationships between thickness of mineralization and length of intercepts were interpreted during historical exploration by core observations and correlation of lithology and mineralization between adjacent drill holes confirm relatively flat lying or shallow dipping stratigraphy and polymetallic mineralization concordant to layering. • All recent holes, and according to historical reports most of drill holes were steeply dipping or sub-vertical and intersected mineralization at steep angle so it is assumed that the width of mineralized intervals in most drill holes is close to true thickness of mineralization.
Diagrams	• *Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.*	• Historical geology maps and sections at scale 1:10,000 are included in the report as well as and most significant historical mineral intersections.
Balanced Reporting	• *Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.*	• The Mineral Resource presented in the report is based on historical drilling results including both barren and mineralized drill holes, and on six recent holes drilled by ESR in 2023. • All material historical and recent exploration results and conclusions in which the authors are confident in are reported, as well as main concerns related to continuation of mineralization.
Other Substantive Exploration Data	• *Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.*	• All other relevant data is included in the report under previous Mineral Resource Estimates or Historical Work.

Criteria	JORC Code Explanation	Commentary
Further Work	• *The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).* • *Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.*	• ESR intends to further verify continuity and grades of mineralization and perform metallurgical test work, hydrogeological and geotechnical and other appropriate studies. • Update the geological model of the deposit using results of verification and in-fill drilling and whole rock geochemistry. • Produce Mineral Resource Estimate at Indicated and Inferred categories by completion of further drilling and additional field work and laboratory test work. The Competent Person is satisfied that the proposed work is appropriate to support subsequent objectives.

Section 3 Estimation and Reporting of Mineral Resources

(Criteria listed in Section 1, and where relevant in Section 2, also apply to this section)

Criteria	JORC Code Explanation	Commentary
Database Integrity	• *Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.* • *Data validation procedures used.*	This relates only to the estimation of a Mineral Resource. A database with 111 diamond holes was used for estimation of Mineral Resource of the deposit. The historical database was created based on previous studies, in accordance with the mining industry regulations of the USSR and Russia. All results of the recent drilling were added to the historical database. All historical and recent drilling results were entered into electronic database in Excel format. The following error checks were carried out during the final database creation: • Missing collar coordinates • Missing values in fields FROM and TO • Cases when FROM values equal or exceed TO ones (FROM≥TO) • Data availability. The data availability was checked for each drillhole in the tables: • Collar coordinates • Sampling data • Downhole survey data • Lithological characteristics

Criteria	JORC Code Explanation	Commentary
		• Duplicate drillhole numbers in the table of the drillhole collar coordinates. • Duplicate sampling intervals • Duplicate downhole measurement data • Duplicate intervals of the lithological column • Sample "overlapping" (when the sample TO value exceeds FROM value of the next sample). • Negative-grade samples. The Competent Person is satisfied that database integrity is appropriate to support Mineral Resource estimation.
Site Visits	• *Comment on any site visits undertaken by the Competent Person and the outcome of those visits.* • *If no site visits have been undertaken indicate why this is the case.*	• The site visit was completed by Dr Mikhail Tsypukov on August 15th during the ESR drilling programme and on October 1st after its completion.
Geological Interpretation	• *Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.* • *Nature of the data used and of any assumptions made.* • *The effect, if any, of alternative interpretations on Mineral Resource estimation.* • *The use of geology in guiding and controlling Mineral Resource estimation.* • *The factors affecting continuity both of grade and geology.*	• The interpretation of the mineralized structures was based on geological logging and all individual metal grades using their own cut-off grades, that were established by statistical analysis, and also used scanned and georeferenced historical geological cross sections. ESR supplied AMC with the validated database, topography surface, scanned cross sections with interpreted geology of the deposit and mineralized bodies, and full lithological model of the deposit. • There is a reasonable level of confidence in the geological interpretation of the main mineralized bodies is traceable over a number of drillholes and drill sections.

Criteria	JORC Code Explanation	Commentary
		• Drillhole intercepts with geological logging, assay results and structural interpretations have formed the basis for the geological interpretation. • Interpretation of the main polymetallic mineralized envelopes forms the basis for modelling. Cut-offs of 0.40% Cu, 0.25% Pb and 0.35% Zn were used to interpret polymetallic mineralization for each modelled element. The Competent Person is satisfied that the geological interpretation is appropriate to support determination of a Mineral Resource.
Dimensions	• *The extent and variability of the Mineral Resource expressed as length (along strike or otherwise), plan width, and depth below surface to the upper and lower limits of the Mineral Resource.*	• 56 sheet-like flat-lying mineralized bodies were interpreted and modelled at the deposit for Cu, 76 bodies for Zn, and 39 bodies for Pb. • All modelled bodies vary in size, and all lenses were checked for consistency between modelled elements. The largest one is over 1,100 m along strike and over 1,000 m across strike with an average thickness of about 2 m. All other bodies are smaller with the length along and across strike of about 100 to 200 m. • The depth below surface varies from 0 m to 800 m. The Competent Person is satisfied that the dimensions interpreted are appropriate to support determination of a Mineral Resource.
Estimation and Modelling Techniques	• *The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points. If a computer assisted estimation method was chosen include a description of computer software and parameters used.*	A conventional block model was based on surface diamond drill core using ordinary kriging (OK) to form 5 x 5 x 5 m blocks. The block model was constrained by wireframes modelled using sectional interpretation at statistically supported cut-offs 0.40% Cu, 0.25% Pb and 0.35% Zn, which were wireframed individually for each element. No top-cuts were applied as there were no extreme high grades, thought massive sulfides may have high grades that are natural for the deposit type.

Criteria	JORC Code Explanation	Commentary
	• *The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.* • *The assumptions made regarding recovery of by-products.* • *Estimation of deleterious elements or other non-grade variables of economic significance (eg sulphur for acid mine drainage characterisation).* • *In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.* • *Any assumptions behind modelling of selective mining units.* • *Any assumptions about correlation between variables.* • *Description of how the geological interpretation was used to control the resource estimates.* • *Discussion of basis for using or not using grade cutting or capping.* • *The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.*	• The block model and composites were coded for each mineralized lens and for each element; thus, each deposit modelled body was estimated separately using corresponding sample composites. – Hard boundaries between the zones were employed. – A "parent block estimation" technique was not used, as all zones were flattened, and the significance of the vertical dimension was lost in the process. – All blocks were estimated initially within the modelled corresponding lenses for each element, and then blocks were estimated outside of the corresponding wireframes for one element, but within all other elements. • The OK interpolation process was performed at consecutive expanded anisotropic search radii until all cells were interpolated. The search radii were determined by means of evaluation of the modelled variograms and the general strike of the deposit. • No mine production results were available, as the deposit was never mined. • No previous Mineral Resources were estimated to compare with. • The block model used a small parent cell size of 5 m(E) x 5 m(N) x 2 m(RL) with sub-celling to 1 m(E) x 1 m(N) x 0.4 m(RL) to maintain the resolution of the mineralized zones. It was assumed that this parent block size would represent a smallest mining unit (SMU) for the underground mining at the deposit. • No recovery of byproducts was considered though it is known that some silver and gold is also present in the system.

Criteria	JORC Code Explanation	Commentary
		• No correlation between elements was considered. • The interpretation of mineralized lenses was controlled by geological boundaries and fault planes. All lenses were interpreted parallel to the stratigraphy of the deposit geology, and some bodies were truncated by fault planes where that was appropriate. • Potential high-grade cuts were reviewed but none were applied due to lack of significant outliers and the preliminary and conceptual nature of the study. It is expected that due to the nature of massive sulfides some high grades are expected in the modelled mineralized zones. • Validation of the grade estimates was completed by: – Visual checks on screen in cross-sections to ensure that block model grades honour the grade of composite data. – Statistical comparison of composite and block grades. – Generation of swath plots to compare input and output grades in a two-dimensional process by easting, northing and elevation. • All validation of the modelled grades returned acceptable results. The Competent Person is satisfied that estimation and modelling techniques are appropriate to support Mineral Resource estimation.
Moisture	• *Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.*	• Moisture was not considered in the bulk density assignment and all tonnage estimates were based on dry tonnes. The Competent Person accepts that moisture was not considered.

Criteria	JORC Code Explanation	Commentary
Cut-off Parameters	• *The basis of the adopted cut-off grade(s) or quality parameters applied.*	• The calculated reporting cut-off grade of 0.86% CuEq (copper equivalent) was used to report the Mineral Resources for the underground mining method. • Cut-off grades were based on underground mining methods, according to ESR's in-house estimates of unit costs and using metal spot prices at the day of reporting. – Copper equivalent was calculated using the following metal prices: 3,050 US$/t for Zn, 9,000 US$/t for Cu, 2,250 US$/t for Pb and metallurgical recoveries of 90% all elements. – All other economic parameters (mining costs, processing costs, taxes etc.) were used to calculate marginal economic cut-off that were used for reporting of Mineral Resources. The Competent Person is satisfied that cut-off parameters were appropriately considered, to support a Mineral Resource estimate.
Mining Factors or Assumptions	• *Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.*	• Mining is assumed to be by underground method. Mining losses and mining dilution were assumed as 10% for underground mining method.
Metallurgical Factors or Assumptions	• *The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment processes and parameters made when*	• No material assumptions are considered at this stage with exception of expected metallurgical recoveries in conventional flotation process, which were assumed as 90% for all elements.

Criteria	JORC Code Explanation	Commentary
	reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.	The Competent Person is satisfied that conceptual metallurgical factors and assumptions were appropriately considered to support Mineral Resource estimation.
Environmental Factors or Assumptions	• *Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.*	• No environmental factors or assumptions were made.
Bulk Density	• *Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.* • *The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc), moisture and differences between rock and alteration zones within the deposit.* • *Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.*	• A nominal bulk density of 3.0 t/m3 was used for the Mineral Resource tonnage definition based on historical data. • The Competent Person is not aware of the nature and quality of the historical bulk measurement methods and quality. However, the applied value is considered reasonable for the purposes of Mineral Resource reporting.
Classification	• *The basis for the classification of the Mineral Resources into varying confidence categories.* • *Whether appropriate account has been taken of all relevant factors (ie relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data).*	• The Mineral Resource has been classified based on the JORC Code. The classification is based upon an assessment of geological understanding of the deposit, geological and mineralization continuity, drillhole spacing, QAQC results, and search and interpolation parameters. • The following approach was adopted:

Criteria	JORC Code Explanation	Commentary
	• *Whether the result appropriately reflects the Competent Person's view of the deposit.*	– Measured Mineral Resources: Not reported. – Indicated Mineral Resources: Not reported. – Inferred Mineral Resources: Inferred Mineral Resources are all model blocks that occur within the modelled mineralized lenses, that display reasonable strike continuity and down dip extension, based on the current drillhole intersections and understanding of the deposit geology. The classification of Mineral Resources reflects the Competent Person's view of the deposit.
Audits or Reviews	• *The results of any audits or reviews of Mineral Resource estimates*	• The Mineral Resource estimate was reviewed internally by Ingvar Kirchner, who is employed by AMC as a Geology Manager / Principal Geologist, who concluded that the procedures used to estimate the Mineral Resource are appropriate. • No external audits or technical reviews have been completed.
Discussion of Relative Accuracy / Confidence	• *Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.* • *The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.*	• As a qualitative discussion of the factors that could affect relative accuracy and confidence in the estimate: • Industry standard modelling techniques were used, including but not limited to: – Classical statistical analysis, cut-off selection and domaining. – Interpretation and wireframing. – Interval compositing. – Geostatistical analysis for all main modelled elements.

Criteria	JORC Code Explanation	Commentary
	• *These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.*	– Block modelling and grade interpolation techniques. – Model classification, validation and reporting. – Quality and distribution of drilling samples. – The resource classification is considered reasonable based on validation through multiple processes, including visual and graphical review of the estimates. Factors currently limiting confidence in the estimate is the predominance of historical drilling data, presumed to be of good quality but where there is limited reference material and primary data for verification. Limited twin holes have generally confirmed the historical data to date. Bulk density data is all historical, is probably of reasonable quality, but has been disassociated from the drillhole data. The Mineral Resource statement relates to global estimate of the deposit. The relative accuracy of the estimate is reflected in the classification of the deposit. The statement relates to the global estimate of the deposit and is suitable for use in a subsequent scoping studies and further exploration and development at the deposits. There is no production data available to compare the MRE against.

Appendix B
Grade-Tonnage Table

Verkhuba deposit grade-tonnage report with cut-off grade ranges between 0.0 and 2.0% applied to CuEq grades.

Table B.1 Grade-tonnage report above a range of copper equivalent cut-off grades

Cut-off	Tonnes	CuEq		Cu		Zn		Pb	
CuEq (%)	(kt)	Grade (%)	Metal (kt)	Grade (%)	Metal (kt)	Grade (%)	Metal (kt)	Grade (%)	Metal (kt)
0.0	29,801	1.37	409	0.86	257	1.33	397	0.24	70
0.1	29,759	1.38	409	0.86	257	1.33	397	0.24	70
0.2	29,735	1.38	409	0.86	257	1.34	397	0.24	70
0.3	29,222	1.40	408	0.88	257	1.35	395	0.24	70
0.4	28,365	1.43	405	0.90	256	1.38	390	0.24	68
0.5	26,236	1.51	395	0.96	252	1.43	374	0.25	66
0.6	24,282	1.58	384	1.02	248	1.47	356	0.25	62
0.7	22,802	1.64	375	1.07	245	1.49	340	0.26	59
0.8	21,248	1.71	363	1.13	239	1.52	323	0.27	57
0.86	**20,278**	**1.75**	**355**	**1.16**	**236**	**1.54**	**313**	**0.27**	**54**
0.9	19,622	1.78	349	1.18	232	1.56	306	0.27	53
1.0	17,866	1.86	333	1.25	223	1.61	288	0.28	50
1.1	14,793	2.03	300	1.42	211	1.65	244	0.19	28
1.2	13,215	2.14	282	1.52	201	1.69	224	0.18	23
1.3	12,076	2.22	268	1.58	191	1.75	211	0.18	22
1.4	10,283	2.37	244	1.69	174	1.87	192	0.20	20
1.5	9,194	2.48	228	1.76	162	1.97	181	0.20	19
1.6	8,392	2.57	216	1.84	154	2.01	169	0.20	17
1.7	7,453	2.69	200	1.97	147	1.97	147	0.18	14
1.8	6,821	2.77	189	2.06	141	1.97	134	0.17	12
1.9	6,056	2.89	175	2.17	131	2.01	122	0.17	10
2.0	5,431	3.00	163	2.28	124	2.00	109	0.17	9

Figure B.1 Grade-tonnage curves with copper equivalent grades

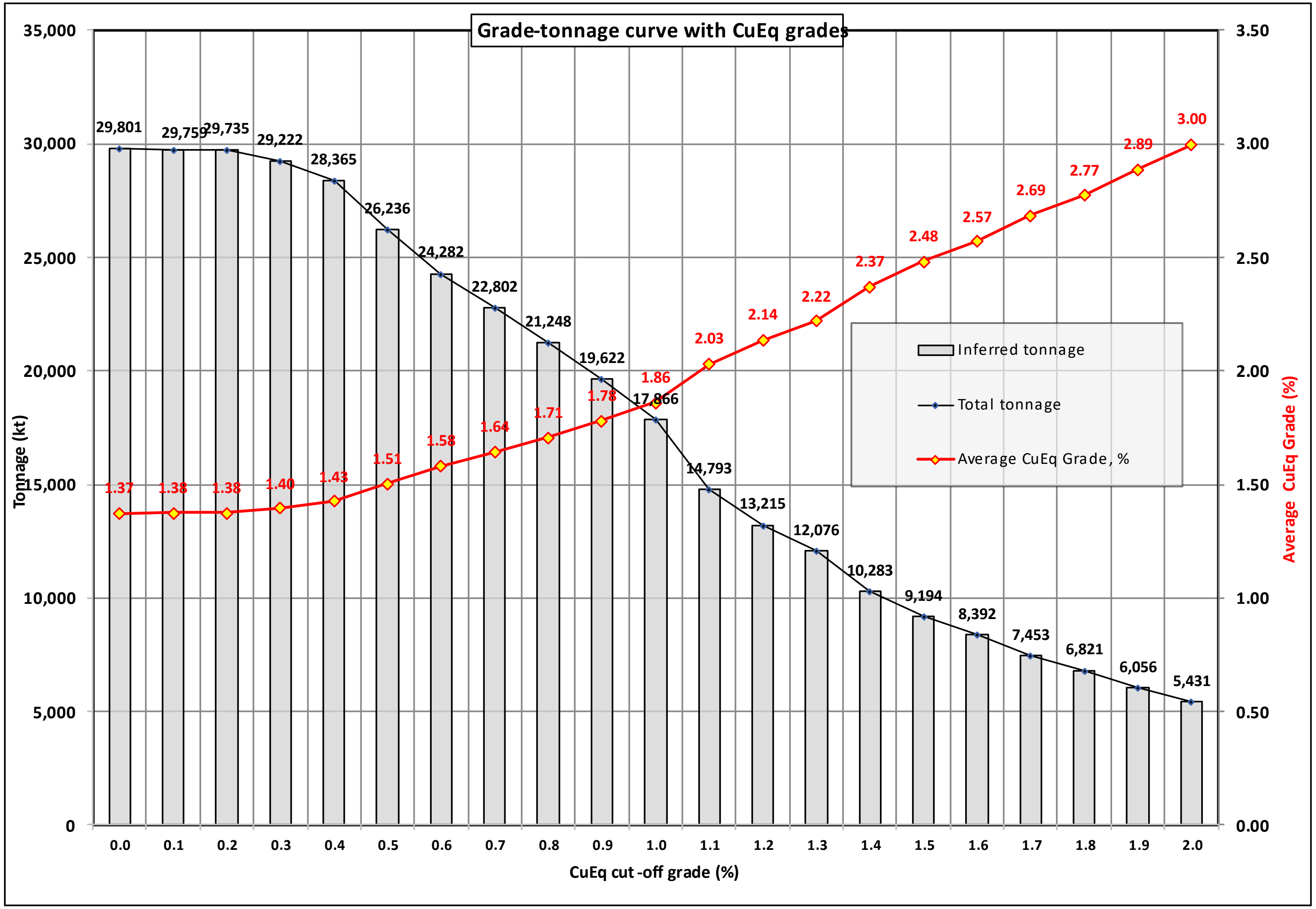
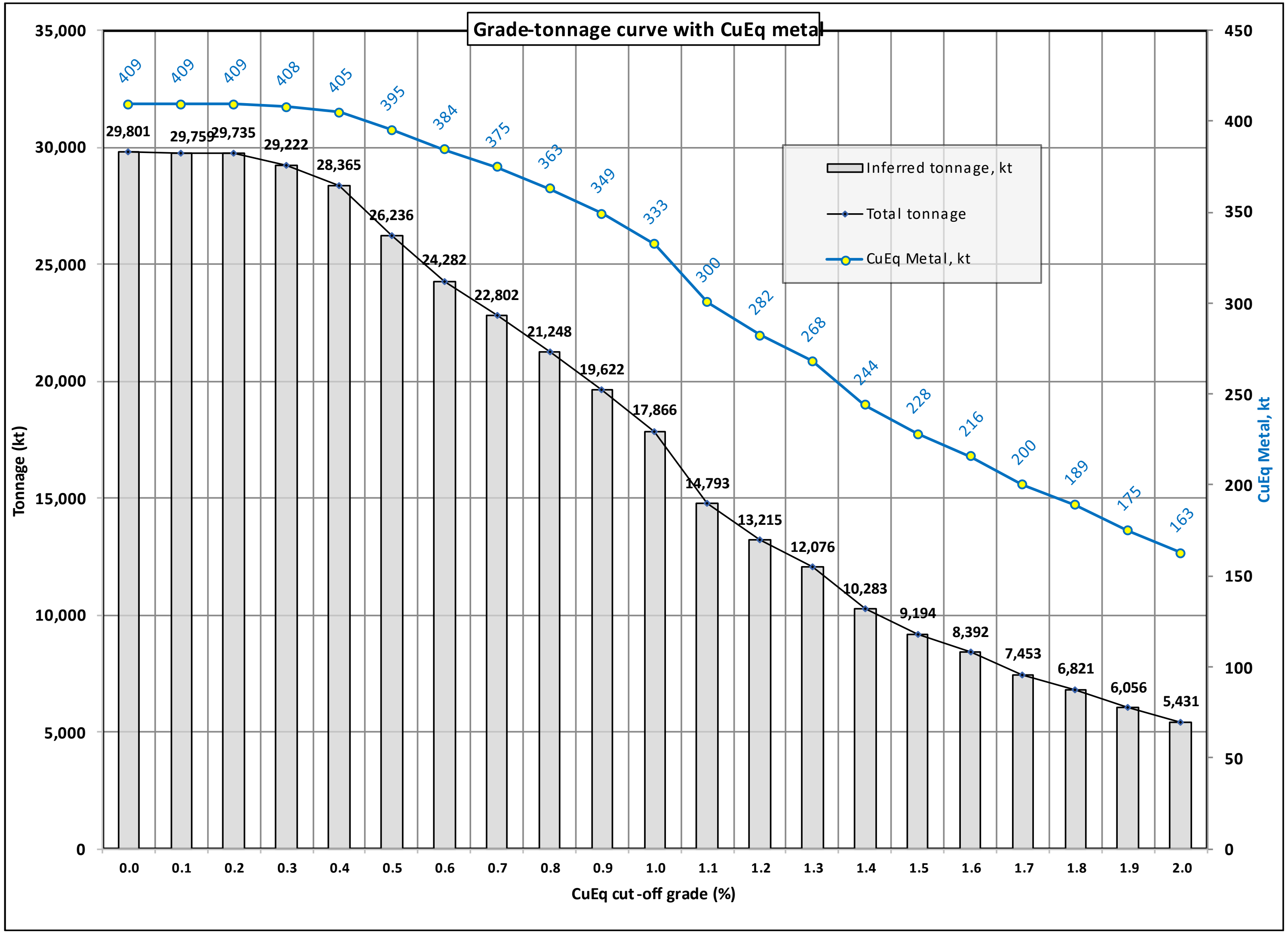


Figure B.2 Grade-tonnage curve with copper equivalent metal



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