

Report to:

**Azarga Metals Corp.**



**Technical Report and Mineral Resource Estimate  
for the Unkur Copper-Silver Project,  
Kodar-Udokan, Russian Federation**

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AZARGA MINERALS CORP.



TECHNICAL REPORT AND MINERAL RESOURCE  
ESTIMATE FOR THE UNKUR COPPER-SILVER PROJECT,  
KODAR-UDOKAN, RUSSIAN FEDERATION

EFFECTIVE DATE: 27<sup>TH</sup> MARCH 2018

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## GLOSSARY

### UNITS OF MEASURE

centimetre .....	cm
cubic centimetre .....	cm <sup>3</sup>
cubic metre .....	m <sup>3</sup>
degrees Celsius.....	°C
degrees.....	°
grams per cubic centimetre .....	g/cm <sup>3</sup>
grams per tonne.....	g/t
grams.....	g
Inverse Distance Squares .....	ID <sup>2</sup>
kilograms.....	kg
kilometres.....	km
kilotonnes.....	kt
megawatt.....	MW
metres .....	m
microns.....	µm
millimetres .....	mm
million tonnes.....	Mt
minute (plane angle).....	'
Mlb.....	million pounds
parts per million .....	ppm
percentage .....	%
pound.....	lb
Russian Ruble .....	RUB
second (plane angle) .....	"
square kilometres.....	km <sup>2</sup>
tonnes.....	t
troy ounce.....	tr oz
US Dollar.....	US\$

## ABBREVIATIONS AND ACRONYMS

A.P. Karpinsky Russian Geological Research Institute .....	VSEGEI
ALS Global .....	ALS
Australasian Joint Ore Reserves Committee .....	JORC
Azarga Metals Corp.....	Azarga
Baikal-Amur Mainline .....	BAM
Canadian Institute of Mining, Metallurgy and Petroleum.....	CIM
Central Geological Research Institute .....	TsNIGRI
certified reference material .....	CRM
Coffey Geotechnics Limited .....	Coffey UK
Commonwealth of Independent States.....	CIS
copper equivalent .....	CuEq
copper.....	Cu
Department of Subsoil Use for Central and Siberian District of Russia .....	Tsentsibnedra
east .....	E
environmental impact assessment .....	EIA
global positioning system .....	GPS
International Electrotechnical Commission .....	IEC
International Organization for Standardization.....	ISO
Inverse Distance Squares .....	ID <sup>2</sup>
National Instrument 43-101 .....	NI 43-10
net smelter return.....	NSR
north .....	N
Preliminary Economic Assessment.....	PEA
Qualified Person.....	QP
Quantitative Kriging Neighbourhood Analysis.....	QKNA
Russian State Commission on Mineral Resources.....	GZK
SGS Vostok Limited .....	SGS
silver .....	Ag
south.....	S
SRK Consulting (Russia) Ltd. ....	SRK
the Unkur Property.....	the Property or the Project
west .....	W
World Geodetic System .....	WGS
x-ray fluorescence.....	XRF



## 1.0 SUMMARY

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### 1.1 INTRODUCTION

Azarga Metals Corp. (Azarga) engaged Tetra Tech to complete a Canadian Securities Administrators' National Instrument 43-101 (NI 43-101) compliant Mineral Resource estimate for the Unkur Property (the Property or the Project), located in the Kalarsky District, Zabaikalsky Region, Russia, in support of a Preliminary Economic Assessment (PEA) Study.

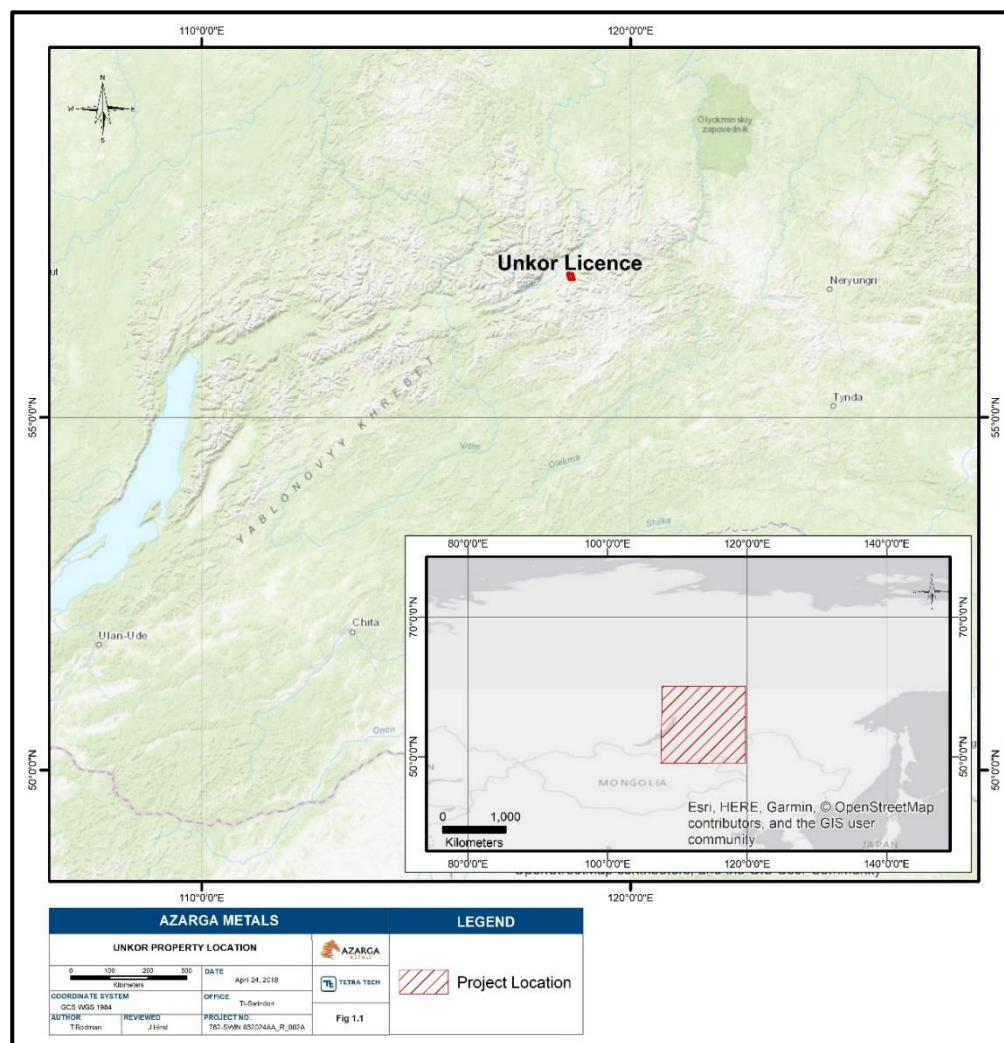
This Mineral Resource estimate has been led by Tetra Tech's Swindon, UK office, through Tetra Tech's wholly-owned subsidiary Coffey Geotechnics Limited (Coffey UK).

In addition to Tetra Tech, SRK Consulting (Russia) Ltd. (SRK) is a joint author of this Technical Report.

### 1.2 PROPERTY DESCRIPTION

The Unkur Project is located in the Kalarsky district of the Zabaikalsky administrative region of Russia, 15 km east of the Novaya Chara town (Figure 1.1). The centre of the licence is located at coordinates 598,061 E, 6,300,586 N World Geodetic System (WGS)84.

**Figure 1.1 Unkur Project Location**



### 1.2.1 MINERAL TENURE

The License (ЧИТ025225Р) covers an area of 53.9 km<sup>2</sup> and is valid until December 31, 2039. The licence belongs to LLC Tuva-Cobalt, an affiliated company of Azarga, allowing for geological exploration and mining of copper and associated components.

The licence coordinates are presented in Table 1.1.

**Table 1.1 Licence Coordinates**

Point	Latitude (dd ° mm' ss")	Longitude (dd ° mm' ss")
1	56 48 01N	118 34 20E
2	56 52 36N	118 32 03E
3	56 52 14N	118 38 45E
4	56 47 59N	118 40 45E

At the time of writing there is no information available regarding any environmental liabilities to which the Unkur Project may be subject for. Any historical disturbance from exploration activities that may exist on site are outside of current Licensee liabilities according to existing legislation unless Licensee voluntarily accepts them.

### **1.3 ACCESSIBILITY, CLIMATE, LOCAL RESOURCE, INFRASTRUCTURE AND PHYSIOGRAPHY**

The Unkur site is accessible from the Chara village and Novaya Chara town by a natural road passing along the Baikal-Amur Mainline (BAM). Novaya Chara is located approximately 22 km from the Unkur site. During winter snow roads are used to access the city of Chita and town of Taksimo.

Chara has an airstrip that accommodates flights to and from Chiata (approximately 800 km southwest).

The climate of the Project is a harsh continental climate with very cold and long winters coupled with short hot summers. The cold long winters (October to April) are characterised by high pressure. The average air temperature in January at the upper elevation of the Project area is minus 27.8°C, with minimum temperatures of minus 57°C at lower elevations and minus 47°C at altitude. Precipitation is unevenly distributed with first snow typically falling mid-September and melting in mid-April at lower elevations and in May at higher elevations.

The district is generally economically poorly developed. As of the 2010 census the district had a population of 9,579 people across an area of 56,000 km<sup>2</sup>.

A 100 MW federal electric power line passes through the north-eastern part of the license area.

The Project area is located on the northern slopes of the Udokan Range in the catchment of the Kemen and Unkur Rivers. The Project area is characterised by low and medium relief with absolute elevations of 1,100 to 1,200 m and local elevation differences of 100 to 200 m.

### **1.4 HISTORY**

The Unkur deposit was discovered in 1962 by the All-Union Aerogeological trust during 1:1,200,00 geological mapping. The mineralized layer was observed within a canyon of the Unkur River and traced for 1 km through limited outcrops of copper-bearing sandstone. In these exposures, the thickness of the layer varied from approximately 5 to 8 m. Based on the chemical assays of channel and chip samples an average copper grade of 1% was determined. It was established that the mineralization is stratabound within the Lower Sakukan subformation

Historical drilling at the Unkur Project was undertaken across two campaigns between 1969 and 1978. In total 6,703 m of drilling was undertaken, returning copper grades ranging from 0.2 to 3.5% copper, with an average of 1.30% copper.

Multiple historic resource estimates were completed at the Project in accordance with Russian reporting standards. In addition to these non-compliant resources, a NI 43-101 Mineral Resource estimate was completed in March 2017 for the Project. Full details of the resources are presented in Section 6.0. These historic resource estimates have all been superseded by the Mineral Resource reported in Section 14.0.

## 1.5 GEOLOGICAL SETTING AND MINERALISATION

The Project is situated on the southern Siberian platform within the Unkurskaya syncline formed by Lower Proterozoic metamorphosed sediments of the Alexandrovskaya, Butunskaya and Sakukanskaya formations. The syncline extends northwest-southeast approximately 12 km and is 4 km wide.

Mineralisation is confined to the south-western limb of the Unkur syncline within weakly metamorphosed deposits of the Lower Sakukanskaya subformation (Zone 1). The zone dips northeast at 45 to 60° along a strike length of 4.6 km.

Sulphide mineralisation is comprised of chalcopyrite, pyrite, bornite, chalococite and covellite. Oxide minerals include malachite and brochantite. Accessory minerals include magnetite, hematite and ilmenite.

## 1.6 DEPOSIT TYPE

Based on the available exploration data and observations from previous Technical Reports, the Unkur deposit is interpreted as a sediment-hosted stratiform copper deposit.

## 1.7 EXPLORATION

During the 2016-2017 exploration campaign, Azarga took channel samples from two exposures of the mineralised zone in the bank of the Unkur River, and from four sites of historical trenching that were cleared to re-expose the bedrock. In total, 67 m of samples were collected from the outcrops, and 186 m from the trenches. Three of the trenches intersected copper-silver mineralisation. The trench samples were used for both modelling the contacts of the mineralisation domains, and for the geostatistical grade estimation within these domains.

Approximately 130-line kilometres of detail ground magnetics data were collected during Azarga's exploration program. The results showed that copper-silver mineralisation is associated with a strong magnetic signature and that ground magnetics may be useful targeting tool on the Project.

## 1.8 DRILLING

The main source of information for the Mineral Resource estimate presented in this report is 4,580 m of diamond core drilling (from 16 drillholes) completed during Azarga's exploration campaign from August 2016 until February 2017. Section lines for drilling are spaced approximately 300 m apart. Where there are two Zone 1

intersections on the same drill section, the spacing between intersections is typically 200 to 300 m.

Based on the weight of the core, SRK estimates that the average recovery from the mineralised zone is approximately 90%. Given the style and grade of mineralisation at Unkur, SRK considers this recovery to be sufficient for the samples to support mineral resource estimation, and there are no material data quality issues related to drilling, sampling or recovery factors.

## 1.9 SAMPLE PREPARATION AND ANALYSES

All core was digitally photographed. Intervals identified by the geologists as likely to be mineralised were selected for sampling, and the sampling interval was extended for at least 10 m beyond the limits of the identified mineralisation. Hand-held x-ray fluorescence (XRF) measurements were used as a further check, to ensure that all mineralised zones were identified for sampling.

Core selected for sampling was cut with a core saw. Sample lengths were nominally 1.0 m, but adjustments to the sample lengths were made in order to honour geological boundaries. Half core from the intervals selected for sampling was dispatched by road to SGS Vostok Limited laboratories in Chita (SGS).

The primary laboratory used for analysing Azarga's samples is SGS. Samples received by SGS were dried, crushed to 85% passing 2 mm, and then ground to 90% passing 0.7 mm. A subsample of 0.5 to 1.0 kg was collected for a further stage of fine grinding, to 95 % passing 75 µm. A 50% split of this subsample (250 to 500 g) was used for analysis.

SGS analysed the samples for copper and silver. The copper content was determined by SGS method ICP90A (sodium peroxide fusion, then inductively coupled plasma - atomic emission spectroscopy). The silver content was determined by SGS method AAS12E (two acid digest, then atomic absorption spectroscopy).

External quality control samples used by Azarga included certified reference material, submitted to SGS with the primary samples, and check assays by an umpire laboratory (ALS Global [ALS] in Chita).

In SRK's opinion, the sample preparation, security and analytical procedures are adequate for the purpose of providing sufficient confidence to use the assay database for mineral resource estimation.

## 1.10 DATA VERIFICATION

The Qualified Person (QP) visited site in December 2014 and October 2016. The QP has also verified the database the Mineral Resource estimate is based on. This verification was done by personal inspection of drill core, drill sites and trenches during the 2016 site visit, and by checking database content against primary data sources and historical information.

In the opinion of the QP, the quantity and quality of data collected by Azarga are sufficient to support a Mineral Resources estimation.

## 1.11 MINERAL RESOURCE ESTIMATES

Tetra Tech completed a new Mineral Resource estimate for the Unkur deposit, with an effective date of 7<sup>th</sup> March 2018. The most recent data included in the estimate was received on 7<sup>th</sup> March 2018. Mr. Joseph Hirst, BSc (Hons), MSc, EurGeol, CGeol, FGS an independent QP as defined by NI 43-101, estimated the Mineral Resources.

A summary of the current Mineral Resource for Unkur are presented in Table 1.2.

**Table 1.2 Unkur Mineral Resource Estimate – Effective Date 7<sup>th</sup> March 2018**

Class	Tonnes (t)	Density	Cu Grade (%)	Ag Grade (g/t)	CuEq (%)	Cu Metal (t)*	Ag Metal (tr oz)
Inferred	62,000,000	2.67	0.53	38.6	0.9	328,600	76,881,000

Notes: The effective date of the Mineral Resources is 7<sup>th</sup> March 2018.  
Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability. The estimate of Mineral Resources may be materially affected by environmental, permitting, legal, title, taxation, socio-political, marketing, or other relevant issues.  
Numbers may not sum due to rounding.  
\*1 328,600 t Cu = 724,234,400 lb

Tetra Tech created wireframe models using Leapfrog Geo (version 4.2) based upon lithology, metal grade and structural interpretations. Grades greater than 0.2% copper equivalent (CuEq) were used for this purpose. Block modelling and Mineral Resource modelling were completed in Datamine (Studio 3).

The Unkur copper and silver grades were estimated using Inverse Distance Squared (ID<sup>2</sup>) interpolation methodology. A mean density value of 2.57 g/cm<sup>3</sup> was used for all blocks, except for glacial moraine which was given a value of 1.8 g/cm<sup>3</sup>.

Statistical and grade continuity analyses were completed in order to characterise the mineralisation, and were subsequently used to develop grade interpolation parameters. Grade estimation was completed using ID<sup>2</sup>. The search ellipsoid dimensions and orientations were chosen to reflect the continuity revealed by geostatistical studies. Block size, discretisation, search size, and sample numbers were optimised using Quantitative Kriging Neighbourhood Analysis (QKNA).

Tetra Tech adopted the definition of Mineral Resources as outlined within the Canadian Institute of Mining, Metallurgy and Petroleum (CIM) Definition Standards on Mineral Resources and Mineral Reserves (CIM 2014) in order to classify the Mineral Resources.

In order to demonstrate that the deposit has reasonable prospect for economic extraction, a cut-off grade of 0.3% CuEq was applied for Mineral Resources constrained by the second search pass. The cut-off grade is based on the following assumptions:



- silver price of US\$20/tr oz
- copper price of US\$3.00/lb
- silver and copper recovery of 100%.

## 1.12 ADJACENT PROPERTIES

The Udokan copper deposit is located 25 km south of the Property license. Similar to Unkur, the copper mineralization of the Udokan deposit is confined to sediments of the Sakukanskaya formation. For Udokan though, the mineralization is in the Upper subformation, whereas the Unkur mineralization is in the Lower subformation.

Information regarding Udokan is publicly available on the Baikal Mining Company (Baikal) website (<http://www.bgk-udokan.ru/en/>). A Feasibility Study for Udokan was completed in February 2014, and, according to the project execution dates presented by Baikal, mining will commence in 2021. The report defines a Australasian Joint Ore Reserves Committee (JORC) compliant Mineral Resource and Reserve of 1,822 Mt at 1.01% copper and 10.0 g/t silver.

In addition to the Udokan and Unkur deposits, other sedimentary hosted copper deposits in the Kodar-Udokan Area are discussed in the US Geological Survey (USGS) publicly available report (<https://pubs.usgs.gov/sir/2010/5090/m/pdf/sir2010-5090M.pdf>).

The report highlights the distribution of copper mineralisation within the Sakukanskaya formation and those within the Lower Proterozoic sandstone formations of the Kodar-Udokan Area.

The results and Mineral Resources reported for Udokan are not necessarily indicative of mineralization on the Unkur Property and the QP has not been able to verify the information.

## 1.13 INTERPRETATIONS AND CONCLUSIONS

Azarga has explored the Unkur deposit by drilling and trench sample collection methods during the 2016 and 2017 field seasons, and have confirmed the presence of significant copper-silver mineralisation. This work, and updated Mineral Resource estimate, helps to confirm the historical work completed at the Project site.

The quality and quantity of data collected by Azarga is a sufficient basis for reporting an updated Mineral Resource for the Project. The update has been based on revisiting the model parameters and grade distributions ahead of completing a (PEA).

The mineralised domain supported by drilling and trenching has been reinterpreted slightly based on discussions with Azarga's geologist. The strike has been interpreted to be 3.5 km long and open to at least 540 m down-dip. There are currently interpreted to be two mineralised structures, which have been modelled. They are both understood to be continuous from surface exploration, but have been limited in the estimate by the search parameters so as not to overstate the tonnage. The areas which have been modelled but not estimate represent target for further exploration. It

has also been considered that there are additional structures, within the broader mineralised zone, which may be discovered by further drilling in the future.

The northern part of the domain is Quaternary moraine material, which increases to a thickness of approximately 100 m at the northern limit of the resource.

The Project data is considered accurate to support an Inferred Mineral Resource classification, although there are considerations in order to upgrade the Mineral Resource through further exploration campaigns and Mineral Resource updates.

The main consideration is the drillhole spacing, and the limit of confidence of the spatial continuity. Currently the drill sections are 300 to 400 m apart, which is not sufficient data quantity or spacing to model a reliable semi-variogram to reliably estimate the grade continuity.

With the current data spacing there is likely to be local structural complexity, which will complicate the interpretation as the deposit is further drilled.

## 1.14 RECOMMENDATIONS

Tetra Tech considers that the potential of the Project is sufficient, based on the early exploration work, and recommend that subsequent to the ongoing PEA further exploration is warranted.

Tetra Tech recommend two phases of work.

### *PHASE 1*

Based on the results of the PEA, and in particular the pit optimisation work, a campaign of infill drilling is recommended to increase the data density along strike by drilling between the current fences. This drilling will also give further clarity to the interpretation of the mineralised structures across strike, and may encounter additional mineralised structures in the hanging wall and footwall of the currently identified mineralised structures.

Focussing on improving the understanding of geological and spatial continuity in the optimised pit area could lead to upgrading the Mineral Resource classification for some of the mineralised material at the next Mineral Resource update phase. Additionally, Tetra Tech considers that it will be possible to include new Inferred Mineral Resources from the second, less drilled structure, in to the pit area. Discovery of further mineralised structure, as well as upgrading of the known mineralisation will be favourable to the project economics in terms of strip ratio and possible sink rates.

Based on an all-in cost of US\$300/m drilled (including assay, mobilisation/demobilisation, etc.), a programme of 2,000 m of drilling will approximately double the amount of data available for the Project at cost of approximately US\$600,000.

The estimated budget for Phase 1 work is US\$650,000.



## PHASE 2

Tetra Tech recommends continued wider exploration of the Unkur license area to collect data in preparation for further work.

As well as additional drilling to continue to explore the extensive known strike length of the Unkur mineralisation there are a number of additional exploration requirements to advance the Project. Additionally, data such as an accurate survey of the Project area will be required for later phase; therefore, Tetra Tech recommends an aerial or satellite survey of the Project, which can cover an extensive area to a high degree of accuracy for approximately US\$20,000, which will be adequate for the mid-term needs of the Project. A full ground survey can be completed ahead of design and engineering in the future.

Additional study requirements, such as an environmental impact assessment (EIA) should be considered at this time, as there is a long lead time of the collection of baseline data.

Exploration of the strike of the deposit, based on historical data, and building on the results of Phase 1 should target adding additional new Mineral Resource into the Inferred category, and upgrading existing Inferred material in to the Indicated category ahead of a Prefeasibility Study. A budget estimate of US\$1.2 million would cover drilling of an additional 2,500 m, metallurgical test work on a selection of the core, and additional data collection.

## 2.0 INTRODUCTION

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Azarga engaged Tetra Tech to complete a Canadian Securities Administrators' NI 43-101 compliant Mineral Resource estimate for the Unkur Copper-Silver Property, located in the Kalarsky District, Zabaikalsky Region, Russia, in support of a PEA study. Azarga is a mineral exploration and development company that owns 100% of the Project.

The updated Mineral Resource estimate is based on a re-assessment of the Mineral Resource classification, after a review of potential metallurgical process technologies for the Project.

In compliance with NI 43-101 and the CIM, this Technical Report includes, as of the effective date, all material scientific and technical information in respect of Azarga's Unkur Property and therein presents the current status and Mineral Resources of the Unkur deposit.

The effective date of this report is 27<sup>th</sup> March 2017 and the effective date of the Unkur Mineral Resource estimate is 7<sup>th</sup> November 2017.

### 2.1 SOURCES OF INFORMATION

All sources of information for this study are in Section 19.0.

### 2.2 UNITS OF MEASUREMENT AND CURRENCY

All units of measurement used in this technical report are in metric.

All currency is in US Dollars (US\$), unless otherwise noted.

### 2.3 QUALIFIED PERSONS

SRK completed a thorough Technical Report for the Project titled *Technical Report for the Unkur Copper-Silver Deposit, Kodar-Udokan Area, Russian Federation*, and dated 31<sup>st</sup> March 2017 (SRK 2017). As this Technical Report is based on an updated Mineral Resource estimate for inclusion in a PEA currently in progress, Tetra Tech is jointly authoring this report with SRK. Table 2.1 summarises the QP responsibility for each report section.

The following QPs completed a site visit of the Property:

- Robin Simpson, MAIG, completed a site visit in 10<sup>th</sup> December 2014 and 13<sup>th</sup> October 2016, and as such, is responsible for the site visit and some of the data verification aspects of this report.

**Table 2.1 Summary of QPs**

Report Section		Company	QP
1.0	Summary	All	Sign-off by Section
2.0	Introduction	Tetra Tech	Mr. Joseph Hirst, BSc (Hons), MSc, CGeol, EurGeol, FGS
3.0	Reliance on Other Experts	Tetra Tech	Mr. Joseph Hirst, BSc (Hons), MSc, CGeol, EurGeol, FGS
4.0	Property Description and Location	Tetra Tech	Mr. Joseph Hirst, BSc (Hons), MSc, CGeol, EurGeol, FGS
5.0	Accessibility, Climate, Local Resources, Infrastructure and Physiography	Tetra Tech	Mr. Joseph Hirst, BSc (Hons), MSc, CGeol, EurGeol, FGS
6.0	History	Tetra Tech	Mr. Joseph Hirst, BSc (Hons), MSc, CGeol, EurGeol, FGS
7.0	Geological Setting and Mineralisation	Tetra Tech	Mr. Joseph Hirst, BSc (Hons), MSc, CGeol, EurGeol, FGS
8.0	Deposit Types	Tetra Tech	Mr. Joseph Hirst, BSc (Hons), MSc, CGeol, EurGeol, FGS
9.0	Exploration	SRK	Mr. Robin Simpson, MAIG
10.0	Drilling	SRK	Mr. Robin Simpson, MAIG
11.0	Sample Preparation, Analyses and Security	SRK	Mr. Robin Simpson, MAIG
12.0	Data Verification	SRK	Mr. Robin Simpson, MAIG
13.0	Mineral Processing and Metallurgical Testing	Tetra Tech	Mr. Joseph Hirst, BSc (Hons), MSc, CGeol, EurGeol, FGS
14.0	Mineral Resource Estimates	Tetra Tech	Mr. Joseph Hirst, BSc (Hons), MSc, CGeol, EurGeol, FGS
15.0	Adjacent Properties	Tetra Tech	Mr. Joseph Hirst, BSc (Hons), MSc, CGeol, EurGeol, FGS
16.0	Other Relevant Data	Tetra Tech	Mr. Joseph Hirst, BSc (Hons), MSc, CGeol, EurGeol, FGS
17.0	Interpretations and Conclusions	Tetra Tech	Mr. Joseph Hirst, BSc (Hons), MSc, CGeol, EurGeol, FGS
18.0	Recommendations	Tetra Tech	Mr. Joseph Hirst, BSc (Hons), MSc, CGeol, EurGeol, FGS
19.0	References	Tetra Tech	Mr. Joseph Hirst, BSc (Hons), MSc, CGeol, EurGeol, FGS

## 3.0 RELIANCE ON OTHER EXPERTS

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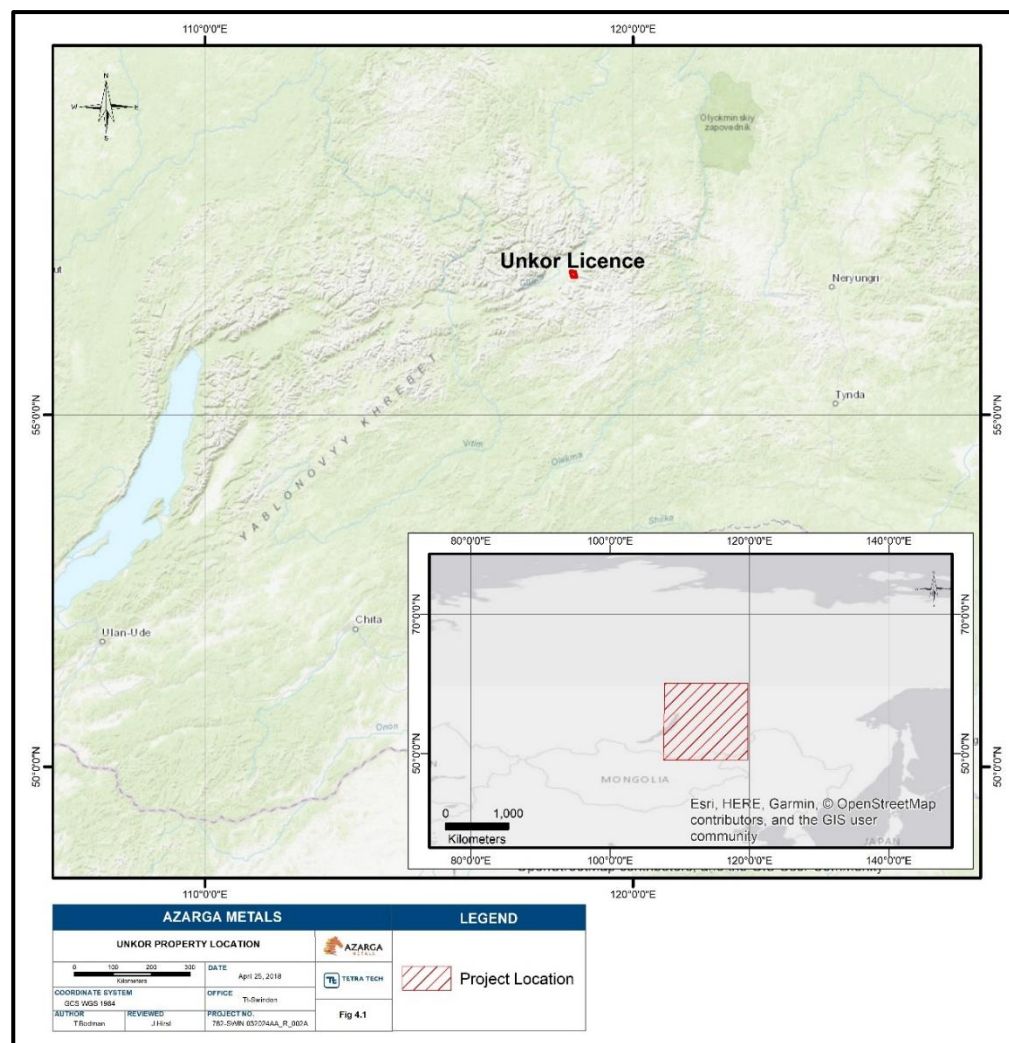
Tetra Tech understands that as of the effective date of this report there are no known litigations or legal impediments potentially affecting the Project.

## 4.0 PROPERTY DESCRIPTION AND LOCATION

### 4.1 LOCATION

The Project lies in the Kalarsky district of the Zabaikalsky administrative region of Russia, 15 km east of the Novaya Chara town (Figure 4.1). The centre of the licence is located at coordinates 598,061 E, 6,300,586 N WGS84.

**Figure 4.1 Unkur Property Location Map**



### 4.2 DESCRIPTION

Azarga holds the subsoil license to the Property through its 60% ownership of Azarga Metals Limited, which in turn indirectly holds 100% ownership of LLC Tuva-Colbalt. LLC Tuva-Colbalt was awarded the license on August 26, 2014 via a bidding process

in Chita. The license was registered with the Department of Subsoil Use for Central and Siberian District of Russia (TsentrSibnedra) in Krasnoyarsk on 2<sup>nd</sup> September 2014.

The license (No. ЧИТ025225P) covers an area of 53.9 km<sup>2</sup> and allows the owner to perform geological study; exploration; and production of copper, silver and associated components.

The licence details and conditions are shown in Table 4.1. The license area is shown in Note: GKZ – Russian State Commission on Mineral Resources

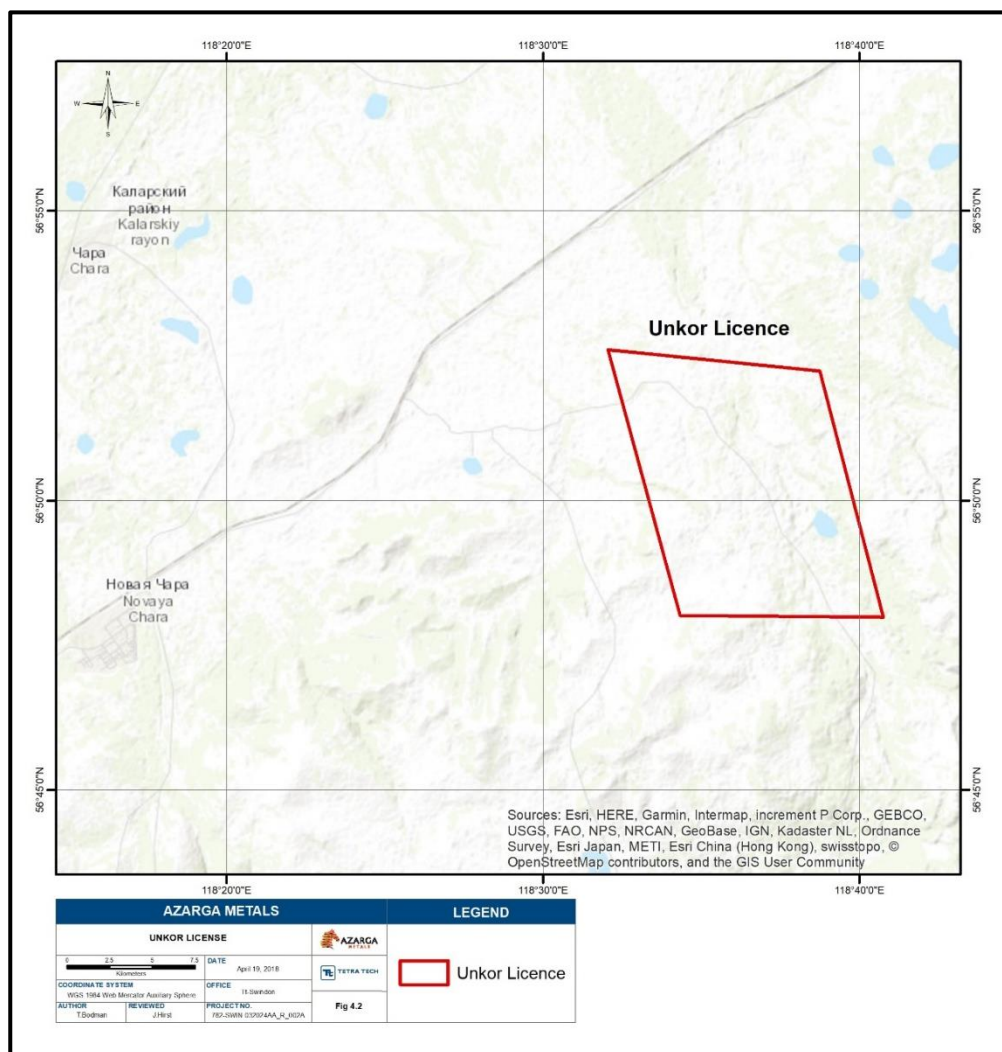
Figure 4.2 and the coordinates of the licensed area are listed in Table 4.2.

**Table 4.1 License Details**

Item	Description
License No.	ЧИТ025225P
License Name	Licence Agreement on conditions of subsoil use for mining of copper, silver, and associated minerals in the Unkur Project
Valid From	02/09/2014
Expiry	31/12/2039
Area	53.9 km <sup>2</sup>
GKZ Resource Approval	Not included in the State Balance Sheet
The GKZ Prognostic Resources, 1988	Prognostic Resources:
	P1 – ore tonnage is 83,501 kt, metal (Cu) content – 660 kt, metal (Ag) content – 5703 t
	P2 – ore tonnage is 58,108 kt, metal (Cu) content – 436 kt, metal (Ag) content – 3969 t
	P3 – ore tonnage is 87533 kt, metal (Cu) content – 674 kt, metal (Ag) content – 5979 t
Conditions	Compliance with the Russian legislation, advanced geological survey, full-extraction of on-balance Mineral Reserves/Resources
	Industrial and occupational safety
	Environmental protection
	Social and economic development of region

Note: GKZ – Russian State Commission on Mineral Resources

**Figure 4.2 Unkur License Area**



**Table 4.2 License Coordinates**

Point	Latitude (dd° mm' ss")	Longitude (dd° mm' ss")
1	56 48 01N	118 34 20E
2	56 52 36N	118 32 03E
3	56 52 14N	118 38 45E
4	56 47 59N	118 40 45E

The subsoil user shall be guided by the Subsoil Law of the Russian Federation when undertaking exploration works.

## 4.3 PERMIT ACQUISITION AND LEGISLATIVE REQUIREMENTS

The licence appears to cover all the existing resources of the deposit, including an unexplored north-eastern part of the deposit; the licence covers all the potential resources of the deposit at depth.



## 4.4 ROYALTIES, RIGHTS, PAYMENTS AND AGREEMENTS

The licence states the charges and taxes relating to subsoil use, which include the following:

- mineral extraction tax as per Russian Federation laws
- water tax as per Russian Federation laws
- a single payment of RUB20.856 million for the right to use subsoil for mining copper and associated minerals
- other charges and taxes prescribed by the tax laws of the Russian Federation.

### 4.4.1 EXPLORATION FEES

According to the license conditions, the holder of the license (LLC Tuva-Cobalt) shall pay the following rates:

- Early Stage Exploration: For the entire subsoil area, except for the deposit areas at the exploration stage, the rate for the first year is RUB50/km<sup>2</sup>; for years 2 to 5 the rate will be RUB162/year/km<sup>2</sup>; and from the fifth year RUB225/year/km<sup>2</sup>.
- Exploration Stage: RUB1,900/km<sup>2</sup> for the first year, then RUB8,707/year/km<sup>2</sup> for the second and third years of work.

### 4.4.2 ROYALTIES

The royalties to be paid to the Russian Federation for extracting copper and silver are 8% and 6.5%, respectively. In addition, and described in more detail in Section 4.6, the vendors who sold part of their shareholding to European Uranium Resources Ltd. will retain a 5% net smelter return (NSR) royalty.

### 4.4.3 ENVIRONMENTAL LIABILITIES

According to the license agreement, the subsoil user (LLC Tuva-Cobalt) is obliged to follow the statutory regulations of the Russian Federation on subsoil and environmental protection.

The subsoil user shall perform environmental monitoring (atmosphere, subsoil, waters, soil, biological resources) in the area of the mining enterprise influence.

Currently, no information is available regarding any environmental liabilities to which the Project may be subject. Any historical disturbance from exploration activities that may exist on site are outside of current licensee liabilities according to existing legislation, unless the licensee voluntarily accepts them.

### 4.4.4 PERMITS REQUIRED FOR THE PROPOSED WORK

The license is valid through December 31, 2039. Upon approval of detailed project development, the license validity period shall become the mine life of the deposit,



which will be calculated based on the technical and economic justification for the deposit development.

The license for the right to explore and mine subsurface mineral resources contains the terms of developing the project, reporting documentation, as well as exploration work, including:

- approval of a project design for geological investigation of subsurface mineral resources (early-stage exploration) which has previously received a positive conclusion in accordance with Article 36.1 of the Russian Federation Subsoil Law
- submission of prepared documents, no later than 02/09/2020, based on geological study of the subsurface mineral resources to the State Appraisal of Reserves of Commercial Minerals in accordance with Article 29 of the Russian Federation Subsoil Law
- approval of a project design for detailed exploration, no later than 02/09/2020, which has previously received a positive government conclusion in accordance with Article 36.1 of the Russian Federation Subsoil Law of the Russian Federation
- submission of prepared documents, no later than 02/09/2024, based on detailed exploration results to the State Appraisal of Reserves of Commercial Minerals in accordance with Article 29 of the Russian Federation Subsoil Law
- preparation and approval, no later than 02/09/2026, of the technical project of deposit exploration arranged in accordance with Article 23.2 of the Russian Federation Subsoil Law
- preparation and approval of the technical project of abandonment and suspension of workings, drillholes, and other underground workings arranged in accordance with Article 23.2 of the Russian Federation Subsoil Law a year ahead of the planned completion of the deposit development
- submission of the annual information report on the works carried out on site, no later than January 15 of the year following the reporting period; the order of presentation of these materials is determined by the Federal Agency on Subsoil Use and its territorial bodies
- submission of annual statistical reporting (5-GR, 70-TP, 71-TP, 2-LS, 2-GR, 7-GR forms, etc.) within the prescribed time limits.

The deposit development project plan determines the dates to bring the deposit into development and to drive up to the rated capacity.

## 4.5 SURFACE RIGHTS AND LEGAL ACCESS

Exploration and development of mineral deposits is generally not possible without the use of the ground surface. Under Russian law, relevant subsoil use licences do not automatically entitle a company to occupy the land necessary for mining and associated industrial activities. The issue of obtaining the necessary land rights is addressed by a company separately from, but in parallel with, obtaining the subsoil

licence. Land use rights are obtained for the parts of the licence area being used, including the plot to be mined, access areas, and areas where other mining-related activities will occur.

Russian legislation on land does not definitively state at what stage the subsoil user should initiate the procedure for obtaining land rights. Under existing subsoil legislation, the formalisation of a subsoil user's land rights for the purposes of geological exploration and subsoil use are carried out under the procedure stipulated by the Land Code. In practice, the procedure for obtaining land rights to a land plot required for exploration and mine development may take several months.

The process of obtaining land rights is governed by federal and regional legislation. Although regional legislation should not contradict Russian federal law, in practice, some parts do. This results in certain ambiguity and irregularity in the procedure of obtaining land rights. Under the Land Code, mining companies generally have either the right of ownership or lease regarding a land plot in the Russian Federation.

Most land plots in the Russian Federation (including all of the license area for the Property) are owned by federal, regional, or municipal authorities, which, through public auctions, tenders, or private negotiations can sell, lease, or grant other rights of use over the land to third parties. The general principle, as fixed in the Land Codes, states that the land plots required for the performance of works associated with subsoil use out of lands in state or municipal ownership, should be granted for lease outside a tender or an auction. The government establishes the procedure for calculating the amount of rental payments for such land plots.

## 4.6 OBLIGATIONS TO VENDOR

On March 1, 2016, European Uranium Resources Ltd and Azarga Metals Limited executed a share purchase agreement whereby the six shareholders of Azarga Metals Limited (the Selling Shareholders) sold 60% of the issued shares of Azarga Metals Limited to European Uranium Resources Ltd in exchange for shares of European Uranium Resources Ltd and deferred cash payments. Subject to terms and conditions, the Selling Shareholders agreed to grant European Uranium Resources Ltd the right to purchase the remaining 40% of the shares of Azarga Metals Limited (the Call) and European Uranium Resources Ltd granted the Azarga Metals Limited Selling Shareholders the right to sell the remaining 40% of the shares of Azarga Metals Limited to it (the Put). The fair value of that 40% interest will be negotiated at the time of exercise.

Azarga Metals Limited owns 100% of the issued shares of Shilka Metals LLC (Cyprus) which in turn owns 100% of the issued capital of LLC Tuva-Cobalt (Russia). LLC Tuva-Cobalt was awarded the Unkur mineral exploration and exploitation license via a bidding process on August 26, 2014 and is valid through December 31, 2039.

On closing, European Uranium Resources Ltd issued the Selling Shareholders 15,776,181 common shares, approximately 37% of the number of shares as constituted after closing the transaction, the Private Placement, the Debt Settlement and the Consolidation (the Consideration Shares). In exchange for the Consideration Shares, the Selling Shareholders transferred 60% of the issued shares of Azarga Metals Limited to European Uranium Resources Ltd. The Consideration Shares are

restricted from trading for two years from issue date. European Uranium Resources Ltd was assigned existing loans made by the Selling Shareholders to Azarga Metals Limited of up to US\$800,000 that bear interest at the rate of 12% per annum, which can be capitalized or paid in cash (the Debt). The Debt must be paid within seven years from closing. The Selling Shareholders will retain a 5% NSR and their combined 40% interest in Azarga Metals Limited will be free carried to initial production and profitability subject to the Put/Call Options. European Uranium Resources Ltd has the right to buy back up to 2% of the NSR at a cost of US\$5 million per percentage point so that upon paying US\$10 million the NSR will be reduced to 3%. In addition, European Uranium Resources Ltd agreed to make deferred cash payments to the Selling Shareholders of US\$1,680,000 (the Deferred Cash Payments) beginning with US\$80,000 payable on 1<sup>st</sup> June 2017, with a payment on each annual anniversary that increases by US\$80,000 a year so that the final payment of US\$480,000 will be due on 1<sup>st</sup> June 2022. In the event of a change of control of European Uranium Resources Ltd, the Debt and Deferred Cash Payments will become due and payable within five days.

European Uranium Resources Ltd undertook to spend a minimum of US\$3 million on exploration activities on the Project prior to 30<sup>th</sup> June 2019, and an additional US\$6 million between 1<sup>st</sup> July 2019 and 30<sup>th</sup> June 2023.

If at any time, a Mineral Resource (adding Measured, Indicated and Inferred of all combined deposits within the Project area) is estimated to contain copper and silver to the equivalent of 2 Mt or more of copper, where Measured plus Indicated Resources comprise at least 70% of that estimate, taking the value of silver as copper equivalent (the Bonus Payment Threshold), an additional US\$6.2 million will be payable to the Selling Shareholders within 12-months' notice that the Bonus Payment Threshold has been met.

On 30<sup>th</sup> May 2016, European Uranium Resources Ltd was renamed as Azarga Metals Corp.

## 4.7 PERMITS

No permitting is required until the Project reaches the Feasibility Study stage. The exploration stage only requires observation of existing environmental laws and regulations.

The Project is not in a protected woods territory and Azarga expects that no tree cutting will be required for the purposes of exploration; therefore, it should be possible for exploration to proceed without a forestry permit.

## 4.8 OTHER FACTORS OR RISKS

If the Project proceeds to Feasibility Study stage or production, then the right to use the licensed area may also be suspended or restricted in the following cases:

- failure to submit the required documentation outlined in Section 4.4.4 within six months of the specified deadlines
- failure to make the regular payments specified in Section 4.4.1

- failure to comply with the Project deadlines and production output requirements, as relating to the geological investigation of subsurface, deposit exploration and deposit development stages.

## 5.0 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

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### 5.1 ACCESSIBILITY

The Property is accessed from Chara village and the town of Novaya Chara by the year-round natural road passing along the BAM. The road distance from the site to Novaya Chara is approximately 22 km, and to Chara is approximately 33 km.

In Chara there is an airport with a paved airstrip that accommodates regular flights from Chita, approximately 800 km to the southwest.

Novaya Chara railway station is accessed by the BAM from Bratsk (1,356 km) through the town of Severobaikalsk (637 km).

In winter snow roads are used to access the city of Chita and the town of Taksimo.

### 5.2 LOCAL RESOURCES AND INFRASTRUCTURE

The Kalarsky district is sparsely populated with an estimated population of 8,253 as of January 2016, spread across an area of 56,000 km<sup>2</sup>. The main towns of Novaya Chara and Chara have approximately 4,300 and 2,200 inhabitants, respectively.

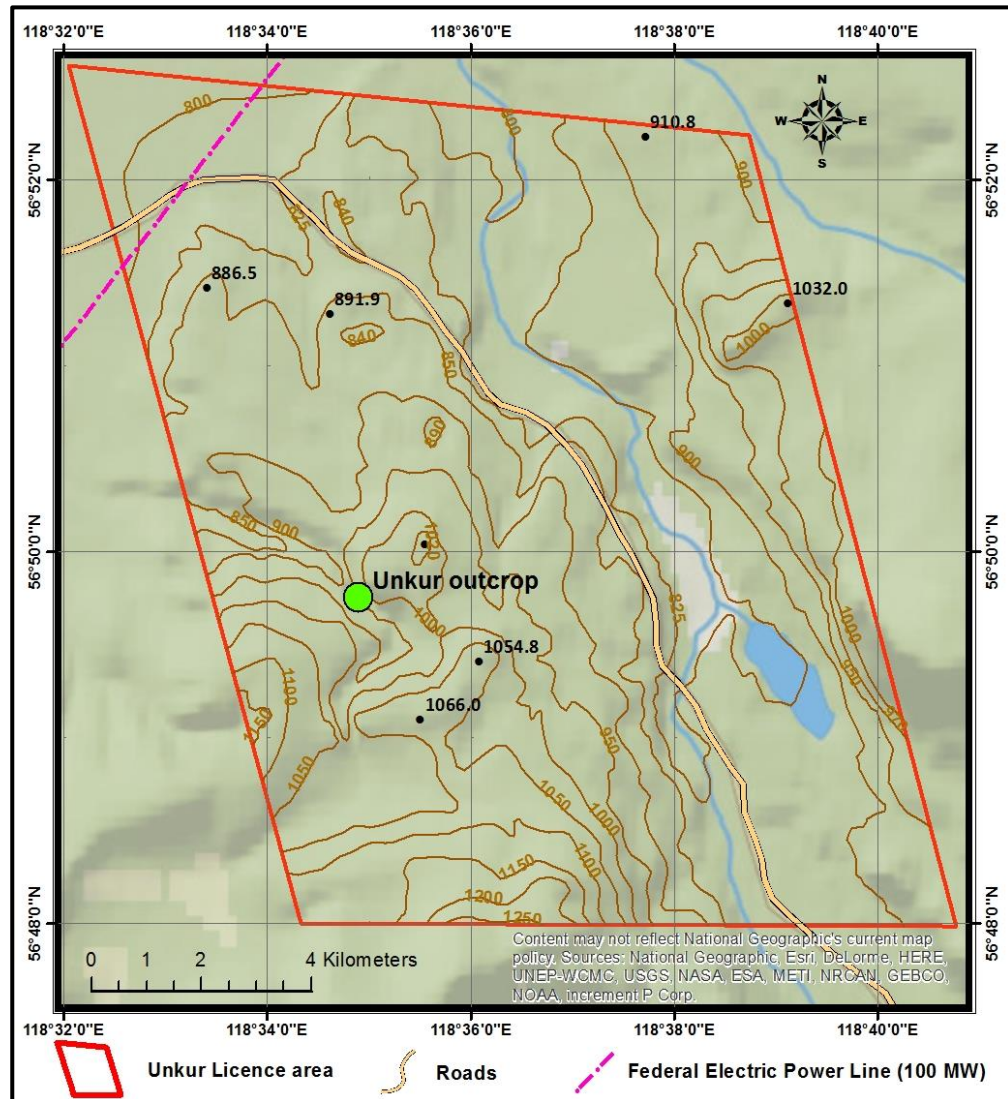
The Project is cut by a 100 MW federal electric power line that passes through the north-eastern corner of the licence area (Figure 5.1)

### 5.3 CLIMATE

The Project area has a harsh continental climate with very cold and long winters and short hot summers. During the cold period, the terrain is dominated by a stable Siberian anticyclone with significant temperature inversions. The air temperature varies depending on the relief. Average air temperature in January range from  $-27.8^{\circ}\text{C}$  at altitude in the Project area and  $-33.2^{\circ}\text{C}$  in the Chara valley. The winter air temperature minimum is  $-57^{\circ}\text{C}$  at lower levels and  $-47^{\circ}\text{C}$  at altitude. The July air temperature maximum is  $+32^{\circ}\text{C}$  and at the foothills it is  $+27^{\circ}\text{C}$ . The cold and long winters (October to April) are characterised by high air pressure.

Yearly precipitation distribution is very uneven with first snow usually falling in mid-September. By mid-October a stable snow cover typically forms. The snow cover typically melts in mid-April at lower elevations and in May at higher elevations.

**Figure 5.1 Topography Map for the Unkur Project**



Source: Compiled by SRK (2015)

## 5.4 PHYSIOGRAPHY

The Project area is located in the northern slopes of the Udokan Range in the catchment of the Kemen and Unkur Rivers, which are right-bank tributaries of the Chara River. The area of the deposit is characterized by low and medium mountain relief with absolute elevations of 1,100 to 1,200 m, with local differences in elevation of 100 to 200 m. Flat watersheds and smooth hillsides are found in the northern portion of the area with an elevation of 400 m (Figure 5.1).

## 5.5 SEISMICITY

The area of the deposit and adjacent areas is quoted as being 9 points on the 12-point Russian MSK-64 scale of seismicity used throughout the Commonwealth of Independent States (CIS). This constitutes a severe earthquake potential zone, with at least one catastrophic earthquake likely to occur over a 25-year period.

## 5.6 VEGETATION

The deposit and surrounding area is covered by taiga vegetation (swampy coniferous forest), as is typical between the tundra and steppes of Siberia. The main forest-forming species is Dahurian larch.



## 6.0 HISTORY

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### 6.1 EXPLORATION HISTORY

#### 6.1.1 GENERAL EXPLORATION HISTORY TO 2016

Mineralisation at the Property was discovered by a geologist from the All-Union Aerogeological trust during 1:1,200,00 geological mapping in 1962 (Shulgina et al. 1962). The mineralised layer was observed within a canyon of the Unkur River and traced for 1 km through limited outcrops of copper-bearing sandstone. In these exposures, the thickness of the layer varied from approximately 5 to 8 m. Based on the chemical assays of channel and chip samples, an average copper grade of 1% was determined. It was established that the mineralisation is stratabound within the Lower Sakukan subformation.

In 1963, the Udokan expedition team (a state-owned company that includes Lukturskaya, Naminginskaya, and other exploration teams), carried out trenching every 200 to 300 m for 1.2 km to further define the copper mineralisation zone. Sampling from the trenches showed mineralised intervals of 10 to 12 m thick, with an average copper grade of 1.02%. Also in 1963, the Udokan team carried out magnetic and electric geophysical surveys over limited areas of the south-eastern syncline at 100 m spacings between profiles and 20 m spacing between measurement points. The magnetic survey identified distinct magnetic suites, but did not directly reveal the zone of copper mineralisation.

In 1966 geologists from the A.P. Karpinsky Russian Geological Research Institute (VSEGEI) visited the Unkur site. Based on several lithological characteristics, the sediments hosting the mineralised layer were classified as shallow-marine and deltaic strata.

#### 6.1.2 THE 1969-1971 CAMPAIGN

Between 1969 and 1971, further prospecting work at the Project was undertaken by the Naminginskaya Exploration Team. This work included mapping, geophysics, and drilling on 250 to 500 m profile spacings, as outlined in Table 6.1.



**Table 6.1 Exploration Works on the Unkur Project, 1969-1978**

Period	Unit	1969-1971	1975-1978
Core Drilling	m	5,549.10	1,154
Trench Volume	m <sup>3</sup>	20,524.30	19,144
Mapping Traverses	km	50	-
Core Sampling	no.	194	36
Trench Sample Length	m	62.7	192
Geochemical Sampling	no.	370	580
Chemical Analysis	no.	2,486	100
Combined Sampling for Silver Grade	no.	8	11
Composite Sampling	no.	51	-

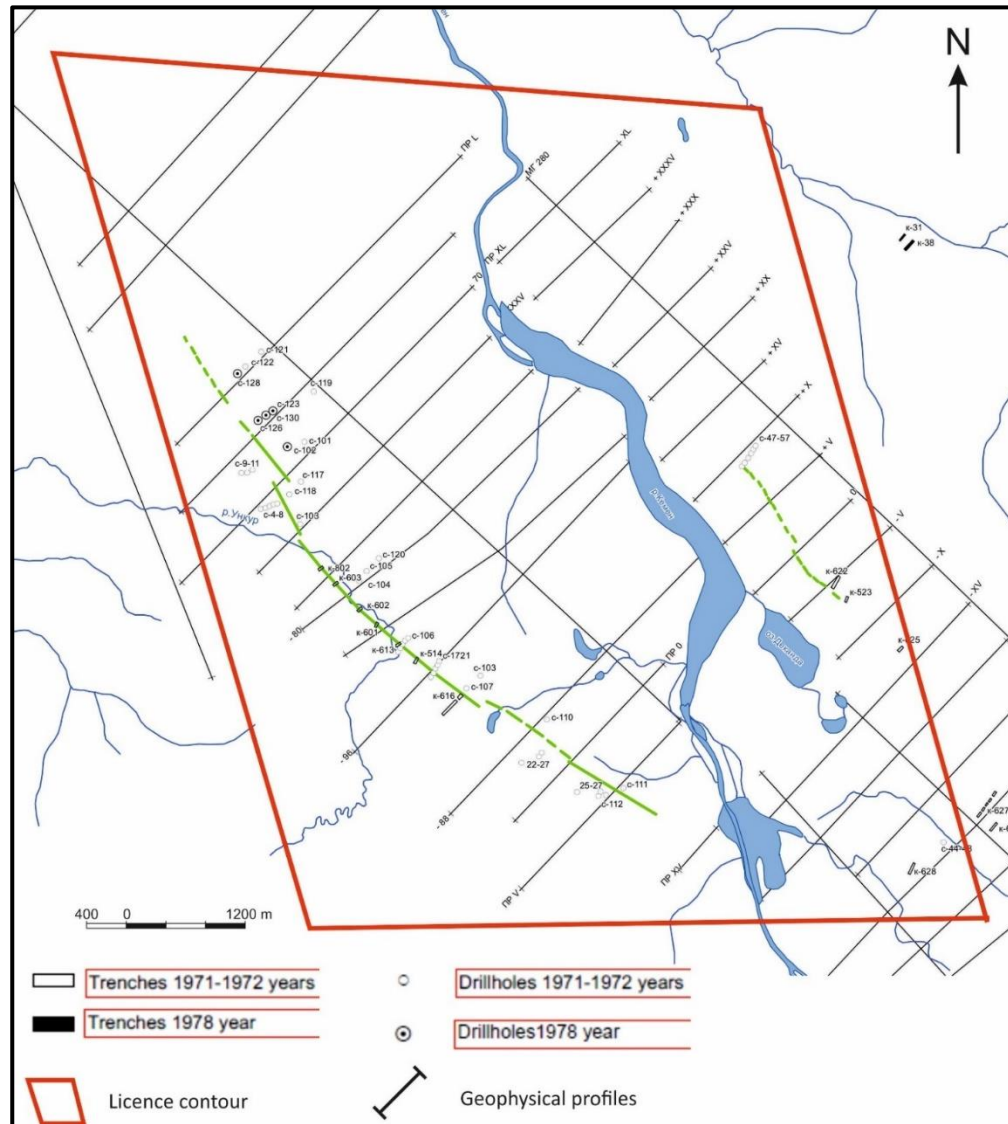
From the work completed between 1969 and 1971, the geological setting of the mineralised area and the internal structure and geochemical characteristics of the mineralisation became better understood. Based on the new drilling and trenching data the copper-bearing horizon of 20 to 50 m thick was traced from southeast to northwest for 4 to 6 km to a depth of 350 m. The average copper grade for the mineralised zone was determined as 0.75%. Geophysical methods identified the copper-bearing horizon for a further 4 km northwest under moraine sediments 150 to 180 m thick. Based on the results of the 1969-1971 work, geologists from the Naminginskaya Exploration Team prepared an estimate of copper and silver resources.

### 6.1.3 THE 1975-1978 CAMPAIGN

Geologists from the Lukturskaya Exploration Team (Berezin G. 1978) carried out detailed exploration work from 1975 to 1978, at a 25 m profile spacing, in order to assess the potential of the Klyukvenny copper-bearing deposit, southeast of the Udokan deposit, and the potential of the Luktursky gabbroid massif, which borders the northwest flank of the Unkur deposit. The Klyukvenny and Luktursky deposits fall outside the licensed area owned by Azarga, but secondary to the focus on Klyukvenny and Luktursky, further sampling and geophysical assessments took place on the Unkur deposit. The Unkur work included drilling four core holes. The aim of this drilling was to test the lateral extents of the deposit. Only one of these holes (C-102) intersected the copper-bearing horizon, at a depth of 250 m.

The summary of the exploration works from the 1968-1971 and 1975-1978 programs is shown in Table 6.1. Figure 6.1 is a map of drillholes and trenches for all the campaigns, and shows the profiles of geophysical surveys. The surface position of the copper-bearing horizon, derived from mapping, drilling and trenching, is shown in Figure 6.1 as a green line.

**Figure 6.1 Unkur Project Drillholes, Trenches and Geophysical Survey Profiles**



Source: LLC GeoExpert Ltd. (2014)

## 6.2 DRILLING

Historical drilling at the Property was undertaken across two campaigns between 1969 and 1978 (Table 6.2). In total, 6,703 m of drilling was undertaken, returning copper grades ranging from 0.2 to 3.5% copper, with an average of 1.30% copper.

**Table 6.2 Unkur Project Diamond Drilling**

Type	1969-1971	1975-1978
Core Drilling (m)	5,549	1,154

Tetra Tech notes that reports from the 1969-1971 and 1975-1978 campaigns list no coordinates for drillhole collars. Instead, the drillholes are depicted on maps and sections. These historical collars have not been found; therefore, it is not possible to

verify these locations. The historic collar locations were determined by SRK in 2015 by scanning and geo-referencing the historical hard copy maps (SRK 2015). SRK estimated that the X and Y collar coordinates derived in this manner could have an uncertainty of up to 100 m. Tetra Tech has not independently verified this data.

A total of eight drill holes intersected significant copper mineralisation in the bedrock. The deepest mineralised intersection is from hole C-104, from a down hole depth of 242.4 m.

Core drilling during 1969-1971 campaign aimed to assess the copper-bearing horizon, under the moraine sediments. All these drillholes are vertical.

As part of the 1969-1971 campaign, a set of “mapping” holes were drilled to 30 to 40 m in depth. The profile spacing for this group of holes was 400 m, with a distance between holes of 15 to 20 m. This drilling was carried out by UPB-25 rigs using a single-tube core barrel. A hard metal bit (76 mm diameter) was used for drilling through the sedimentary cover, and then a diamond bit (59 mm diameter) for the bedrock. The total length of the mapping hole drilling was 1,200 m.

A deeper set of drill holes were drilled in 1969-1971 to define copper mineralization to 200-350 m depth. This single-tube drilling was carried out by ZIF-300, ZIF-650 and SBA-500 rigs. The distance between the profiles of these drillholes was 400-800 m, and the distance between holes was 80 to 200 m. A 146 mm diameter bit was used for the sedimentary cover, a 90 mm bit was used for bedrock, and a 76 mm bit was used for the mineralised zone.

A deviation survey was carried out for all drillholes. The dip deviations from vertical did not exceed 1 to 2°.

From 1969-1978, 56 drill holes were drilled in the Project area. The drilling method was single-tube core barrel. The average length-weighted core recovery from the mineralised intersections was 65.2%.

The mineralised zone in the area covered by the historical drilling generally dips to the northeast at 40 to 60°, therefore the vertical drillholes were not at the optimum orientation for testing this zone.

A total of 11 composite samples were made from the core sample duplicates in order to determine the grades of associated elements (primarily silver). The composite samples ranged from 11.2 to 164.6 g/t silver with an average of 67.4 g/t silver.

## 6.3 SAMPLE PREPARATION AND ANALYSES

Sampling of historical drill holes and trenches was performed by geologists of the Naminginskaya and Lukturskaya Parties of the Udokanskaya expedition. The intervals selected for sampling included the mineralised zone, as identified by the geologists, and the host rock for 2 to 4 m either side.

The average sample length for the exploration drillholes (200 to 350 m deep) was 2 m, but varied to fit lithology and mineralization intensity boundaries. Intersections of reasonably intact core were manually halved: one half was used as a sample, and

the other half was stored as a duplicate. Frequently though, the core returned from drilling was very broken, with poor recovery, and for these intersections all the available chips were included in the sample.

Sample lengths for the mapping drillholes (hole depths of up to 30 m) were typically close to 6 m, but the exact sampling boundaries were chosen with regard to mineralization intensity zones, as identified by the geologists. The longer length of the samples from mapping drill holes was adopted to compensate for the smaller core diameter (26 to 28 mm) compared to the exploration drill hole diameter (59 mm), in order to obtain comparable sample weights.

Samples were prepared by the Central Chemical Laboratory, Chita. The historical information available for the Project does not include a description of sample preparation procedures and equipment. Trench, core and composite samples (composed of several core samples) were analysed for copper; geochemical samples were submitted for a semiquantitative spectral analysis for 10 elements. Composite samples were fire assayed for gold and silver and analysed by spectral analysis for 36 elements.

No information on the certification of the Central Chemical Laboratory is available.

### 6.3.1 QUALITY CONTROL PROGRAMS

Quality control on the historical sample preparation and analytical test work of the Unkur samples was not done to presently accepted international best practises.

During the 1969-1971 campaign, the Central Chemical Laboratory inserted its own duplicate samples, at a rate of 17% of the total primary sampling. This limited set of results does not show a significant problem with precision.

No quality control samples were analysed for the Project from the 1975-1978 campaign.

## 6.4 GEOPHYSICAL SURVEYS

Ground geophysical surveys at the Project were carried out in 1963 and during the 1969-1972 and 1975-1978 exploration campaigns. Geophysical methods included electric logging (induced polarization, dipole electric profiling), time-variable natural magnetic field, magnetic and gravity survey.

In order to study physical properties of the copper-bearing horizon, samples were taken from outcrops and drillhole core. These samples were used to determine degrees of magnetization, polarizability, resistivity, and specific gravity.

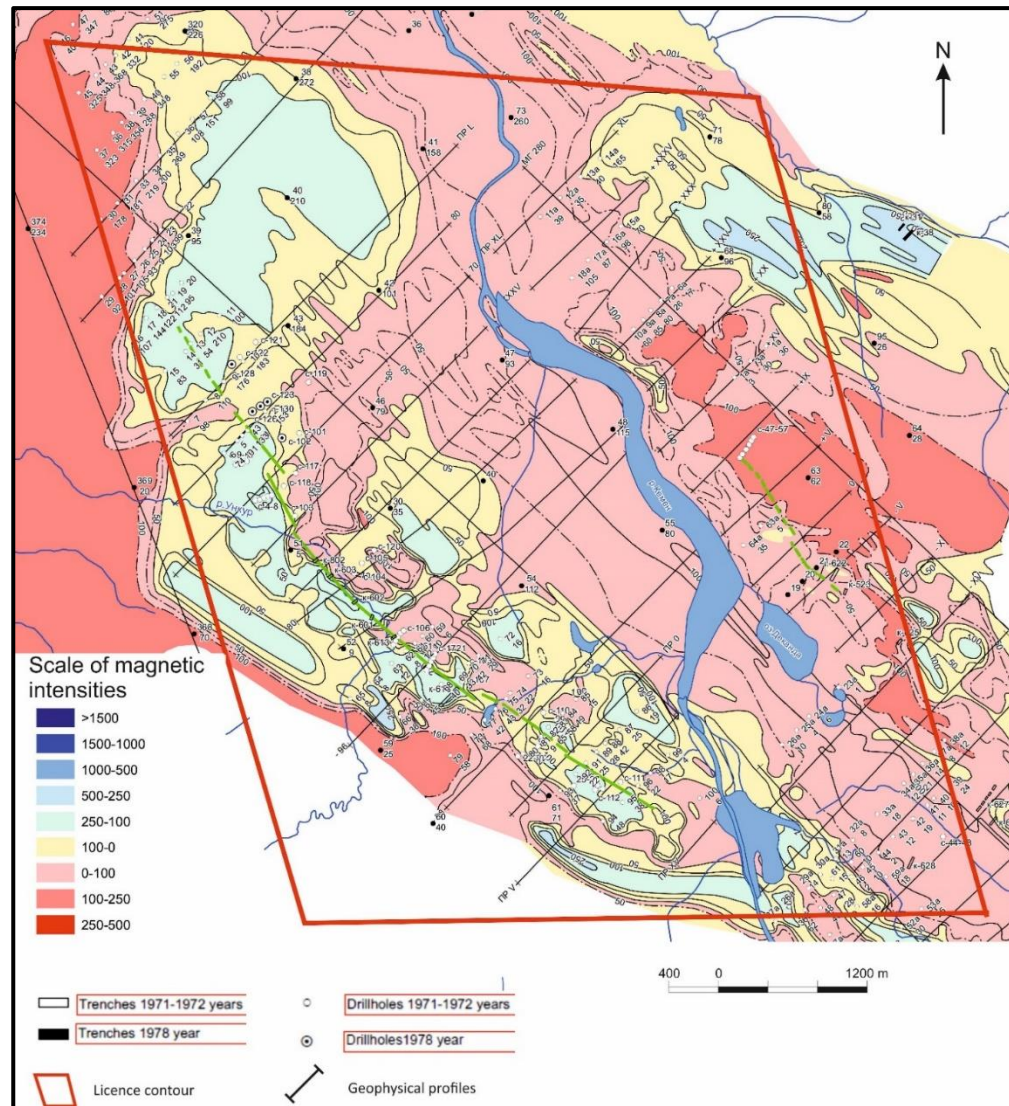
Based on geological description of outcrops, trenches and drillhole core, the geological unit underlying the copper-bearing horizon was identified as highly pyritized. Disseminated pyrite will potentially act as a geophysical marker, for induced polarization in particular, that may identify the base of the copper-bearing horizon.

The results from magnetic and polarizability surveys are shown in Figure 6.2 and Figure 6.3.



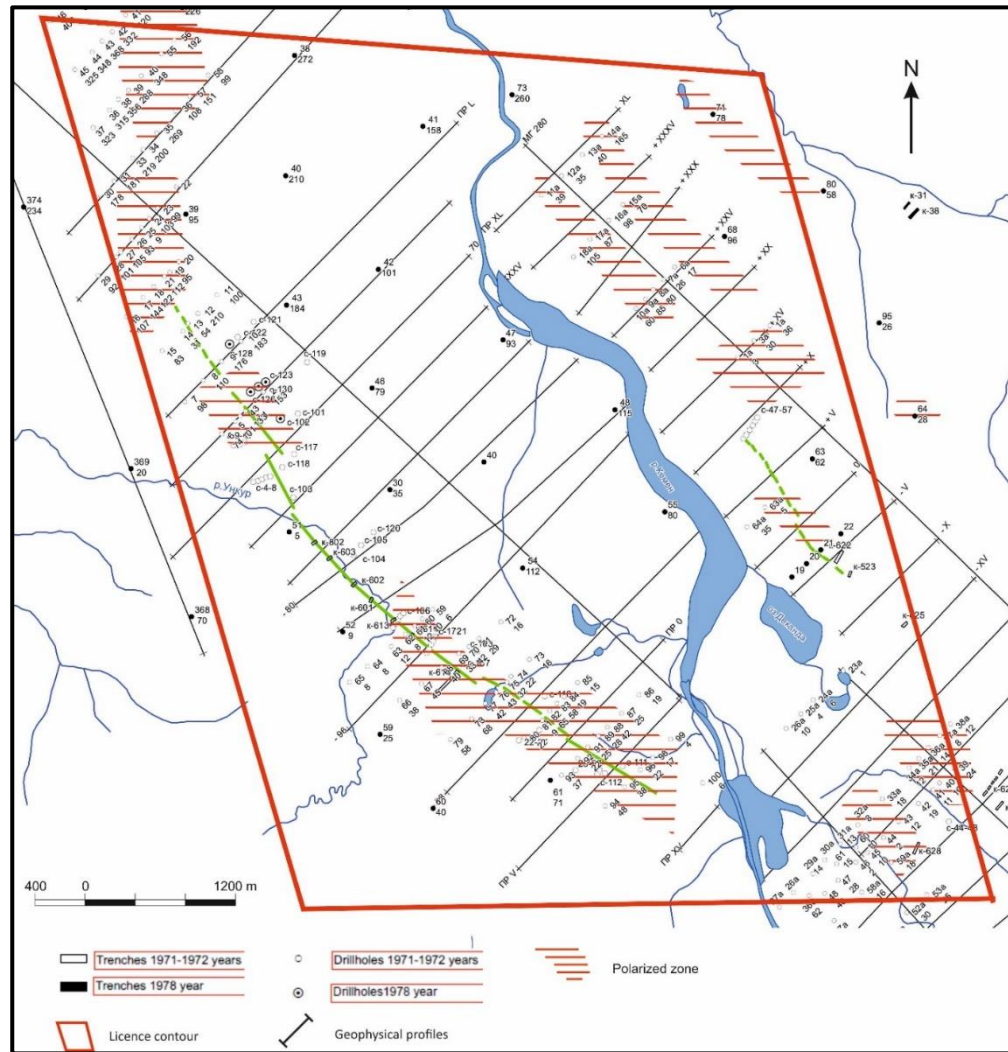
Cumulative data on gravity, magnetic, and electric survey helped determine trends for fold hinges at the north-western and south-eastern margins of the deposit, and defined a series of northeast- and northwest-striking faults which break the Unkur Syncline into several blocks.

**Figure 6.2 Unkur Project Area Magnetic Survey**



Source: illustration provided by LLC GeoExpert Ltd. (2014)

**Figure 6.3 Zones of High Polarizability**



Source: illustration provided by LLC GeoExpert Ltd. (2014)

## 6.5 HISTORICAL RESOURCE ESTIMATES

### 6.5.1 HISTORICAL NON-COMPLIANT RESOURCE ESTIMATES

Four historical non-compliant Resource estimations have been undertaken at the Project: Mulnichenko (1972), Berezin (1979), a 1988 estimate for the licence agreement, and a 2014 estimate by the Central Geological Research Institute. These estimates are all in accordance with Russian resource/reserve estimation and reporting systems.

Historical Mineral Resource estimates presented in this section have been superseded by the Mineral Resource estimate discussed in Section 14.0. The historical estimates presented in this section are relevant to provide context but should not to be relied upon.

NI 43-101 requires Mineral Resource reporting to adhere to the resource category definitions of the CIM in the *Estimation of Mineral Resources and Mineral Reserves*

*Best Practice Guidelines.* The categories in the Soviet resource/reserve system are incompatible with these definitions, and the estimation methods mandated by the Soviet system are different to the geological modelling and geostatistical estimation methods the qualified person would recommend as optimal for the Unkur deposit. Furthermore, the poor quality of the core remaining from the previous exploration programs, and the difficulty of doing detailed verification of historical results, means that any future program of resource definition drilling is likely to replace rather than build on the historical drilling data. Therefore, the historical estimates reported here should be regarded as an indication of exploration potential, instead of an inventory that will necessarily be converted into Mineral Resources.

### 6.5.2 THE 1972 ESTIMATE

The results of the estimation based on the 1972 data are presented in Table 6.3. Prognostic silver resources were estimated within the copper mineralization domain. Average silver grades were determined based on the chemical assays of eight composite samples. The arithmetic mean of these samples is 73.3 g/t, and this grade was applied to all the blocks. Therefore, the prognostic resources of silver amount to 10.1 kt silver.

**Table 6.3 Results from the 1972 Estimate for the Unkur Project, Classified According to the Soviet Union Resource/Reserve Classification System of 1960**

Category	Block No.	Zone Thickness (m)	Tonnes (kt)	Average Cu Grade (%)	Contained Metal (kt)
C2	Block 1	12.4	77,760	0.8	622
	Block 2	4.3	9,978	0.6	60
Total, C2 Category		9.8	87,738	0.78	682
Prognostic Resources	Block 3	12.4	33,849	0.8	271
	Block 4	8.3	16,409	0.75	123
Total, Prognostic Resources		10.7	50,258	0.78	394
Total		10.1	137,996	0.78	1,076

Source: Mulnichenko V. (1972)

This estimate should not be relied upon as it has been superseded by the Mineral Resource discussed in Section 14.0 of this report.

### 6.5.3 THE 1979 ESTIMATE

Upon completion of the second phase of exploration works for the Project carried out in 1979, the second resource/reserve estimate for the Unkur deposit was performed with regard to the new drilling data (Table 6.4). Prognostic silver resources were estimated within the copper mineralisation domain. Average silver grades were determined based on the chemical assays of eleven composite samples. The arithmetic mean of these samples is 68.3 g/t, and this grade was applied to all the blocks. Therefore, the prognostic resources of silver amount to 9.7 kt silver.

**Table 6.4 Results from the 1979 Estimate for the Unkur Project, Classified According to the Soviet Union Resource/Reserve Classification System of 1960**

Category	Block No.	Zone Thickness (m)	Tonnes (kt)	Average Cu Grade (%)	Contained Metal (kt)
C2	Block 1	12.9	91,820	0.8	725
	Block 2	4.3	9,978	0.6	60
Total, C2 Category		8.6	101,798	0.77	785
Prognostic Resources	Block 3	12.9	24,685	0.8	195
	Block 4	8.3	16,409	0.75	123
Total, Prognostic Resources		10.6	41,095	0.77	318
Total		10.1	142,893	0.77	1,103

Source: Berezin (1979)

This estimate should not be relied upon as it has been superseded by the Mineral Resource discussed in Section 14.0 of this report.

#### 6.5.4 THE 1988 ESTIMATE

In 1980 the Soviet resource/reserve classification system was updated. The changes primarily affected the definitions of the C2 resource category and prognostic resources: under the new system, the C2 category was grouped with estimated reserves, and the prognostic resources were divided into three categories: P1, P2, and P3. In 1988 the Unkur deposit was re-estimated and re-classified in accordance with the new classification system. A consequence of this revision was the entire inventory was classified as prognostic resources (Table 6.5).

For the 1988 estimate, a 0.4% copper grade threshold was used for defining the resource domain, compared to the 0.6% copper threshold used for the 1972 and 1979 estimates.

**Table 6.5 Results from the 1988 Estimate for the Unkur Project, Classified According to the Soviet Union Resource/Reserve Classification System of 1980**

Category	Component	Tonnes (kt)	Average Grade	Contained Metal
P1	Copper	83,500.90	0.79%	660 kt
	Silver		68.3 g/t	5,703 t
P2	Copper	58,107.70	0.75%	436 kt
	Silver		68.3 g/t	3,969 t
P3	Copper	87,532.50	0.77%	674 kt
	Silver		68.3 g/t	5,979 t

Source: Unkur Licence Agreement

This estimate should not be relied upon as it has been superseded by the Mineral Resource discussed in chapter 14 of this report.

#### 6.5.5 THE 2014 ESTIMATE

The most recent assessment of the prognostic copper and silver resources for the Project was by the geologists of the Central Geological Research Institute (TsNIGRI).



The results of this estimate are presented in Table 6.6. The data supporting the 2014 estimate are the same as for the 1979 and 1988 estimates (there have been no material additions to the supporting data since 1978); the resource/reserve reporting system is the same as was in place for the 1988 estimate; the threshold for defining the resource domain (0.4% copper) is also the same as used for the 1988 estimate, but the estimated tonnes and metal in 2014 were an order of magnitude lower than in the 1988 estimate.

The differences between the prognostic resource statements of 1988 and 2014 are due to different interpretations of how the Russian resource/reserve reporting system should be applied to the Unkur deposit. The main reasons for the substantially lower tonnage of the 2014 estimate are:

- The 1988 estimate included a substantial portion of P3 material, representing mineralization on the northeast limb of the Unkur Syncline. All of this northeast limb material was omitted from the 2014 estimate.
- From the southwest limb of the Unkur Syncline, the P2 category of the 1988 estimate included about 1,000 m of interpolation along strike, between areas covered by drilling and trenching, and about 1,000 m extrapolation along strike to the northwest. This along strike interpolation and extrapolation was not included in the 2014 estimate.
- For the 2014 estimate, extrapolation down dip was limited to 300 m below surface, on the assumption that this would be the maximum depth of open pit mining. A greater depth limit, of 1,000 m below surface, was used to constraint the 1988 and earlier estimates, on the basis that the deposit could potentially be mined by underground methods.

**Table 6.6 Results from the 2014 estimate for the Unkur Project, Classified According to the Russian Resource/Reserve Classification System of 1980**

Category	Block No.	Component	Tonnes (kt)	Average Grade	Contained Metal
P1	1	Copper	16,516.50	0.90%	148.6 kt
	2		3,964	0.65%	25.8 kt
Total P1		Copper	20,480.50	0.85%	174.4 kt
		Silver		77.96 g/t	1,600 t

Source: Volchkov and Nikeshin (2014)

This estimate should not be relied upon as it has been superseded by the Mineral Resource discussed in Section 14.0 of this report.

## 6.5.6 HISTORICAL NI 43-101 COMPLIANT RESOURCE ESTIMATE

In March 2017, SRK published an initial NI 43-101 compliant Mineral Resource estimate for the Unkur deposit (SRK 2017). This Mineral Resource estimate is present below in Table 6.7.

**Table 6.7 Unkur Cu-Ag Project Mineral Resource Statement as at March 31, 2017**

Domain	Classification	Tonnes (Mt)	Cu (%)	Ag (ppm)	CuEq (%)	Cu Metal (Mlb)	Ag Metal (million tr oz)
Zone 1, Near Surface	Inferred	23	0.54	40	0.93	270	29
Zone 2 North, Near Surface	Inferred	9	0.47	43	0.89	90	12
Zone 2 South, Near Surface	Inferred	1	0.42	4	0.46	10	0
Total Near Surface	Inferred	33	0.52	39	0.9	380	41
Zone 1, Underground	Inferred	8	0.53	34	0.86	100	9
Zone 2 North, Underground	Inferred	1	0.47	43	0.89	10	2
Total Underground	Inferred	10	0.52	35	0.87	110	11
Zone 1	Inferred	31	0.54	38	0.91	370	38
Zone 2	Inferred	11	0.46	38	0.84	120	14
<b>Total</b>	<b>Inferred</b>	<b>42</b>	<b>0.52</b>	<b>38</b>	<b>0.9</b>	<b>480</b>	<b>52</b>

Notes: CIM Definition Standards were followed for Mineral Resources.  
Reporting of near surface Mineral Resources is constrained by a conceptual pit shell.  
Mineral Resources are not Mineral Reserves and do not have demonstrated economic viability.  
Mineral Resources are reported at a cut-off grade of 0.3% CuEq for near surface and 0.7% CuEq for underground.  
Copper and silver equivalent grades were estimated using US\$3.00/lb copper price, US\$20.00/oz silver prices, and assuming 100% recovery for both; the equivalence formula is  $CuEq = Cu + (0.009722 \times Ag)$ .  
Numbers may not add due to rounding.

This estimate has been superseded by the Mineral Resource discussed in Section 14.0 of this report.

## 7.0 GEOLOGICAL SETTING AND MINERALISATION

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### 7.1 REGIONAL GEOLOGY

The Property is located within the southern Siberian platform in the Kodar-Udokan structural zone. Within this zone, Archaen, Lower-Proterozoic, Vendian, Lower-Cambrian, Mesozoic and Cenozoic formations are present.

The bedrock in the vicinity of the Project is dominated by Lower-Proterozoic, weakly metamorphosed terrigenous-sedimentary rocks. This sedimentary succession is intruded by Early-Proterozoic, Proterozoic and Mesozoic igneous complexes.

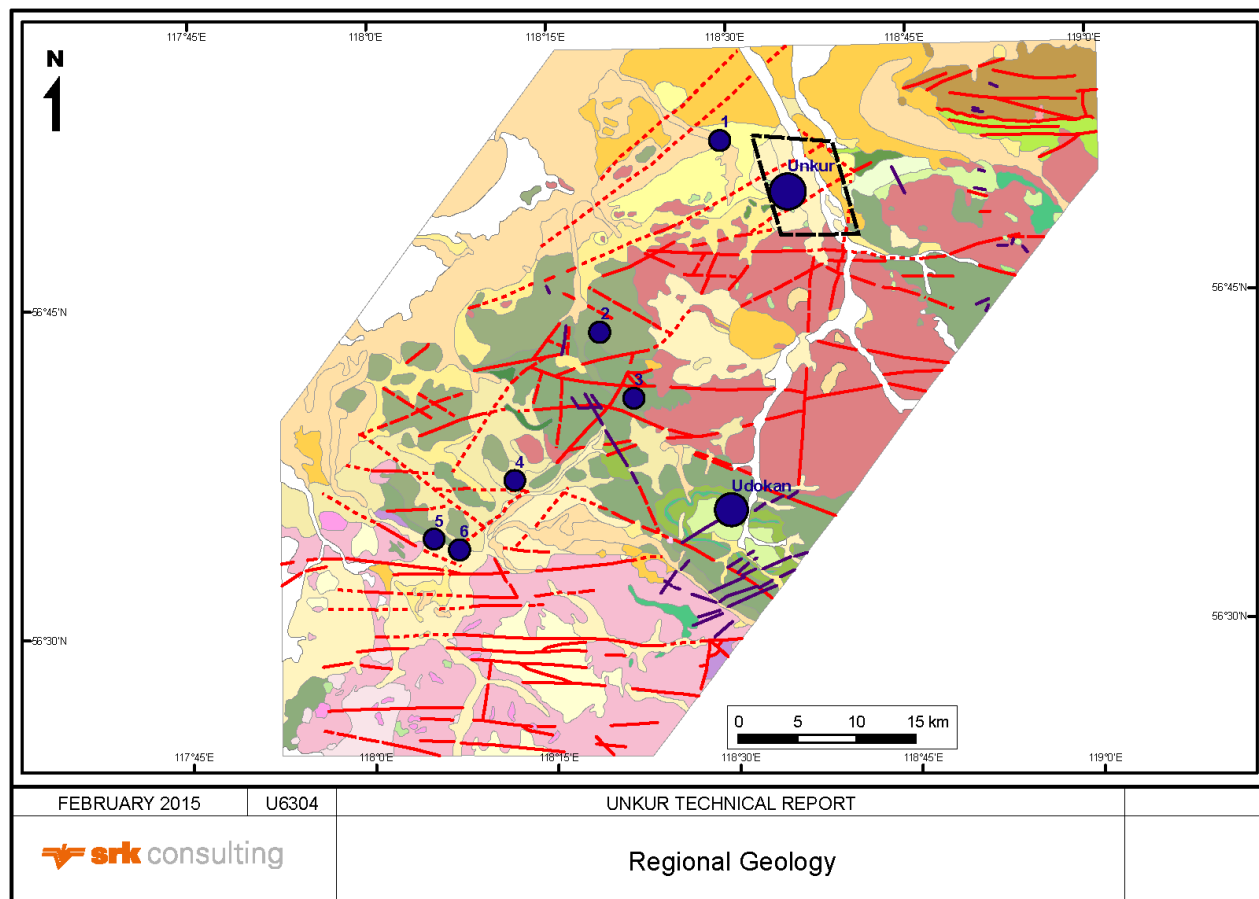
### 7.2 LOCAL GEOLOGY

Locally, the geology is composed of Lower Proterozoic metamorphosed sediments of the Udokan Series, Lower Proterozoic granitoids of the Chuisko-Kodarsly complex, gabbroid massifs and dykes of the Late Proterozoic Chiney complex, and Quaternary alluvial and glacial cover (Figure 7.1).

The sediments of the Udokan series were deposited in a shallow marine environment. In ascending stratigraphic order, the formations of the series are named as the Ikabyinskaya, Inyrskaya, Chitkandinskaya, Alexandrovskaya, Butunskaya, and Sakukanskaya. The overall thickness of the series is 5,350 m.

The copper-bearing horizon is confined to sediments of the Lower subformation of the Sakukanskaya formation. This subformation is a 500 m thick package of alternating pinkish-grey medium-grained sandstones and grey to black siltstones.

**Figure 7.1 Regional Geology Setting.** In addition to the Unkur and Udokan deposits, the other copper occurrences shown on the map are: Luktursky (1); Nirungnakanskaya group (2 and 3); Ingamakitskaya group (4, 5 and 6)





Source: modified by SRK from Mulnichenko, 1972

## LEGEND


 Recent Alluvial Sediments


### Quaternary System

 Alluvium: Silt, Sand, Loam

 Proluvial-alluvial: Boulders, Gravel, Sand, Pebbles


 Proluvial: Boulders, Pebbles, Gravel


 Aqueoglacial: Sand, Sandy, Peat


 Glacial: Boulders, Sandy Loam


 Glacial: Sandy Loam, Loam, Gravel


### Lower Proterozoic


 Naminginskaya Formation: Sandstones, Siltstones, Mudstones

 Upper Subformation: Sandstone Interbeds of Siltstone, Claystone, Limestone

 Middle Subformation: Sandstone Interbeds of Siltstone, Claystone, Limestone, Copper Sandstone


 Lower Subformation: Sandstones, Siltstones, Mudstones, Cuprous Sandstones


 Butunskaya Subformation: Limestone, Conglomerate-Breccia

 Aleksandrovsкая Subformation: Calcereous Sandstones, Interbeds of Limestone and Siltstone


 Chitkandinskaya Formation

 Inirskaya Formation: Sandstones, Siltstones, Mudstones


 Ayanskaya Formation: Sandstones, Siltstones


 Kodarskaya Subseries: Crystalline Schists, Gneisses

### Archean

 Shale & Gneiss

### Intrusives

 Mesozoic Granite Intrusions


 Granites of the Chuysko-Kodarsky Complex

 Syenite

 Gabbro-norites of the Chineyski Complex

 Granodiorite

 Gabbro-Diorite

 Archean Granite-Gneiss

### Faults & Dykes

 Fault

 Gabbro Dyke

 Unkur Licence

 Copper Occurrence

## 7.3 PROPERTY GEOLOGY

### 7.3.1 UDOKAN SERIES FORMATIONS

In the vicinity of the deposit, the Udokan Series sediments are folded into a broad, doubly-plunging syncline, with an approximately vertical axial plane striking northwest (Figure 7.2). The northwest-southeast extent of this synclinal structure is about 12 km.

Three of the Udokan Series formations have been identified within the Project area: Alexandrovskaya, Butunskaya and Sakukanskaya

The rocks of the Alexandrovskaya formation are exposed in the south-western limb of the syncline, and comprise a package of interstratified siltstone and argillites, with quartzites about 1 m thick occurring every 25 to 30 m. The formation is characterized by a magnetic low. Based on geophysical data, the thickness of the formation in the project area is about 450 to 600 m.

The upper part of the Butunskaya formation is exposed in the canyon of the Unkur river, and occurs as a package of alternating siltstone and fine-grained sandstone. The formation is characterized by a magnetic high. Based on the geophysical data, the thickness of the formation in the project area is 500 to 600 m.

The Sakukanskaya formation hosts copper mineralization and occupies most of the Project area. In the east and northeast this formation is intruded by the Chuisko-Kodarsly granitoids of the Kemensky massif. The Sakukanskaya formation is mainly medium-grained grey sandstone.

Of the Sakukanskaya subformations, the Middle and Lower have been identified in the project area. The Lower subformation is 1,000 to 1,200 m thick, characterized by grey and pinkish-grey sandstones alternating with grey and black siltstone. The Middle subformation mainly consists of grey and pinkish-grey sandstones interlayered with calcareous sediments. Rough cross-bedding is characteristic of the sandstone. The overall thickness of the Middle subformation is about 1,000 m.

### 7.3.2 STRUCTURE

As noted above, the major structure of the deposit is a syncline with a northwest-striking axial plane. The southwest limb of the fold dips to the northeast at 40-60° and is complicated by higher order folding.

The Butunskaya and Sakukanskaya formations outcrop in the northeast limb of the fold, and dip 15 to 30° southwest, increasing to 35 to 60° closer to the axial plane.

To the southeast the syncline gradually flattens. In the northwest, geophysical evidence implies the syncline is cut by a branch of the Kemensky Fault.

The Kemensky Fault is one of three large northwest-striking faults. The other in this group is the Burunginsky Fault. The displacement in vertical direction on these major faults does not exceed 300 m.

The Unkur Syncline is also cut by the Charskaya northeast-striking fault system. Displacements on these faults do not exceed 150 to 200 m.

All the faults have undergone tectonic-magmatic re-activation at various stages. There is no reliable information on the cross-cutting relationships between faults.

### **7.3.3 INTRUSIVE ROCKS**

The Udokan Series formations are intruded by gabbro-diorite dykes of the Chineisky complex. Dyke thicknesses range from metres to tens of meters, with observed strike lengths of 200 to 1,000 m. The dykes strike northeast and northwest, corresponding to the strikes of the two main fault systems.

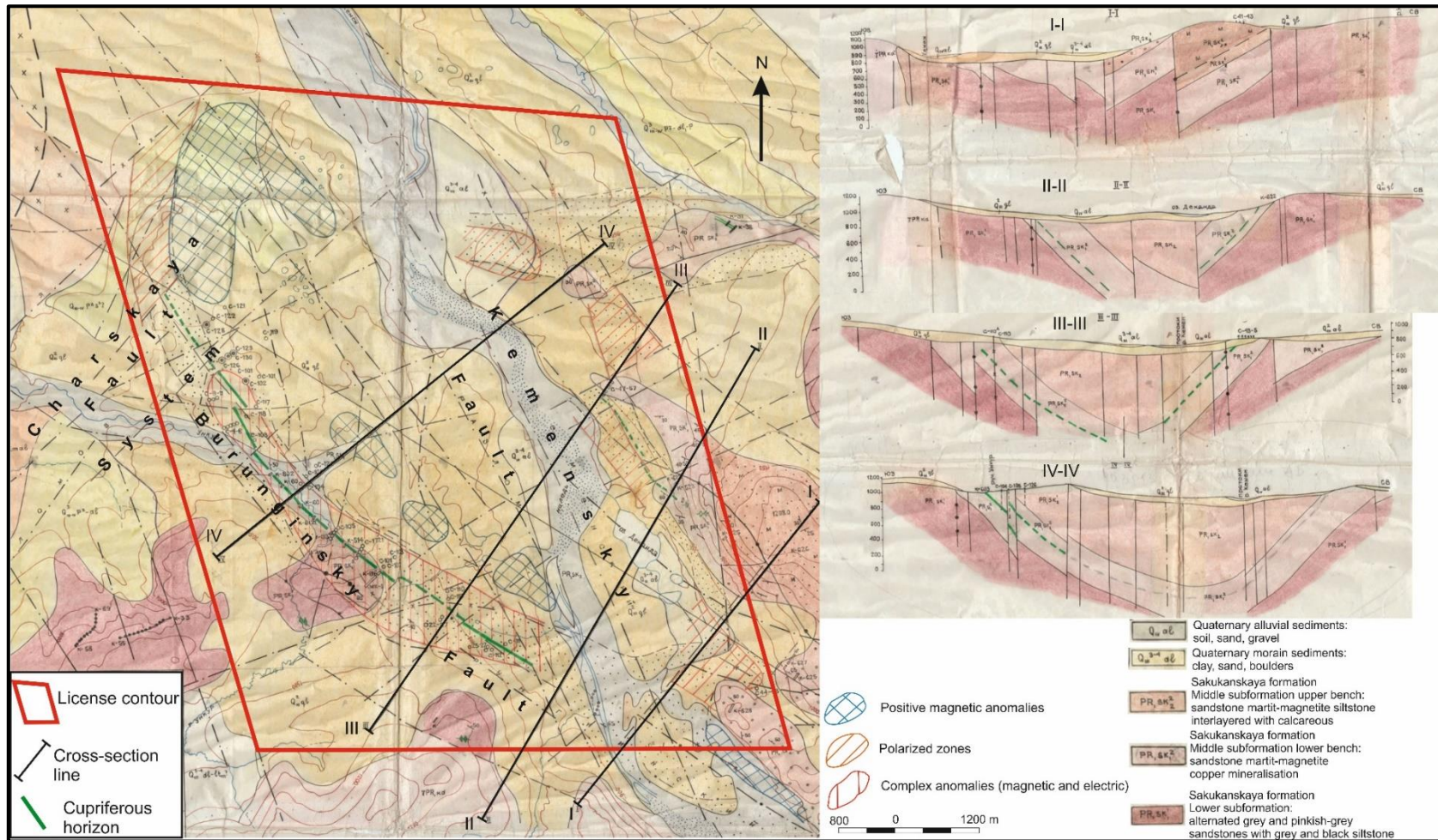
### **7.3.4 QUATERNARY COVER**

Glacial sediments cover most of the project area and form numerous moraines. The average thickness of the moraine cover is 40 m; however, this cover increases to 180 to 200 m thickness in both the northwest and southeast of the Project area.

Recent alluvial sediments have been deposited by the Unkur and Kemen Rivers. These sediments are composed of gravel and sandy soil and form 5 to 20 m high terraces above flood-plains.



**Figure 7.2** Property Geology



Source: modified by SRK from Berezin (1979)

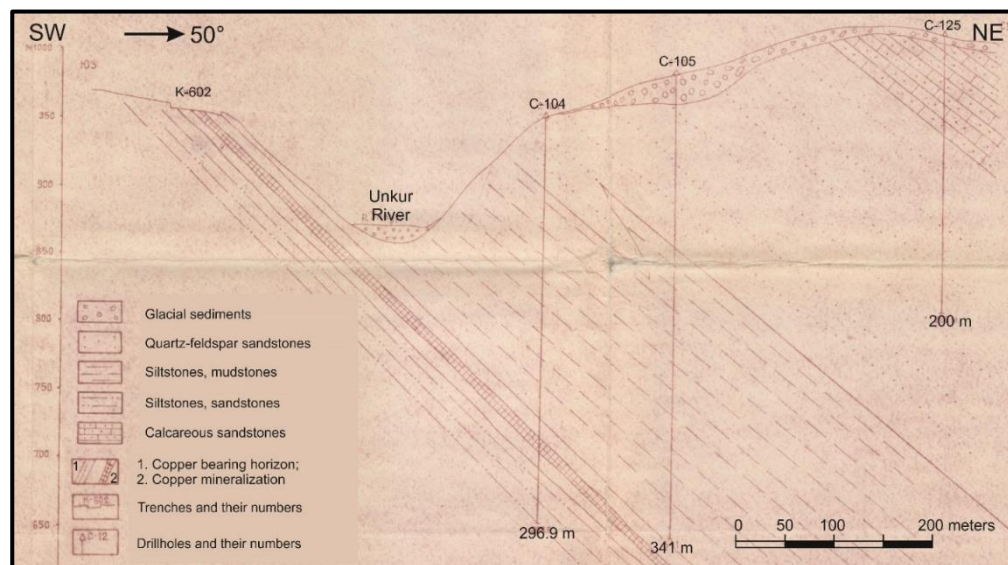


## 7.4 MINERALIZATION

The main copper-bearing horizon (Zone 1) was initially identified and traced in the south-western limb of the Unkur syncline. It is confined to weakly metamorphosed deposits of the Lower Sakukanskaya subformation. Stratigraphically, the position of the copper-bearing horizon is 80 to 100 m above the base of the Sakukanskaya formation. Copper oxide minerals among Pleistocene sediments are a possible indicator of the location of the horizon on the opposite (northeast) limb of the Unkur syncline.

The Zone 1 horizon dips northeast at 45 to 60° (Figure 7.3), and has been traced along the strike for 4.6 km, including a 3 km length of drillhole and trench intersections. The maximum drillhole intersection depth is 300 m. The true thickness of the horizon ranges from 7 to 50 m.

**Figure 7.3 Typical Geological Cross-Section, Central Part of the Unkur Project**



Source: modified by SRK from Mulnichenko (1972)

The main copper-bearing horizon is composed of carbonate and non-carbonate sandstone and siltstone. A rhythmical-layered structure is characteristic of the horizon. This rhythmicity is from the alternation of carbonate and non-carbonate sandstones and siltstones. The true thickness of the layers varies from 1 to 40 m.

Geophysical methods have traced a high polarizability copper-bearing horizon under moraine sediments for 4 km.

Radioactivity of the Udokan Series in the Unkur area is low.

The recent sampling by Azarga has not defined a consistent, continuous high-grade zone within the overall mineralised zone, but there is a general tendency for the highest grades (greater than 0.5% copper) to be concentrated near the centre of intersections instead of at the edges. At a larger scale, the northern part of the deposit (north of 6302300N) tends to be higher grade than the southern part, and the relatively high grade and thick intersection in drillhole AM-001 coincides with a

change in strike, from approximately northwest-southeast, to approximately north-south (Figure 7.3).

Sulphide copper minerals comprise chalcopyrite, pyrite, bornite, chalcocite and covellite. Oxide minerals include malachite and brochantite. Accessory minerals include magnetite, hematite and ilmenite.

A hypogene zonation is noted in the distribution of the copper minerals: a chalcopyrite-pyrite-bornite association is found in the centre; either side of this there is a monomineral chalcopyrite association, and then a distal pyrite association at the edges of the mineralized zone.

The weathered zone is poorly developed, to a depth of 5 to 10 m from surface. Copper oxide minerals are also observed at deeper levels in fractured zones.

The mineralized zone is displaced by northeast-striking fault and breccia zones. The displacements are typically 20 to 70 m, but for some faults displacements are as much as 150 m.

Below the copper-bearing horizon are pyritized calcareous sandstones and siltstones; above the horizon are sandstones and siltstones of the upper part of the Lower Sakukanskaya subformation.

Based on samples collected by Azarga from drillholes, trenches and outcrops, a second mineralised horizon (Zone 2) has been identified to the west, stratigraphically 100 to 150 m below Zone 1. The sparse information available so far for Zone 2 suggest that this zone has a similar orientation, thickness, intensity and mineralogy to Zone 1.

## 8.0 DEPOSIT TYPES

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The Unkur deposit is interpreted as a sediment-hosted stratiform copper deposit. This geological model is considered appropriate for the deposit because of the following observations:

- There is a clear stratigraphic control on copper mineralisation, which is confined to the upper part of the Lower Sakukanskaya subformation.
- Several sedimentary features (such as cross-bedding, wave rippling and desiccation cracks) imply a shallow and relatively low-energy depositional environment. This facies type is a key requirement for many models of other stratiform copper deposits.
- There is an absence of obvious igneous or structural first order controls on mineralisation. The faulting in the Project area generally appears to be post-mineralisation.
- There is a simple copper mineral composition, which is characteristic of sandstone-hosted copper deposits.

The nearby Udokan copper deposit is also an example of a sediment-hosted stratiform copper deposit. Globally, other prominent examples of this deposit type are the Dzhezkazgan copper deposits in Kazakhstan, the Zambian copper belts, and the Kupferschiefer in Central Europe.

## 9.0 EXPLORATION

### 9.1 CHANNEL SAMPLING OF TRENCHES AND OUTCROPS

Azarga collected channel samples from two exposures of the mineralised zone in the bank of the Unkur River, and from four sites of historical trenching that were cleared to re-expose the bedrock. In total, 67 m of samples were collected from the outcrops, and 186 m from the trenches. The locations of these sampling sites are shown in red (trenches) and blue (outcrops) in Figure 10.2. Sampling was done on 1 m lengths, with a nominal width of 5 cm and depth of 3 cm. Sample locations were derived based on several hand-held global positioning system (GPS) measurements along each sampling profile.

The outcrop channel samples were approximately orientated along the strike of the mineralisation, and the irregular outcrop surface meant that it was difficult to obtain a consistent sample width and depth. For the Mineral Resource estimation, the outcrop sampling was used as a guide for projecting the interpreted mineralisation contacts to surface, but the outcrop samples themselves were not directly used for the geostatistical estimation of grade.

The trenches are oriented on azimuths approximately perpendicular to the mineralisation. The trench sampling information was merged into the drillhole database, effectively as a set of horizontal drillholes. Three of the trenches intersected copper-silver mineralisation (Table 9.1). None of the samples from trench K801 returned results indicating significant copper-silver mineralisation. The channel samples from the trenches, which the QP considers to be similarly reliable and representative as samples obtained from drill core, were used for both modelling the contacts of the mineralisation domains, and for the geostatistical grade estimation within these domains.

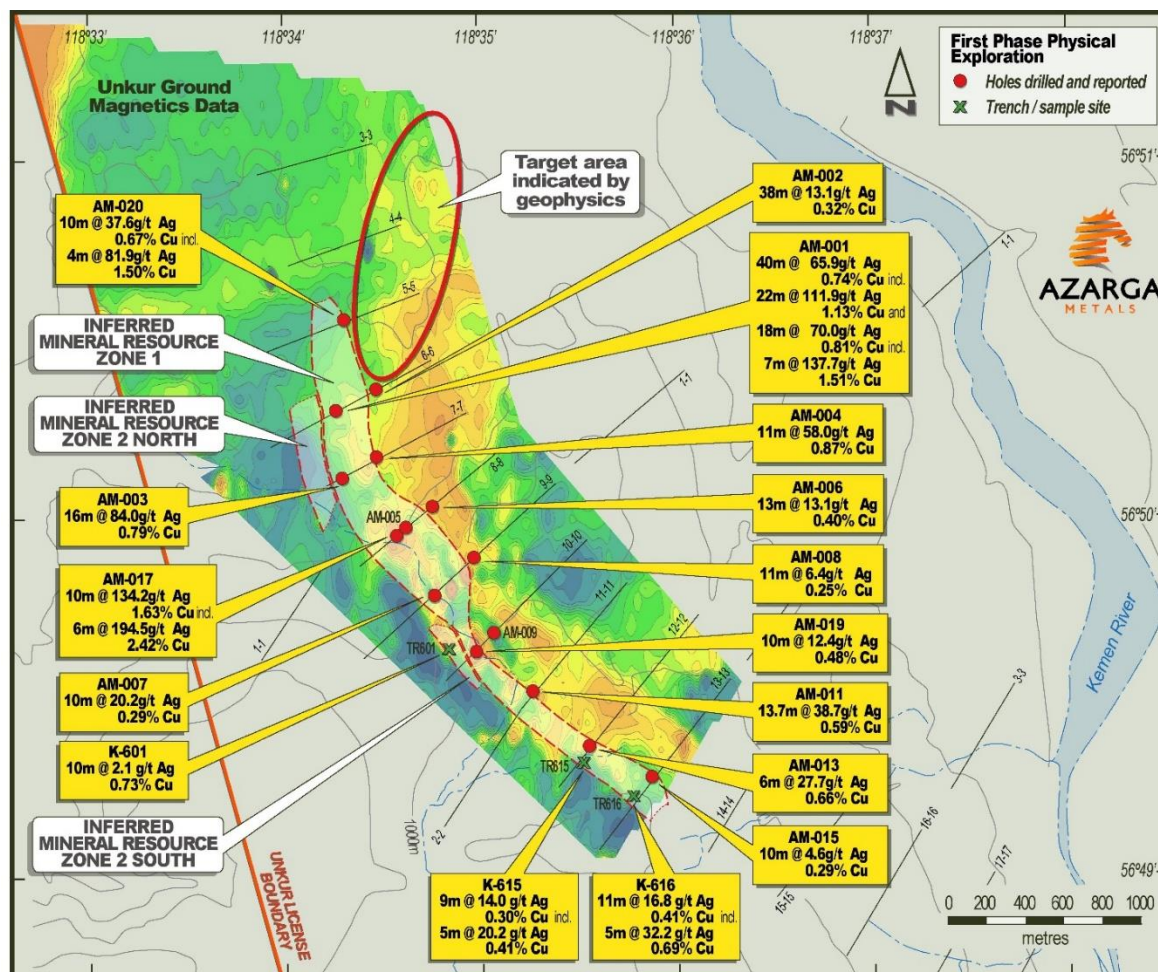
**Table 9.1 Trench Intersections used for Mineral Resource Estimation**

Trench ID	Zone Intersected	From (m)	To (m)	Length (m)	Cu (%)	Ag (ppm)	True Thickness (m)
K601	Zone 2	0	10	10	0.73	2.07	8.7
K615	Zone 1	8	17	9	0.30	14.03	6.9
K616	Zone 1	18	29	11	0.41	6.32	8.1

### 9.2 GROUND MAGNETIC SURVEY

Approximately 130 line kilometres of detail ground magnetics data were collected during Azarga's first phase exploration program (Figure 9.1). The results show that copper-silver mineralisation is associated with a strong magnetic signature and that ground magnetics may be useful targeting tool on the Project.

**Figure 9.1** Ground Magnetic Survey Results with Selected Drillholes Overlaid and Targets for Future Exploration Phases Highlighted



Source: Azarga (2017)



## 10.0 DRILLING

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The main source of information for the Mineral Resource estimate presented in this report is 4,580 m of diamond core drilling (from 16 drillholes) completed during Azarga's exploration campaign from August 2016 until February 2017. Section lines for drilling are spaced approximately 300 m apart. Where there are two Zone 1 intersections on the same drill section, the spacing between intersections is typically 200 to 300 m.

### 10.1 TYPE AND EXTENT

Summary information for individual holes and intersections is listed in Table 10.1 and Table 10.2. Figure 10.2 shows a plan of the collar locations, and representative sections are presented in Figure 10.3, Figure 10.4 and Figure 10.5.

The holes were drilled by two Christensen CS14 rigs. Core was collected on 3 m drilling lengths, using a double tube core barrel. Drilling through the loose sediments of the moraine was done at PQ diameter. The hole diameter was reduced to NQ, or (less frequently) HQ, for drilling the bedrock. Hole collars were surveyed using a hand-held GPS device. The down hole orientation was surveyed using an IMMN-42 magnetometric inclinometer.

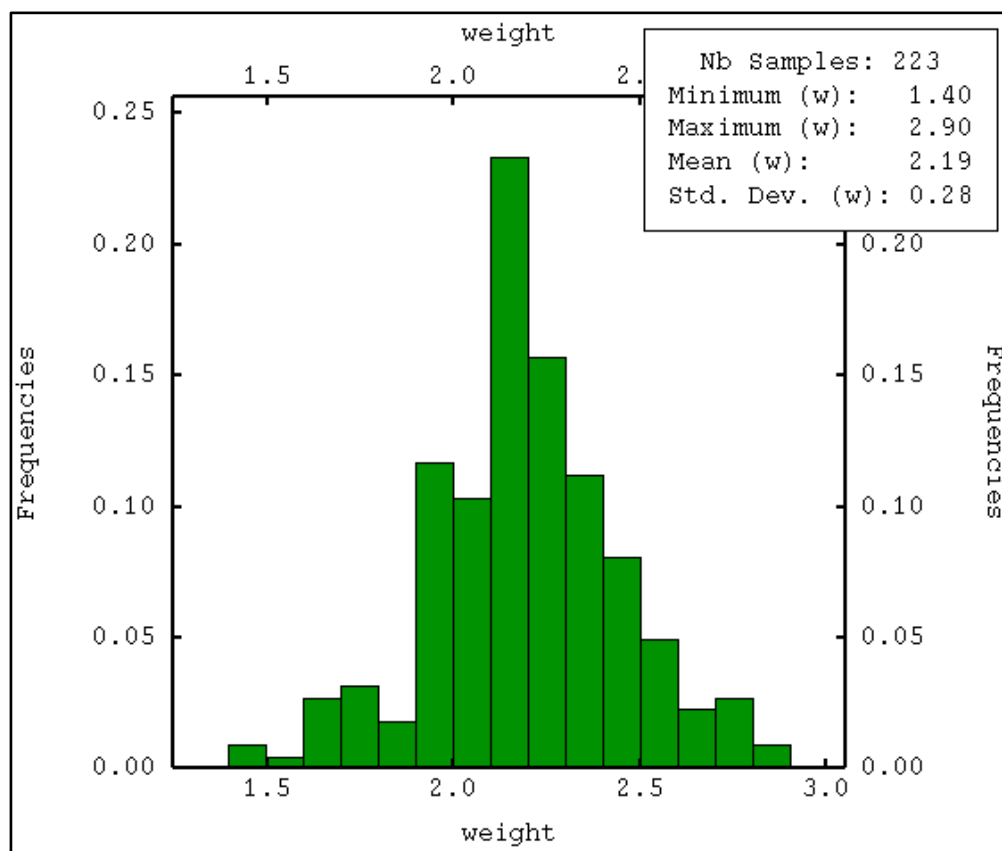
### 10.2 FACTORS THAT COULD MATERIALLY AFFECT THE ACCURACY AND RELIABILITY OF RESULTS

SRK has considered drilling, sampling and recovery factors that could materially affect the results from Azarga's sampling. The core from the mineralised zones is often very broken, so it is often not practical to estimate recovery by piecing together the fragments and measuring the length. Instead, recovery can be estimated based on sample weight. The mean weight of 1 m half core samples from the Zone 1 domain is 2.2 kg (Figure 10.1). The theoretical weight of a 1 m half core sample, at NQ diameter, with a density of 2.67, is 2.4 kg. Therefore, the average recovery from the mineralised zone is approximately 90%. Given the style and grade of mineralisation at Unkur, SRK considers this recovery to be sufficient for the samples to support Mineral Resource estimation.

### 10.3 SRK COMMENTS

In the opinion of SRK, the sampling procedures used by Azarga are consistent with generally accepted industry best practice. All drilling sampling was conducted under the direct supervision of appropriately qualified geologists. Accordingly, there are no known drilling, sampling or recovery factors that could materially impact the accuracy and reliability of the results.

**Figure 10.1 Histogram of Sample Weights for 1 m Samples from Zone 1 Mineralised Domain**



**Table 10.1 Drillhole Location, Maximum Depth, and Orientation**

Hole ID	Collar Coordinates (Pulkovo 42 datum, Zone 20)			Maximum Depth (m)	Starting Dip (°)	Starting Azimuth (°)
	X	Y	Z			
AM-001	20595871	6303108	930	400.5	-69	241
AM-002	20596077	6303227	919	520.5	-70	248
AM-003	20595911	6302753	931	100.0	-72	242
AM-004	20596093	6302871	936	382.9	-70	242
AM-005	20596247	6302510	914	160.0	-71	241
AM-006	20596388	6302620	955	572.0	-69	221
AM-007	20596411	6302155	928	80.0	-70	222
AM-008	20596611	6302365	1008	601.3	-72	228
AM-009	20596725	6301968	983	238.0	-69	224
AM-011	20596936	6301672	952	178.5	-68	223
AM-013	20597233	6301394	996	100.0	-68	220
AM-015	20597567	6301246	1042	201.0	-68	217
AM-017	20596211	6302467	916	277.5	-71	230
AM-018	20595635	6302977	938	256.6	-73	241
AM-019	20596639	6301879	939	226.7	-69	224
AM-020	20595906	6303578	903	284.9	-70	249

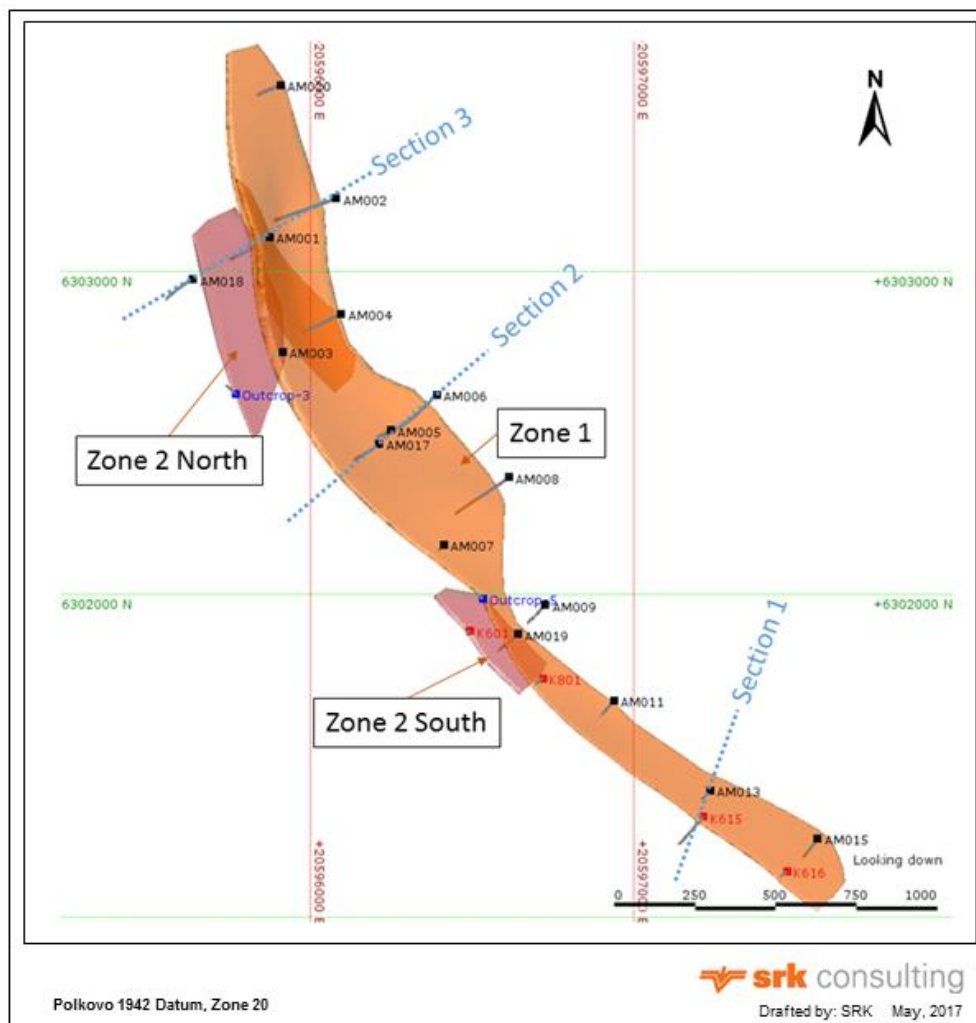
**Table 10.2 Drillhole Intersections used for Mineral Resource Estimation**

Hole ID	From (m)	To (m)	Length (m)	Composite Grades		True Thickness (m)
				Cu (%)	Ag (ppm)	
AM-001*	82.5	125.5	33.0	0.83	79.81	20.1
AM-002	432.5	472.5	40.0	0.31	12.77	33.8
AM-003**	40.5	77.5	37.0	0.43	39.63	26.9
AM-004***	319.5	358.5	31.0	0.44	27.23	23.7
AM-006	440.5	456.5	16.0	0.34	11.02	14.4
AM-007	47.0	60.0	13.0	0.25	17.12	10.9
AM-008	352.3	364.3	12.0	0.24	6.02	9.9
AM-011	145.5	153.9	8.4	0.92	61.73	7.3
AM-013	70.0	78.0	8.0	0.53	22.62	6.8
AM-015	135	145.0	10.0	0.29	4.55	8.7
AM-017	189.5	202.5	13.0	1.28	103.91	9.8
AM-019	39.0	49.0	10.0	0.48	12.39	8.6
AM-020	227.0	241.0	14.0	0.51	28.44	10.6
<b>Zone 2 (N)</b>						
AM-001	311.5	346.5	35.0	0.47	43.49	24.5
AM-019	106.0	119.0	13.0	0.17	4.99	9.1

Notes: \*AM-001 mineralisation begins at base of moraine, possibly intersection has been truncated by glacial erosion. Composite excludes barren zone from 104.5 to 114.5.  
 \*\*AM-003 mineralisation begins at base of moraine, possibly intersection has been truncated by glacial erosion.  
 \*\*\*AM-004 composite excludes barren zone from 335.5 to 343.5.

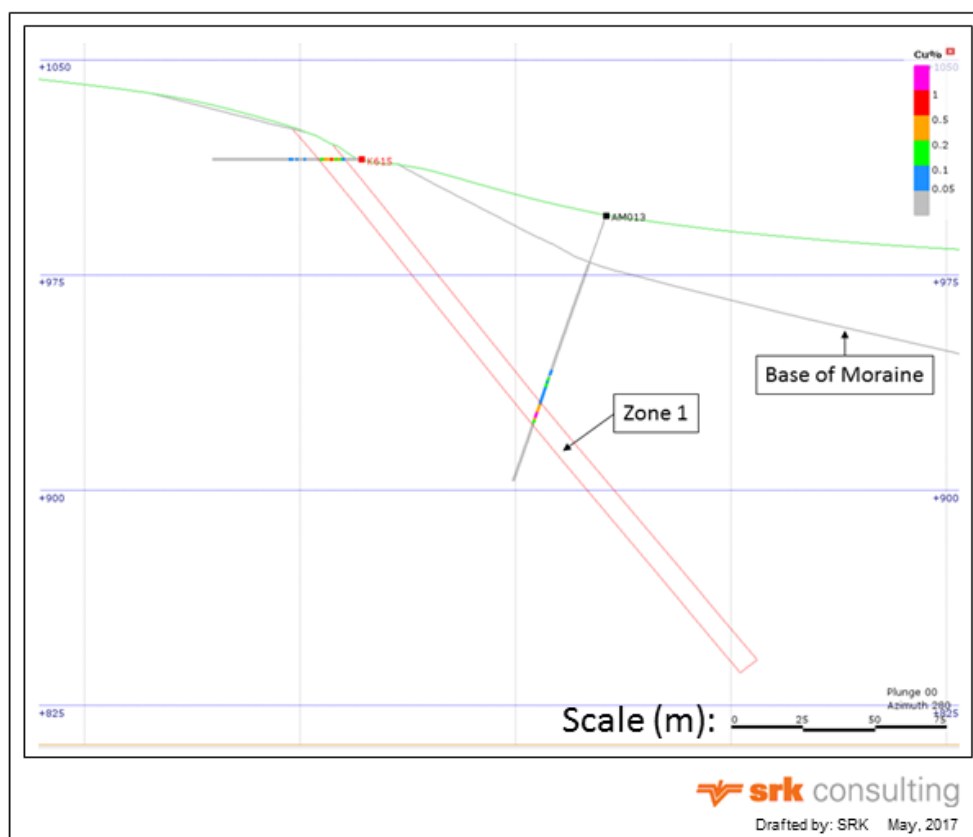


**Figure 10.2 Plan Showing Collar Locations and Drillhole Traces in Relation to Modelled Mineralisation Domain**



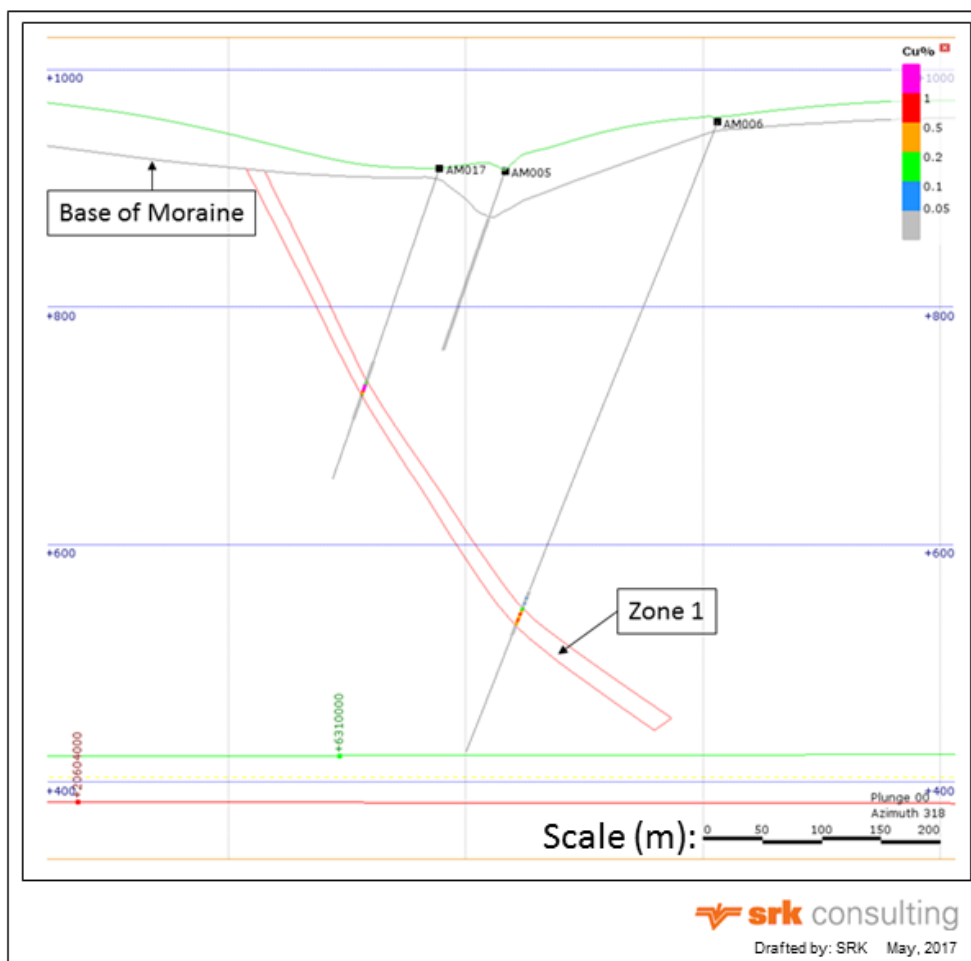
Source: SRK (2017)

**Figure 10.3 Vertical Cross Section 1. View Looking Northwest. Section Width 50 m**



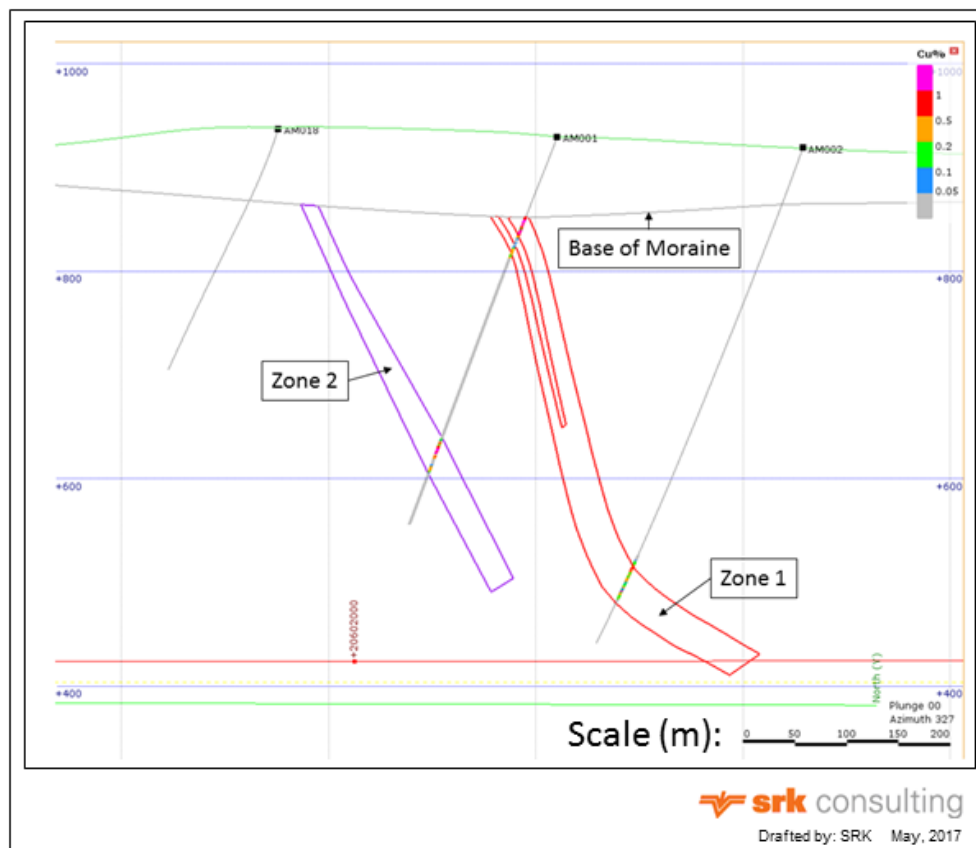
Source: SRK (2017)

Figure 10.4 Vertical Cross Section 2. View Looking Northwest. Section Width 50 m



Source: SRK (2017)

**Figure 10.5 Vertical Cross Section 3. View Looking West-northwest. Section width 50 m**



Source: SRK (2017)

## 11.0 SAMPLE PREPARATION, ANALYSIS AND SECURITY

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### 11.1 SAMPLE PREPARATION ON SITE

Core trays were transported from the rigs to Azarga's exploration camp. This transportation distance was up to 3 km. All core was digitally photographed. Intervals identified by the geologists as likely to be mineralised were selected for sampling, and the sampling interval was extended for at least 10 m beyond the limits of the identified mineralisation. Hand-held XRF measurements were used as a further check, to ensure that all mineralised zones were identified for sampling. Several hand-held XRF readings of copper content were taken within each meter of core. XRF copper readings were used as a logging tool, not in the Mineral Resource estimate calculations.

Core selected for sampling was cut with a core saw. Sample lengths were nominally 1.0 m, but adjustments to the lengths were made in order to honour geological boundaries. The minimum sample length was 0.4 m and the maximum length was 1.3 m. Half-core from the intervals selected for sampling was dispatched by road to SGS. Trays of the retained half core were closed with covers, marked, and stored at Azarga's exploration camp.

### 11.2 SAMPLE PREPARATION AND ANALYSIS AT LABORATORY

The primary laboratory used for analysing Azarga's samples is SGS Vostok Limited in Chita. The laboratory is independent from Azarga, and has International Organization for Standardization (ISO)/International Electrotechnical Commission (IEC) 17025 certification for the specific procedures used.

Samples received by SGS were dried at  $105 \pm 5^{\circ}\text{C}$ . Samples up to 4 kg were then crushed to 85% passing 2 mm, and ground to 90% passing 0.7 mm. Sieving checks were done on 3 to 5% of the samples. Samples more than 4 kg went through the same crushing stage, but were split to 4 kg before proceeding to the grinding stage.

A subsample of 0.5 to 1.0 kg was collected using a rotary splitter. This subsample went through a further stage of fine grinding, to 95% passing 75  $\mu\text{m}$ . A 50% split of this subsample (250 to 500 g) was used for analysis.

SGS analysed the samples for copper and silver. The copper content was determined by SGS method ICP90A (sodium peroxide fusion, then inductively coupled plasma - atomic emission spectroscopy). The silver content was determined by SGS method AAS12E (two acid digest, then atomic absorption spectroscopy).

## 11.3 QUALITY CONTROL/QUALITY ASSURANCE

### 11.3.1 CERTIFIED REFERENCE MATERIALS

Among the samples submitted to SGS for analysis, Azarga included control samples from four different certified reference materials (CRMs). These CRMs were prepared by laboratory Udokanskaya Med, and certified by the institute VIMS. The results from these samples are summarised in Table 11.1. Compared to the 1,799 primary samples analysed by SGS, the 73 analyses of CRMs represent a submission rate of 4%.

The set of results from analyses of the CRMs do not show any biases significant enough to cause material concerns about the suitability of the assay database for Mineral Resource estimation.

**Table 11.1 Summary of Results from Analyses of Certified Reference Materials**

Quality Control Sample ID	Certified Value	Number of Analyses by SGS	Mean SGS Analysis	Median SGS Analysis	Minimum SGS Analysis	Maximum SGS Analysis
29-13	0.62% Cu 4.65 g/t Ag	14	0.60% Cu 4.3 g/t Ag	0.61% Cu 4.5 g/t Ag	0.54% Cu 0.3 g/t Ag	0.62% Cu 5.0 g/t Ag
30-13	1.62% Cu 12.4 g/t Ag	14	1.59% Cu 11.7 g/t Ag	1.60% Cu 11.6 g/t Ag	1.49% Cu 11.1 g/t Ag	1.69% Cu 12.6 g/t Ag
31-13	2.62% Cu 22.7 g/t Ag	20	2.57% Cu 21.4 g/t Ag	2.58% Cu 21.3 g/t Ag	2.38% Cu 20.3 g/t Ag	2.69% Cu 22.7 g/t Ag
32-13	<0.02% Cu <0.2 g/t Ag	25	0.01% Cu 0.3 g/t Ag	0.01% Cu 0.2 g/t Ag	0.01% Cu 0.2 g/t Ag	0.01% Cu 0.9 g/t Ag

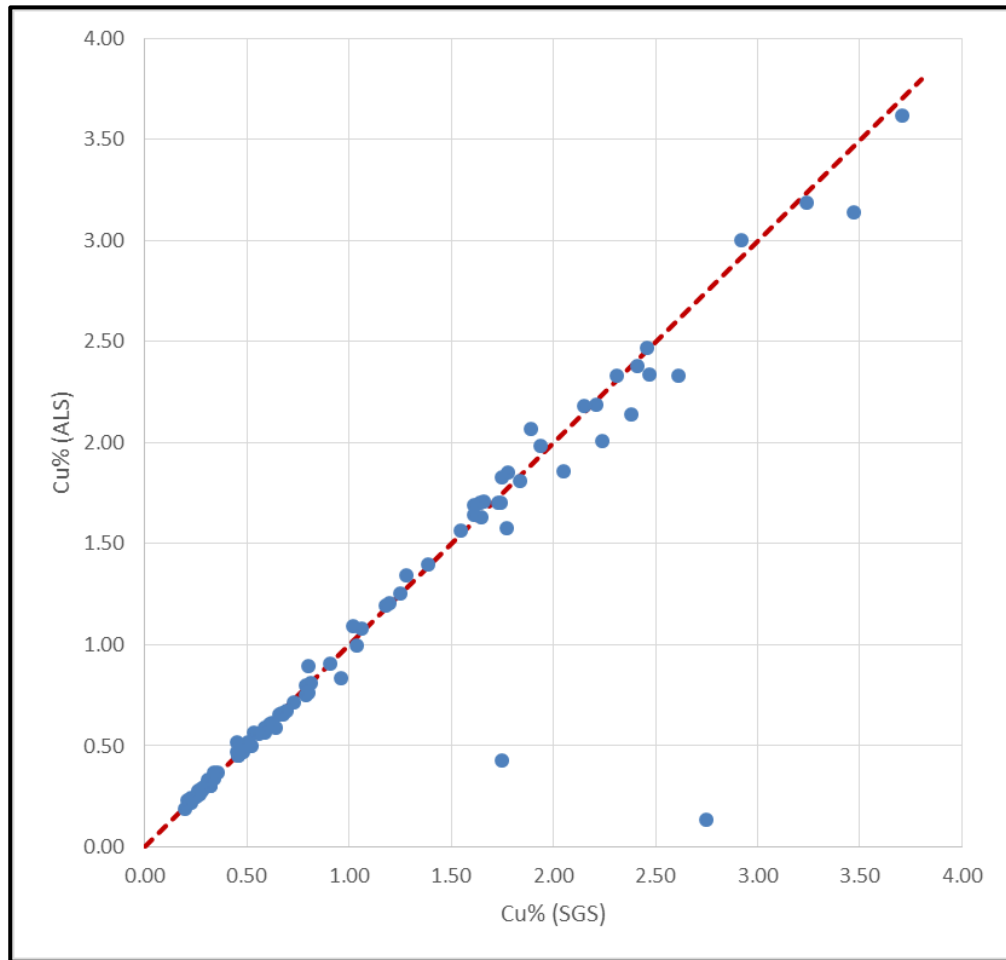
### 11.3.2 CHECK ASSAYS BY AN UMPIRE LABORATORY

From the pulps prepared by SGS, 90 samples were submitted to ALS laboratories in Chita. ALS is independent from Azarga and has ISO/IED 17025 certification for the specific procedures used. These check assays represent a submission rate of 5% (compared to the 1,799 primary samples). The ALS analytical method was ME-ICP41 (nitric aqua regia digestion, then inductively coupled plasma - atomic emission spectroscopy). In the results received by Azarga, only the copper content was reported.

The paired ALS and SGS results are plotted in Figure 11.1. For SGS results above 1.5%, several of the corresponding ALS results are notably lower, and for two samples the differences are large. A possible explanation for this difference is that the nitric aqua regia digestion used by ALS is a less complete sample decomposition method than the sodium peroxide fusion used by SGS.

The difference between the ALS and SGS results should be monitored as further samples are collected from future exploration campaigns, but, from the current set of check assays, SRK's opinion is that the differences are neither sufficiently large nor frequent to inhibit using the assay database for mineral resource estimation.

**Figure 11.1 ALS Check Assays on Pulp Samples from SGS**



## 11.4 SRK COMMENTS

In SRK's opinion, the sample preparation, security and analytical procedures used by Azarga are consistent with generally accepted industry best practices and are, therefore, adequate for the purpose of Mineral Resource estimation.



## 12.0 DATA VERIFICATION

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### 12.1 DATA VERIFICATION BY THE QUALIFIED PERSON

The QP visited site on December 10, 2014, and October 13, 2016. The 2016 visit included a visit to the primary assay laboratory (SGS in Chita) the following day.

The QP has verified the database the Mineral Resource estimate is based on. This verification was done by personal inspection of drill core, drill sites and trenches during the 2016 site visit, by analysing the results from quality control samples, and by checking database content against primary data sources and historical information.

### 12.2 LIMITATIONS ON DATA VERIFICATION

During the 2014 site visit, SRK visited an old core storage facility (Figure 12.1) and inspected the state of the historical core (Figure 12.2). The historical sampling could not be verified because of the poor condition of the core, due to poor recovery during drilling, deterioration of the core and core trays over the subsequent four decades, and collapse of the core storage shed. Also, it appears that the intervals of most interest (the mineralised intersections) were generally entirely consumed by sampling during the historical exploration programs.

Because of the limitations on the confidence in the quality of the historical data, this information was not used by SRK to prepare the Mineral Resource Estimation.

**Figure 12.1 Old Core Storage, the Unkur Project**



Source: SRK, December 2014

**Figure 12.2 Core Recovered from Hole C-118**



Source: SRK, December 2014

### **12.3 ADEQUACY OF DATA FOR THE PURPOSES USED IN THIS TECHNICAL REPORT**

The quantity and quality of data collected by Azarga are sufficient to support estimation of Mineral Resources.

## 13.0 MINERAL PROCESSING AND METALLURGICAL TESTING

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No additional mineral processing and metallurgical testing has been completed since the last report filed. Please refer to SRK report titled *Technical Report for the Unkur Copper-Silver Deposit, Kodar-Udokan Area, Russian Federation*, dated 31<sup>st</sup> March 2017, for further details.

## 14.0 MINERAL RESOURCE ESTIMATES

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### 14.1 SUMMARY

Tetra Tech completed a new Mineral Resource estimate for the Unkur deposit, with an effective date of 7<sup>th</sup> March 2018. The most recent data included in the estimate was received on 7<sup>th</sup> March 2018. Mr. Joseph Hirst, BSc (Hons), MSc, EurGeol, CGeol, an independent QP as defined by NI 43-101, estimated the Mineral Resources.

### 14.2 UNKUR MINERAL RESOURCE ESTIMATE

#### 14.2.1 SUMMARY OF ESTIMATION TECHNIQUES

Tetra Tech produced a set of wireframes to represent the mineralisation in Leapfrog Geo, which were imported as .dxf files into Datamine Studio 3 (version 3.24). The wireframes were created to represent mineralised bodies, and represent two discrete mineralised areas. Block modelling and Mineral Resource estimation was completed in Datamine.

The metal grades for the Unkur deposit were estimated using the ID<sup>2</sup> interpolation method. Density was applied as a global value to convert the volume to a tonnage.

Statistical and grade continuity analyses were completed in order to characterise the mineralisation, and were subsequently used to develop grade interpolation parameters. The search ellipsoid dimensions and orientations were chosen to reflect the continuity from geostatistical studies. Block size, discretisation, search size, and sample numbers were optimised using QKNA.

Tetra Tech adopted the definition of Mineral Resources as outlined within CIM guidelines in order to classify the Mineral Resources.

In order to demonstrate that the deposit has reasonable prospects for eventual economic extraction, a cut-off grade of 0.3% of copper equivalent was applied for Mineral Resources within the mineralised interpretation.

#### 14.2.2 DATABASE

Azarga provided Tetra Tech with its exploration database, in the form of Microsoft® Access database, which were exported to separate .csv files by Tetra Tech prior to importing into Datamine. The sheets used were:

- collars
- surveys
- assays

- domain flag
- sample id.

The database includes information from drillholes logged, sampled, and analysed during the recent exploration period, and does not include historical sampling. See Sections 9.0 and 10.0 for details.

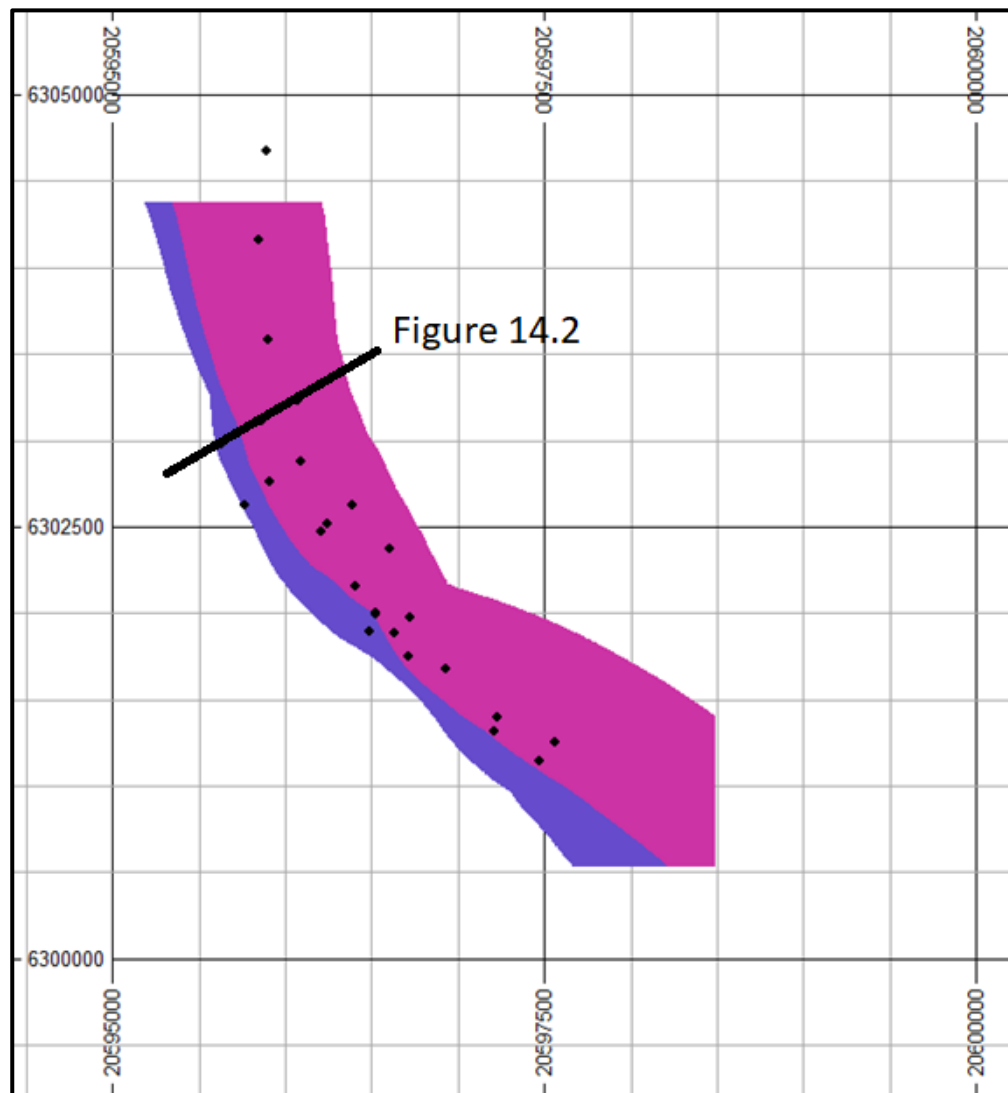
The updated Mineral Resource for Unkur is based on additional geological study of the mineralised structures, and a reinterpretation of the block model parameters in order that a PEA can be completed on the Mineral Resource by Tetra Tech in May 2018.

Additionally, the update to the Unkur Resources will inform an updated infill drilling programme to target areas that require further investigation, as well as identifying more prospective mineralisation along the strike of the deposit. It is thought that there are additional stratabound mineralised structures, which may be identified with infill drilling, that will help the overall mining scenario tested in the PEA.

### 14.2.3 GEOLOGICAL INTERPRETATION

Figure 14.1 illustrates the mineralised domain wireframes that have been modelled for Unkur.

**Figure 14.1 Plan View of Mineralised Domains at Unkur with Collar Locations**

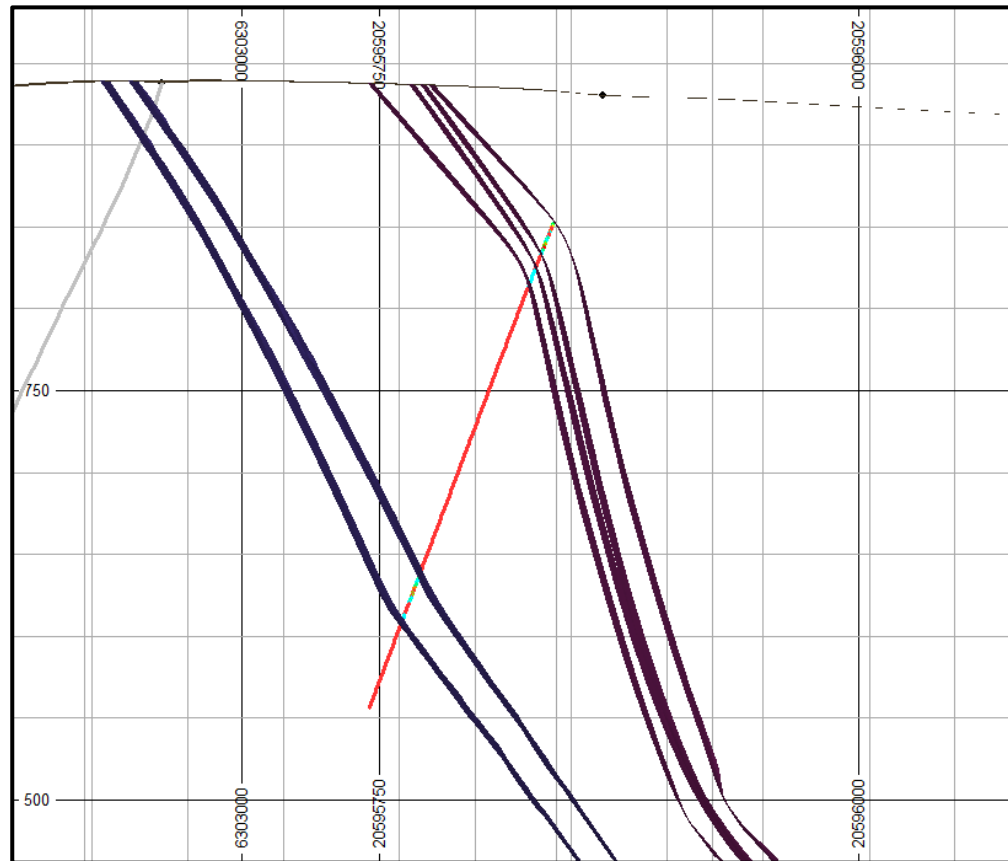


Scale: Major grid interval 2,500 m  
Source: Tetra Tech

#### **14.2.4 WIREFRAME MODELLING**

Wireframe models were created in Leapfrog Geo by creating implicit model controls to link samples. The models were created based upon interval selections that referenced the copper grades, silver grades, lithological descriptions, and structural interpretation. Grades greater than 0.2% copper equivalent were linked together between each drill-section. The strike extrapolation was allowed to continue some distance past the last drill data on the basis that the final constraint would be applied during the estimation and classification process. The continuity of the various structures is reflected in the Mineral Resource classification. Figure 14.2 shows a typical cross section of the mineralisation across the two zones.

**Figure 14.2 West-east Cross Section through Mineralisation (4367800N)**



### 14.2.5 EXPLORATORY DATA ANALYSIS/DOMAINING

The mineralised structures at Unkur has been treated as a single domain within a single mineralising event. Despite being spatially separated, the early stage of the project, and consequently the relatively low amount of data means that the zones have been assessed as one, without conclusive evidence at this stage that they should be treated separately. This has been reflected in the Mineral Resource classification. The exploratory data analysis indicated that there are differences in mineralogy encountered in the mineralisation zones, which control the different grade populations, this is likely a structural control related to the dilation in the jog of a fold.

Various statistical analyses of the data were performed, and are documented in this section.

#### *RAW DRILLHOLE STATISTICS*

Tetra Tech received a total of 1,569 metal assay results from a series of 1,982 m of sampling.

Analysis for copper, and silver was completed for most of these samples.

Table 14.1 presents the statistics for all raw copper and silver assays.

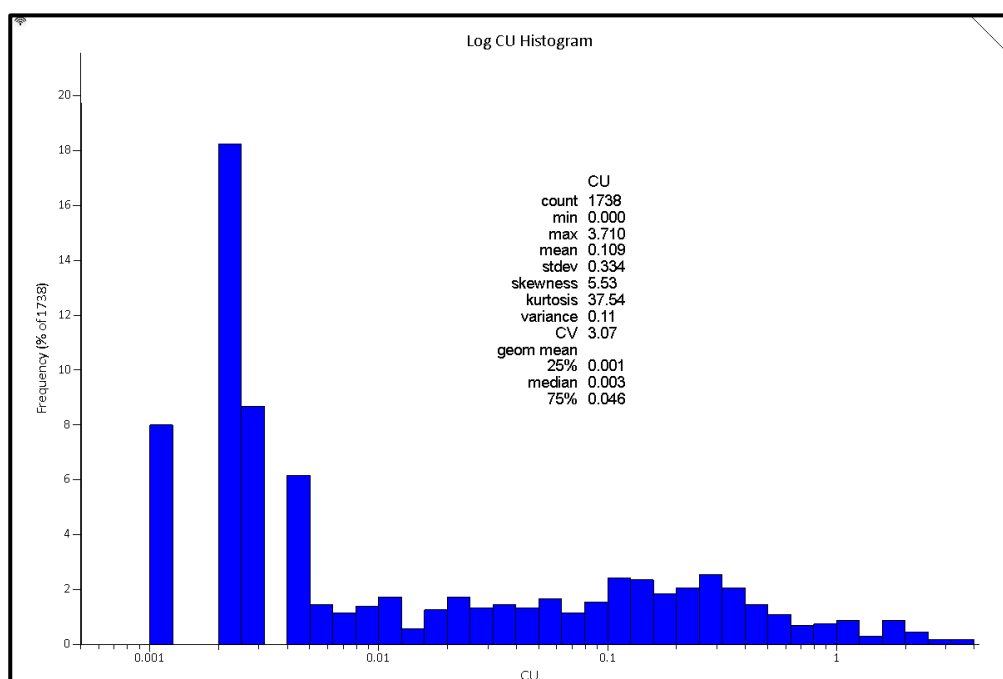


**Table 14.1 Raw Drillhole Statistics**

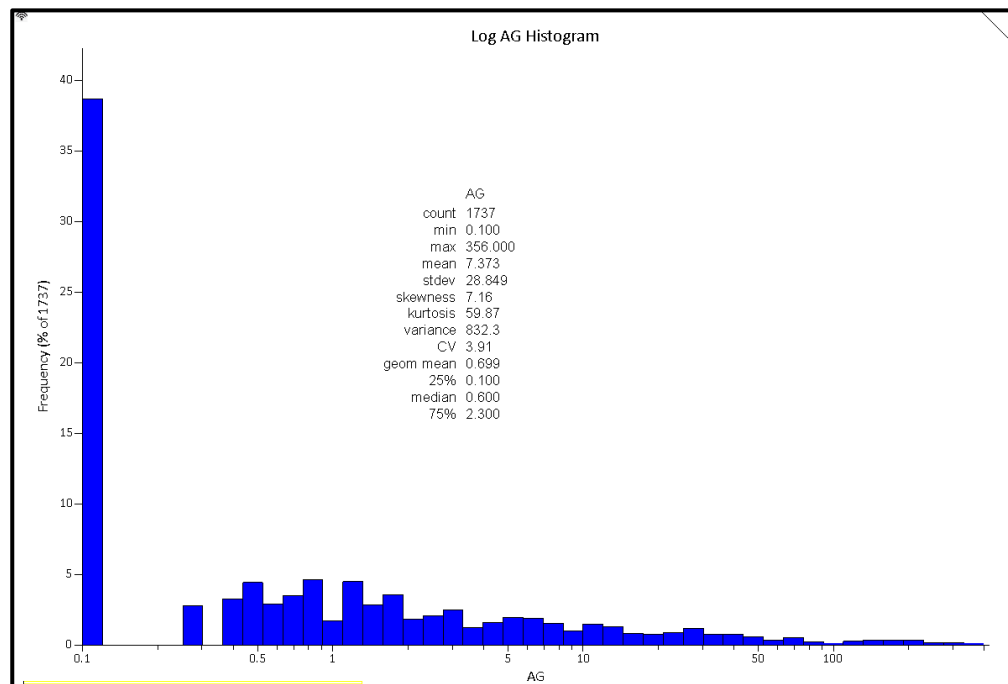
Field	Cu	Ag
Count	1738	1737
Minimum	0	0.1
Maximum	3.71	356
Mean	0.109	7.373
Variance	0.11	832.3
Standard Deviation	0.334	28.849
Standard Error	3.07	3.91
Skewness	5.53	7.16
Kurtosis	37.54	59.87
Geometric Mean	-	0.699

Statistical analysis of raw samples presents mixed grade populations (Figure 14.3 Figure 14.4). After assessment, there was not enough data to attempt resolving the populations into domains.

**Figure 14.3 Log Histogram of all Raw Samples - Cu**



**Figure 14.4 Log Histogram of all Raw Samples - Ag**

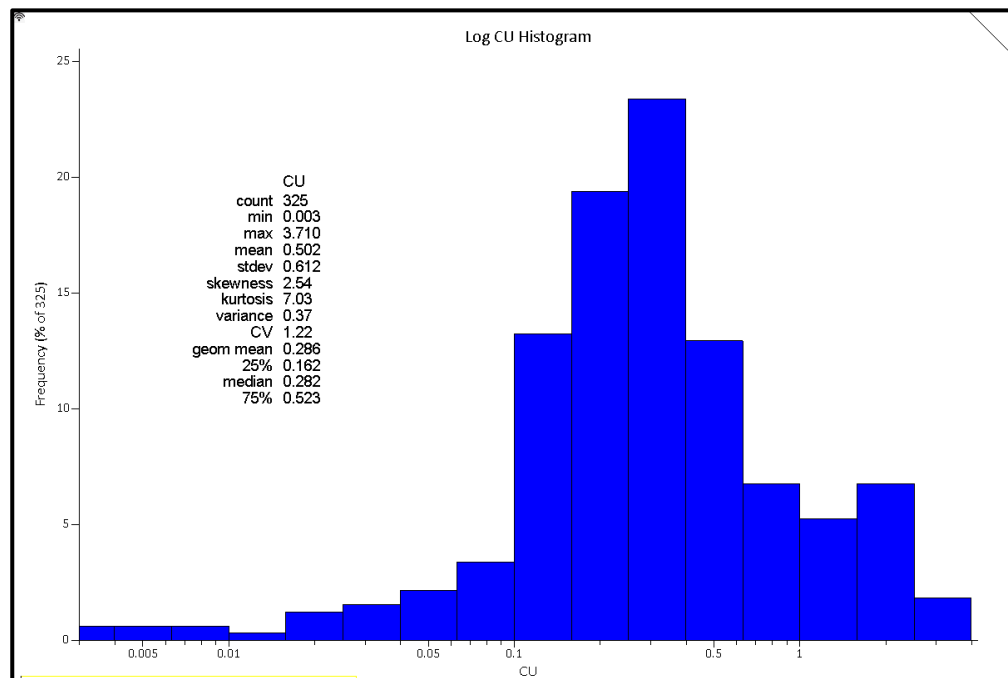


Statistics for the Unkur mineralised samples are presented in the log histogram plots in Figure 14.5, Figure 14.5, and descriptive statistics in Table 14.2.

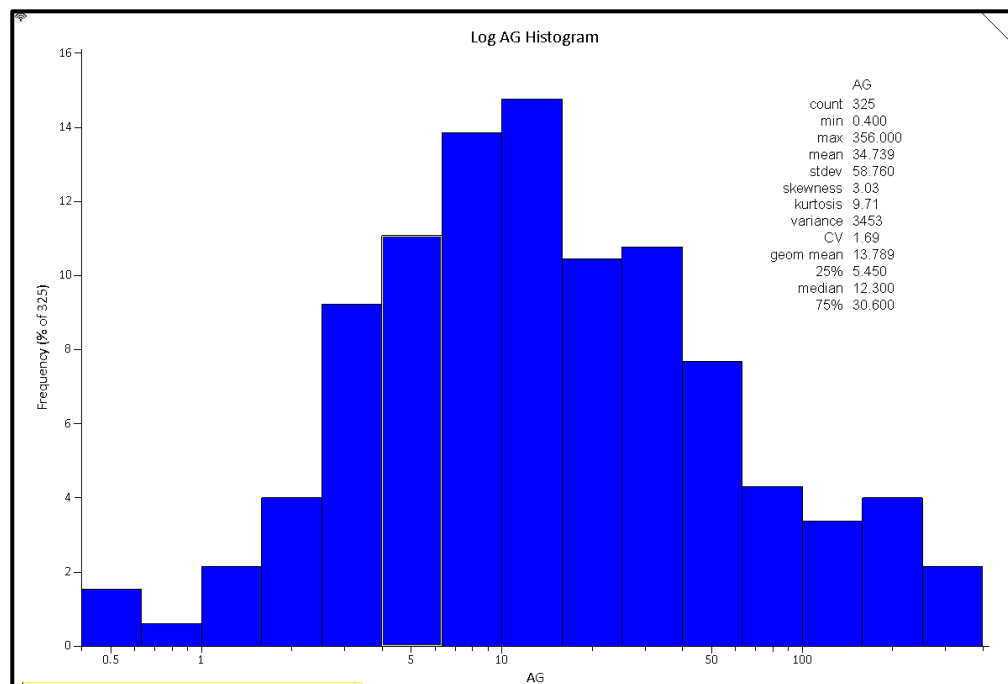
**Table 14.2** Descriptive Statistics for Selected Samples

Metal	Domain	Count	Minimum	Maximum	Mean	Variance	Standard Deviation	Coefficient Of Variation	Skewness	Kurtosis	GeomMean	Median
CU	All	325	0.003	3.71	0.502	0.37	0.612	1.22	2.54	7.03	0.286	0.282
CU	1	73	0.003	2.46	0.317	0.22	0.465	1.47	3.05	10.12	0.147	0.158
CU	2	252	0.008	3.71	0.556	0.41	0.639	1.15	2.44	6.39	0.347	0.31
AG	All	325	0.4	356	34.739	3453	58.76	1.69	3.03	9.71	13.789	12.3
AG	1	73	0.6	202	27.911	1771	42.088	1.51	2.75	7.91	12.227	10.7
AG	2	252	0.4	356	36.717	3931	62.701	1.71	2.94	8.84	14.278	12.4

**Figure 14.5 Log Histogram of all Selected Samples - Cu**



**Figure 14.6 Log Histogram of all Selected Samples - Ag**



The wireframe models presented in Section 14.3.3, successfully differentiate the two zones of mineralisation in the main and subordinate zone, from waste material, based on a copper equivalent grade, so as to include silver grades as discrete from the copper minerals, as shown by the reasonably well-developed log histograms (Figure 14.5 and Figure 14.6).

The grade distribution in the log histograms and probability plots associated with the selected raw data are reasonably well developed.

#### *SAMPLE LENGTH AND COMPOSITING*

Statistics on the sample lengths were analysed using histograms and statistics. The samples were overwhelmingly sampled to 1m within the mineralised zones.

Composites were produced for the selected samples at 0.5, 1, 1.5, and 2 m intervals and statistics were run on each length to assess which length best preserved the raw sample characterisation.

A length of 1 m was chosen as it is statistically closer to the raw samples, as well as the standard sampling length, where 1 m samples have overwhelmingly the highest frequency in the data set. Compositing was completed in Datamine using a 1 m best fit routine, applying hard domain boundaries, which forces all samples to be included in one of the composites by adjusting the composite length, while keeping it as close as possible to the selected interval of 1 m.

The compositing routines have been reasonably effective in preserving the grade distribution (Table 14.3).

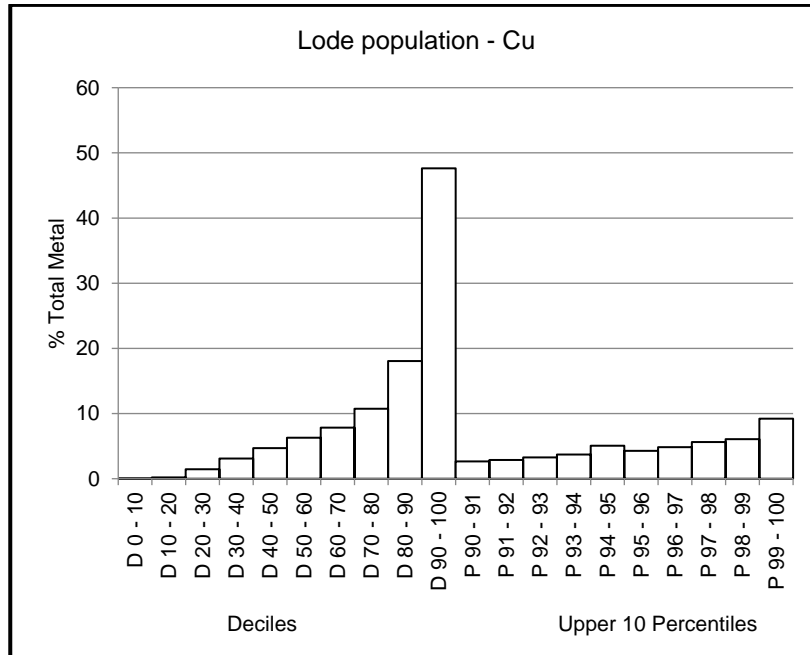
**Table 14.3**      **Table Statistics of Selected Raw Samples and 1 m Composites**

Type	Metal	Domain	Count	Minimum	Maximum	Mean	Variance	Standard Deviation	Coefficient of Variation	Skewness	Kurtosis	GeomMean	Median
Selected	CU	All	325	0.003	3.71	0.502	0.37	0.612	1.22	2.54	7.03	0.286	0.282
Composite	CU	All	343	0	2	0.447	0.26	0.509	1.14	1.9	2.77	NaN	0.265
Selected	CU	1	73	0.003	2.46	0.317	0.22	0.465	1.47	3.05	10.12	0.147	0.158
Composite	CU	1	92	0	2	0.244	0.16	0.402	1.65	3.05	9.97	NaN	0.116
Selected	CU	2	252	0.008	3.71	0.556	0.41	0.639	1.15	2.44	6.39	0.347	0.31
Composite	CU	2	251	0.008	2	0.522	0.27	0.524	1	1.73	1.95	0.342	0.312
Selected	AG	All	325	0.4	356	34.739	3453	58.76	1.69	3.03	9.71	13.789	12.3
Composite	AG	All	343	0	200	30.457	2317	48.131	1.58	2.49	5.51	NaN	11.5
Selected	AG	1	73	0.6	202	27.911	1771	42.088	1.51	2.75	7.91	12.227	10.7
Composite	AG	1	92	0	200	22.05	1526	39.058	1.77	3.06	10.09	NaN	7.3
Selected	AG	2	252	0.4	356	36.717	3931	62.701	1.71	2.94	8.84	14.278	12.4
Composite	AG	2	251	0.4	200	33.538	2578	50.776	1.51	2.34	4.57	14.138	12.45

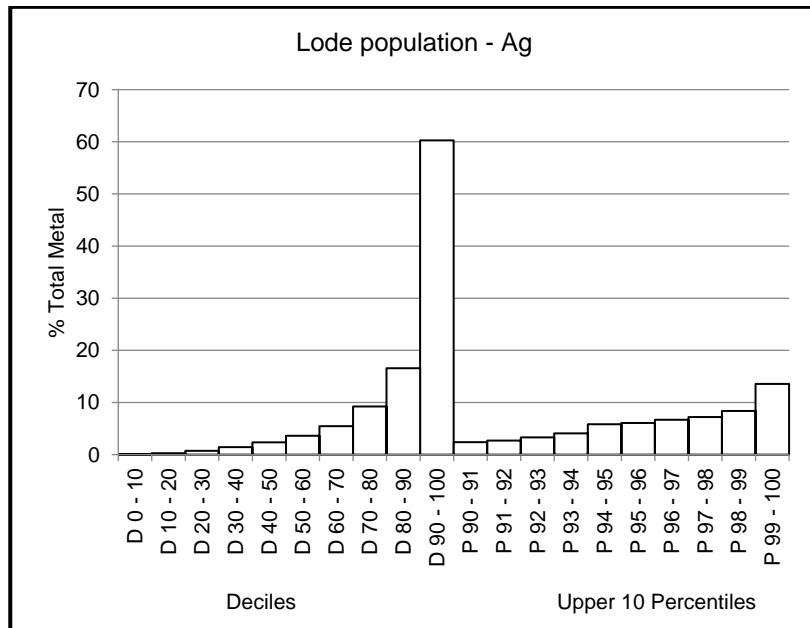
### TOP CUTS

The Parrish method of quantile analysis was performed on the composited samples to assess what proportion of the total metal was represented in the top 10% of the data. The decile analysis (Figure 14.7 and Figure 14.8) indicates that the data has bias in the high-grade bins and therefore a top cut was applied to limit this influence.

**Figure 14.7 Decile Analysis - Cu**



**Figure 14.8 Decile Analysis - Ag**





A top-cut of 2% for copper, and a top-cut of 200 g/t silver was selected to limit the influence of the outlier high grade samples. Fifteen copper and 12 silver assays were cut to the specified ceilings.

#### 14.2.6 DENSITY

Specific gravity measurements were completed by Azarga for the Unkur deposit. A mean value of 2.57 g/cm<sup>3</sup> was used for all blocks, except for the blocks coded as recent, representing glacial moraine, which was given a value of 1.80 g/cm<sup>3</sup>.

#### 14.2.7 VARIOGRAPHY

Variography was attempted for the Unkur data. Tetra Tech considers that with the low number of samples within the mineralised interpretation, and the spacing between those samples, that no spatial continuity exists for the current dataset, i.e. the results of the variographic study were all sill in each tested direction. It is probable that with infill drilling that an assessment of spatial continuity can be made in the future. The absence of any established spatial continuity is reflected in the Resource classification.

#### 14.2.8 RESOURCE BLOCK MODELS

The block model was constructed in Datamine. The non-rotated model block model parameters are given in Table 14.4.

**Table 14.4 Unkur Block Model Parameters**

Type	X	Y	Z
Minimum Coordinates	20594650	6299900	0
User Block Size (m)	25	25	20
Minimum Block Size (m)	5	5	10
Rotation (degrees)	0	0	0

Block size optimisation was performed to balance the mean grade of the declustered samples and the volume of the blocks. The sizes in Table 14.4 were optimum for the dataset and wireframe geometry. Standardised sub-cell splitting to the minimum block sizes was employed to enable subsequent pit optimisation and mine design. Sub-cells received parent cell grades during estimation. The larger parent cell is selected for best estimation performance during the grade interpolation, whilst the smaller sub-cell allows the narrow wireframes to fill with blocks and help to maintain consistency between the final block volumes and the wireframe volume.

#### INTERPOLATION STRATEGY

Grades were estimated using ID<sup>2</sup>, adopting a multi-pass methodology. A summary of the estimation strategy is show in Table 14.5.

**Table 14.5 Estimation Parameters**

Pass Number	Samples Numbers		Search Major (m)	Search Semi-major (m)	Search Minor (m)	Discretisation	Maximum Samples per hole
	Minimum	Maximum					
1	6	12	260	150	50	x3 y3 z3	3
2	3	9	520	300	100	x3 y3 z3	3
3	3	12	1240	600	200	x3 y3 z3	3

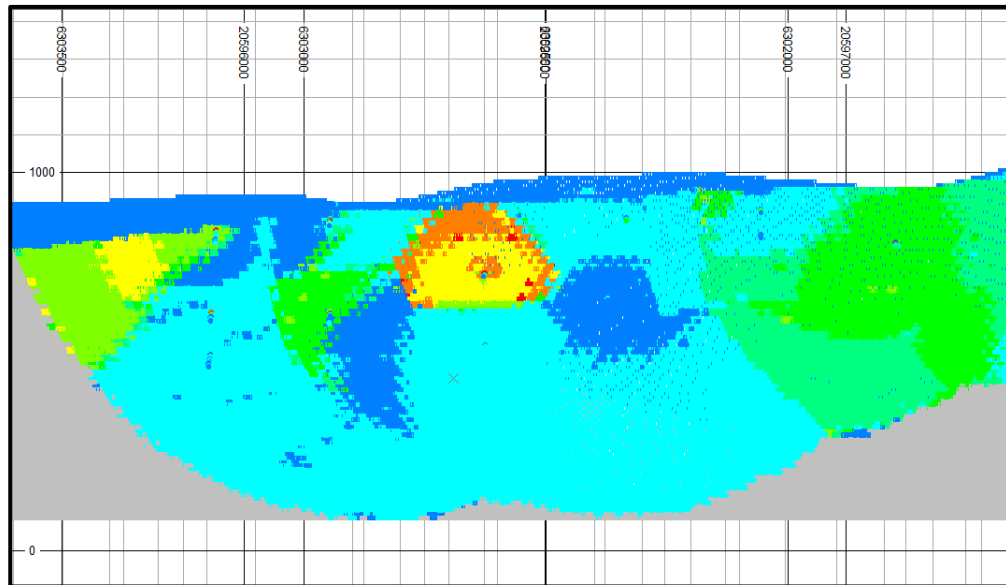
### 14.2.9 BLOCK MODEL VALIDATION

Block model validation was completed using graphical and statistical methods, to confirm that the estimated block model grades appropriately reflect the local composite grades for the classification applied. This is completed primarily by statistical and swath plot methods.

The visual inspection demonstrated reasonable correlation between composite and block grades. Table 14.6 presents table statistics comparing the informing composites with the block.

Graphical analysis of the informing samples versus estimated block grades was completed on plans (Figure 14.9) and by QKNA slope of regression performance (Figure 14.10).

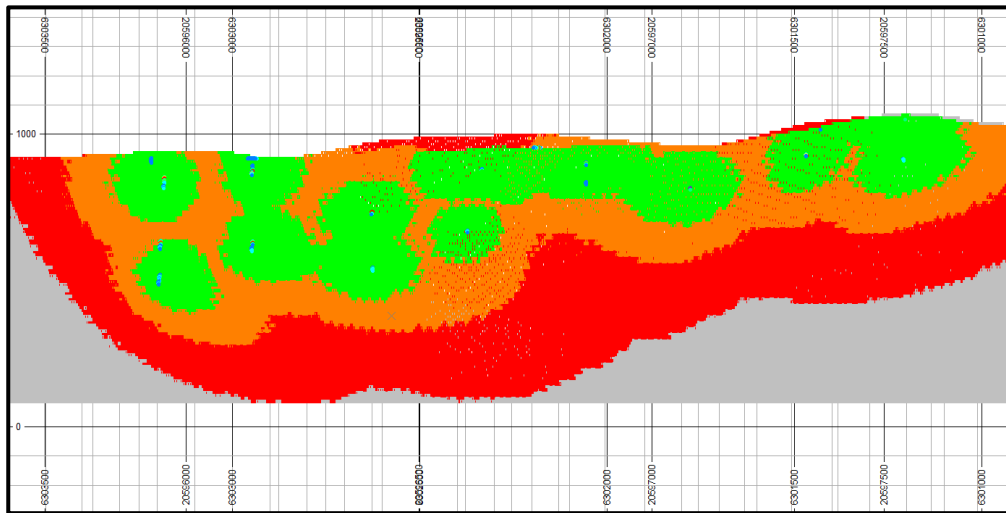
**Figure 14.9 Plan Showing Estimated Block Grades for Unkur – Looking Northeast**



Notes: For scale: Major grid interval 500 m.

The visual inspection demonstrated reasonable correlation between composite and block grades. Without strong directional control the grade distribution is fairly even across the deposit, with concentrations of higher grades in the jog of the structure, where it is understood dilation has occurred.

**Figure 14.10 Plan Showing Search Pass for Unkur**



Note: For scale: Major grid interval 500 m; Green Pass 1; Orange Pass 2; Red Pass 3.

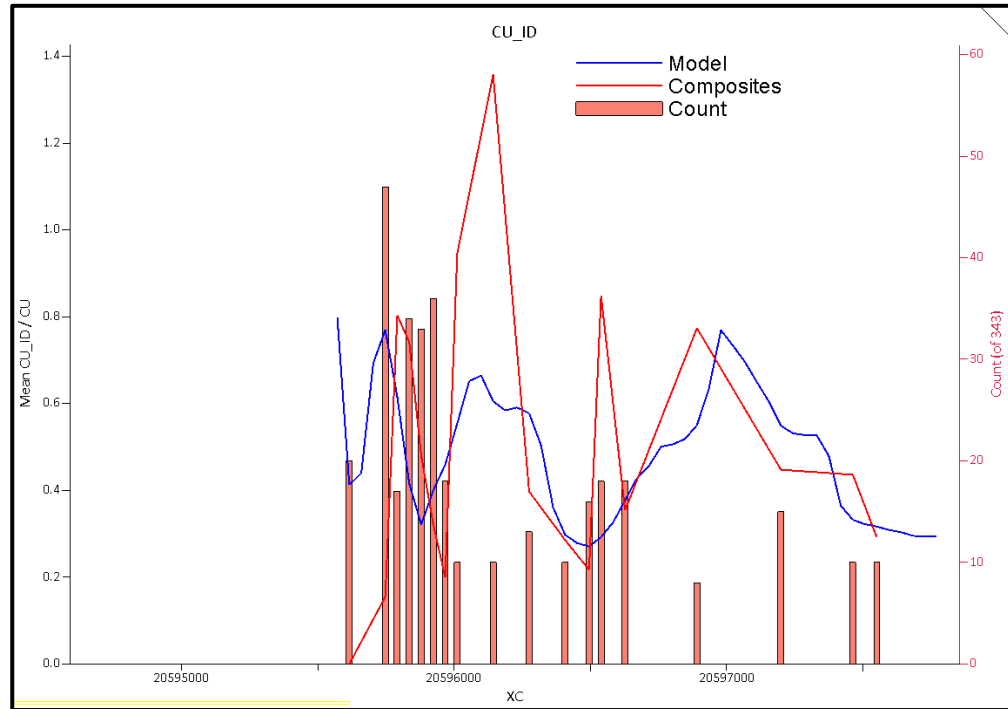
**Table 14.6 Statistics Comparing Block Estimate and Composite Grades**

Type	Metal	Domain	Count	Minimum	Maximum	Mean	Variance	Standard Deviation	Coefficient of Variation	Skewness	Kurtosis	GeomMean	Median
Model	CU	All	111635	0	1.961	0.491	0.13	0.366	0.75	1.19	0.53	NaN	0.362
Composite	CU	All	343	0	2	0.447	0.26	0.509	1.14	1.9	2.77	NaN	0.265
Model	CU	1	31722	0	1.206	0.301	0.07	0.272	0.91	1.39	0.81	NaN	0.198
Composite	CU	1	92	0	2	0.244	0.16	0.402	1.65	3.05	9.97	NaN	0.116
Model	CU	2	79913	0.146	1.961	0.566	0.14	0.371	0.65	1.14	0.14	0.469	0.408
Composite	CU	2	251	0.008	2	0.522	0.27	0.524	1	1.73	1.95	0.342	0.312
Model	AG	All	111635	0	180.835	35.668	1429	37.802	1.06	1.51	1.14	NaN	20.258
Composite	AG	All	343	0	200	30.457	2317	48.131	1.58	2.49	5.51	NaN	11.5
Model	AG	1	31722	0	110.906	25.484	640.4	25.307	0.99	1.13	0.43	NaN	22.73
Composite	AG	1	92	0	200	22.05	1526	39.058	1.77	3.06	10.09	NaN	7.3
Model	AG	2	79913	2.356	180.835	39.711	1685	41.043	1.03	1.36	0.42	24.317	20.196
Composite	AG	2	251	0.4	200	33.538	2578	50.776	1.51	2.34	4.57	14.138	12.45

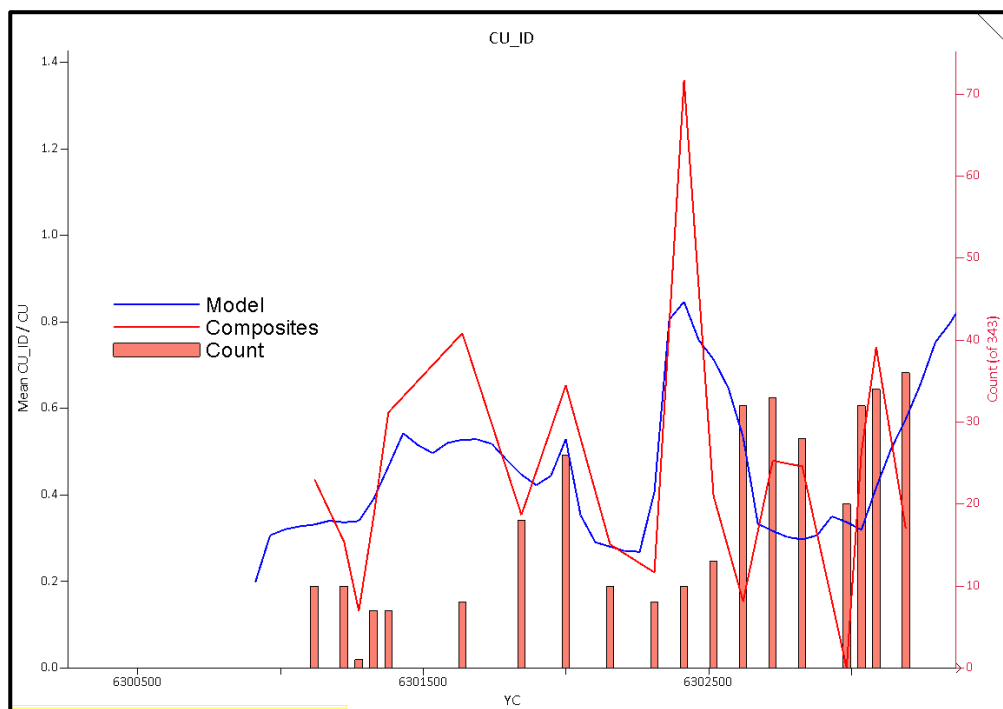
### SWATH PLOTS

Swath plots have been used to assess the differences and similarities between the block estimate gold grades and the informing composite grades (Figure 14.11, Figure 14.12, Figure 14.13 and Figure 14.14).

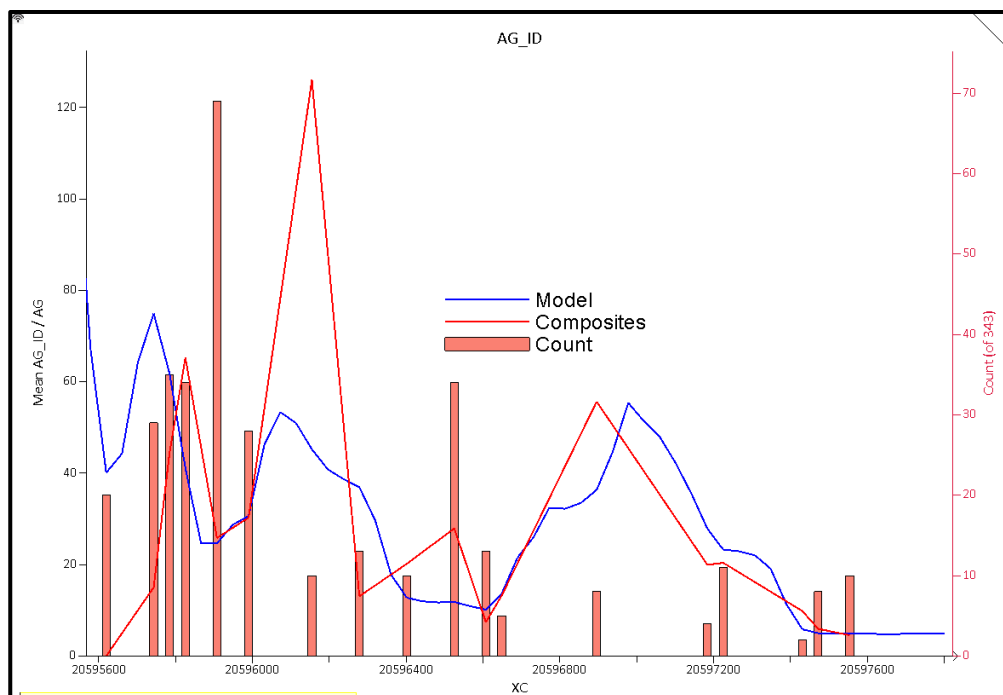
**Figure 14.11 Easting Swath Plot Comparing the Informing Composite and the ID<sup>2</sup> Estimated Copper Grades for Unkur**



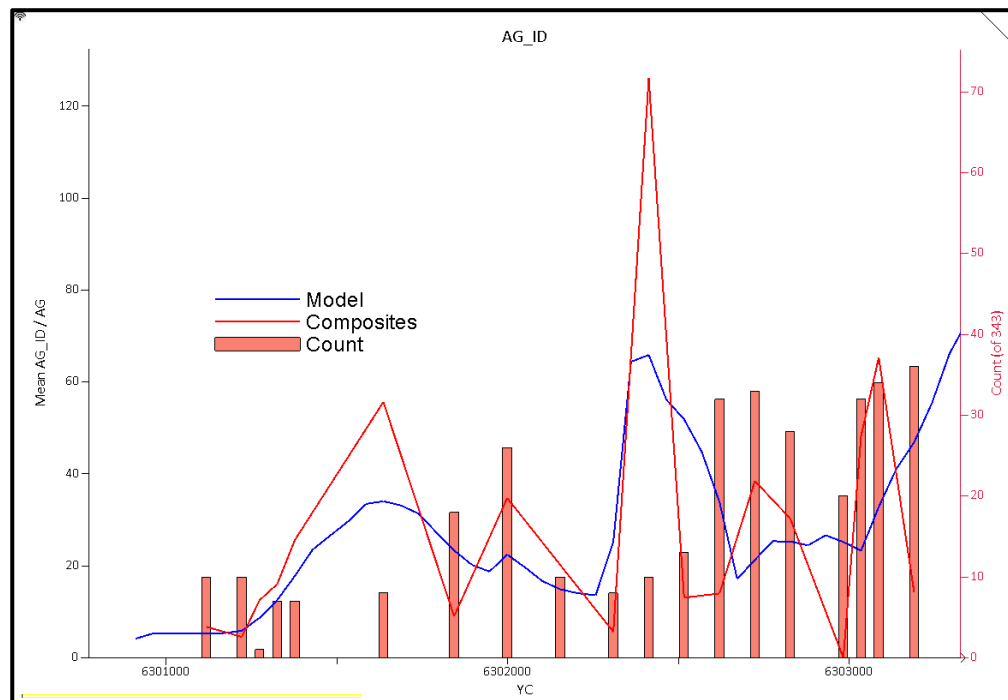
**Figure 14.12 Northing Swath Plot Comparing the Informing Composite and the ID<sup>2</sup> Estimated Copper Grades for Unkur**



**Figure 14.13 Easting Swath Plot Comparing the Informing Composite and the ID<sup>2</sup> Estimated Silver Grades for Unkur**



**Figure 14.14 Northing Swath Plot Comparing the Informing Composite and the ID<sup>2</sup> Estimated Silver Grades for Unkur**



The swath plots for Unkur present reasonable conformance between informing composites and estimated block grades. Several iterations of the interpolation were run to achieve optimal conformance for the amount of data available. Some smoothing of the mean grade is evident with the change of support from sample to block grades as is typical for a kriged estimate, this is more apparent due to the low sample count and relatively high variance in the composite grades.

#### CONCLUSION

The various comparators described in the foregoing subsections serve to illustrate that the block model estimates are robust for the applied classification and satisfactorily models the distribution and variability of the informing sample grades without undue bias or smoothing. The model is suitable to support the current level of study.

#### 14.2.10 MINERAL RESOURCE CLASSIFICATION

The Mineral Resource model was classified according to the guidelines presented within the JORC code.

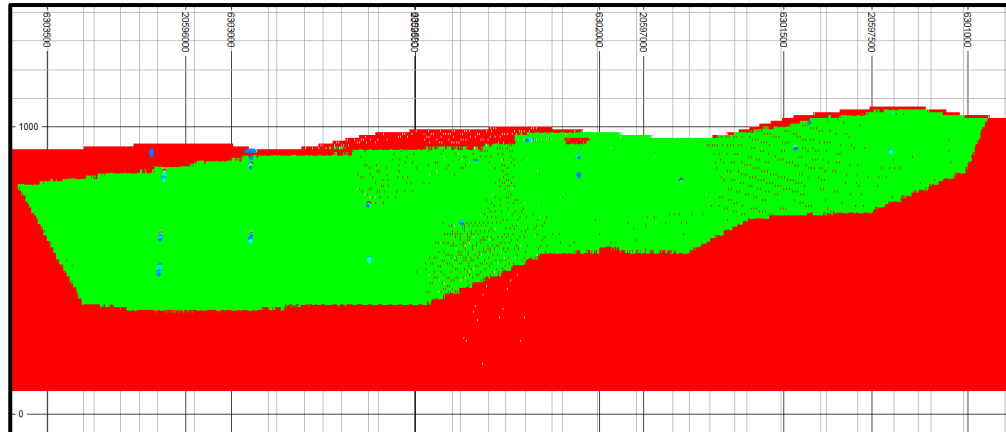
The Mineral Resources at Unkur are classified as Inferred. The style of mineralisation has been identified, the controls on mineralisation are understood and measurements and sampling completed to a reasonable degree of confidence for the mineralisation present. It would be reasonable to expect that some of the Inferred Mineral Resources could be upgraded to Indicated Mineral Resources with continued exploration; however, due to the uncertainty of Inferred Mineral Resources it should not be assumed that such upgrading will always occur.



Confidence in the estimate of Inferred Mineral Resources is sufficient to allow the results of the application of technical and economic parameters to be used for a PEA.

The model was classified based on the blocks within the second search pass, with some constraint added using a distance buffer. The model classification is shown in Figure 14.15.

**Figure 14.15 Plan Showing Classification for Unkur**



Note: For scale: Major grid interval 500 m; Green: Inferred; Red: Unclassified

## 14.2.11 MINERAL RESOURCE TABULATION

### CUT-OFF GRADES

In order to demonstrate that the deposits have reasonable prospects for economic extraction a cut-off grade of 0.3 % copper equivalent was applied for Mineral Resources at Unkur.

The parameters considered for cut-off grade derivation, based in part on analogous project parameters, use the following assumptions:

The copper equivalency formula is:

$$\text{CuEq} = ((\text{Cu \%} * \$3 * 22.04) + (\text{Ag g/t} * \text{US\$20} * 0.0321)) / \$3 / 22.04$$

Where:

- copper price US\$3.00/lb
- copper recovery 100%
- silver price US\$20/oz
- silver recovery 100%.

### MINERAL RESOURCE TABULATION

The updated Mineral Resource for the Unkur deposit is summarised in Table 14.7. The effective date of the updated Mineral Resource is 7<sup>th</sup> March 2018.

**Table 14.7 Unkur Mineral Resource Estimate – Effective Date 7<sup>th</sup> March 2018**

Class	Tonnes (t)	Density	Cu Grade (%)	Ag Grade (g/t)	CuEq (%)	Cu Metal (t)*	Ag Metal (troy oz)
Inferred	62,000,000	2.67	0.53	38.6	0.9	328,600	76,881,000

Notes: The effective date of the Mineral Resources is 7<sup>th</sup> March 2018.  
Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability. The estimate of Mineral Resources may be materially affected by environmental, permitting, legal, title, taxation, socio-political, marketing, or other relevant issues.  
Numbers may not sum due to rounding.  
\*1 328,600 t Cu = 724,234,400 lb

Tetra Tech is not aware of any environmental, permitting, legal, title, taxation, socio-economic, marketing, or political factors that could materially affect the Mineral Resource.

## 15.0 ADJACENT PROPERTIES

The Udokan copper deposit is located 25 km south of the Property license. Like Unkur, the Udokan deposit copper mineralization is confined to sediments of the Sakukanskaya Formation. However, the mineralisation for Udokan is located in the Upper subformation, whereas the Unkur mineralization is located in the Lower subformation.

Information regarding Udokan is publicly available on the Baikal Mining Company (Baikal) website (<http://www.bgk-udokan.ru/en/>). A Feasibility Study for Udokan was completed in February 2014, and, according to the project execution dates presented by Baikal, mining will commence in 2021. The current Udokan JORC compliant Mineral Resources and Ore Reserves are shown in Table 15.1.

The results and Mineral Resources reported for Udokan are not necessarily indicative of mineralisation on the Unkur Property and the QP has not been able to verify the information.

**Table 15.1 Udokan Mineral Resources as of March 2014**

Resource Category	Tonnes (Mt)	Cu Grade (%)	Ag Grade (g/t)	Cu Metal (Mt)	Ag Metal (million tr oz)
Measured	339	1.03	8.9	3.5	97
Indicated	1,483	1.01	11.1	14.9	531
Measured + Indicated	1,822	1.01	10.7	18.4	628
Inferred	932	0.89	14.3	8.3	428
Total	2,754	0.97	11.9	26.7	1,056

Source: Compiled from figures publicly reported on the Baikal website: <https://www.bgk-udokan.ru/en/>

## 16.0 OTHER RELEVANT DATA AND INFORMATION

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Because the Project is in the early exploration stage, this Technical Report contains no formal disclosure relating to the following items:

- mineral reserves
- mining methods
- project infrastructure
- market studies and contracts
- capital and operating costs
- economic analysis.

There is no additional information or explanation necessary to ensure that the technical report is understandable and not misleading.

## 17.0 INTERPRETATIONS AND CONCLUSIONS

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Azarga has explored the Unkur deposit by drilling and trench sample collection methods during the 2016 and 2017 field seasons and have confirmed the presence of significant copper-silver mineralisation. This work, and updated Mineral Resource estimate helps to confirm the historical work completed at the Project site.

The quality and quantity of data collected by Azarga is a sufficient basis for reporting an updated Mineral Resource for the Project. The update has been based on revisiting the model parameters and grade distributions ahead of completing a PEA.

The mineralised domain supported by drilling and trenching has been reinterpreted slightly based on discussions with Azarga's geologist. The strike has been interpreted to be 3.5 km long and open to at least 540 m down dip. There are currently interpreted to be two mineralised structures, which have been modelled. They are both understood to be continuous from surface exploration, but have been limited in the estimate by the search parameters so as not to overstate the tonnage. The areas which have been modelled but not estimate represent target for further exploration. It has also been considered that there are additional structures, within the broader mineralised zone, which may be discovered by further drilling in the future.

The northern part of the domain is Quaternary moraine material, which increases to a thickness of approximately 100 m at the northern limit of the resource.

The project data is considered accurate to support an Inferred Mineral Resource classification, although there are considerations in order to upgrade the Mineal Resource through further exploration campaigns and Mineral Resource updates.

The main consideration is the drillhole spacing, and the limit of confidence of the spatial continuity. Currently the drill sections are 300 to 400 m apart, which is not sufficient data quantity or spacing to model a reliable semi-variogram to reliably estimate the grade continuity.

With the current data spacing there is likely to be local structural complexity, which will complicate the interpretation as the deposit is further drilled.

## 18.0 RECOMMENDATIONS

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Tetra Tech considers that the potential of the Project is sufficient, based on the early exploration work, and recommend that subsequent to the ongoing PEA further exploration is warranted.

Tetra Tech recommend two phases of work.

### *PHASE 1*

Based on the results of the PEA, and in particular the pit optimisation work, a campaign of infill drilling is recommended to increase the data density along strike by drilling between the current fences. This drilling will also give further clarity to the interpretation of the mineralised structures across strike, and may encounter additional mineralised structures in the hanging wall and footwall of the currently identified mineralised structures.

Focussing on improving the understanding of geological and spatial continuity in the optimised pit area could lead to upgrading the Mineral Resource classification for some of the mineralised material at the next Mineral Resource update phase. Additionally, Tetra Tech considers that it will be possible to include new Inferred Mineral Resources from the second, less drilled structure, in to the pit area. Discovery of further mineralised structure, as well as upgrading of the known mineralisation will be favourable to the project economics in terms of strip ratio and possible sink rates.

Based on an all-in cost of US\$300/m drilled (including assay, mobilisation/demobilisation, etc.), a programme of 2,000 m of drilling will approximately double the amount of data available for the Project at cost of approximately US\$600,000.

The estimated budget for Phase 1 work is US\$650,000.

### *PHASE 2*

Tetra Tech recommends continued wider exploration of the Unkur license area to collect data in preparation for further work.

As well as additional drilling to continue to explore the extensive known strike length of the Unkur mineralisation there are a number of additional exploration requirements to advance the Project. Additionally, data such as an accurate survey of the Project area will be required for later phase; therefore, Tetra Tech recommends an aerial or satellite survey of the Project, which can cover an extensive area to a high degree of accuracy for approximately US\$20,000, which will be adequate for the mid-term needs of the Project. A full ground survey can be completed ahead of design and engineering in the future.

Additional study requirements, such as an EIA should be considered at this time, as there is a long lead time of the collection of baseline data.

Exploration of the strike of the deposit, based on historical data, and building on the results of Phase 1 should target adding additional new Mineral Resource into the Inferred category, and upgrading existing Inferred material in to the Indicated category ahead of a Prefeasibility Study. A budget estimate of US\$1.2 million would cover drilling of an additional 2,500 m, metallurgical test work on a selection of the core, and additional data collection.



## 19.0 REFERENCES

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- License ЧИТО2522БР (geological study, exploration and production of copper, silver, and associated components for the Unkur Project).

## JOSEPH HIRST, BSc (HONS), MSc, CGEOL, EURGEOL, FGS

I, Joseph Hirst, BSc (Hons), MSc, CGeol, EurGeol, of Swindon, Wiltshire, United Kingdom, do hereby certify:

- I am a Geologist with Coffey Geotechnics Ltd. Trading as Tetra Tech Mining and Minerals with a business address at Ground Floor, Unit 2, Apple Walk, Kembrey Park, Swindon, SN2 8BL, United Kingdom.
- This certificate applies to the technical report entitled “Technical Report and Resource Estimate for the Unkur Copper-Silver Project, Kodar-Udokan, Russian Federation” dated 27<sup>th</sup> March 2018 (the “Technical Report”).
- I am a graduate of the University of Manchester, England (BSc (Hons.) Geology, 2001. I am a member in good standing and Chartered Geologist (CGeol) with the Geological Society of London (#1007756). My relevant experience includes 15 years of professional practice. I have been directly involved in mineral resource estimations for eleven years, which recently includes, but it not limited to Silver Bear Resource’s Mangazeisky Property deposits. I am a “Qualified Person” for purposes of National Instrument 43-101 (the “Instrument”).
- I have not completed a personal inspection of the Property.
- I am responsible for Sections 1.1 to 1.6, 1.11 to 1.14, 2.0 to 8.0, and 13.0 to 19.0 the Technical Report.
- I am independent of Azarga Metals Corp. as defined by Section 1.5 of the Instrument.
- I have no prior involvement with the Property that is the subject of this Technical Report.
- I have read the Instrument and the sections of the Technical Report that I am responsible for have been prepared in compliance with the Instrument.
- As of the date of this certificate, to the best of my knowledge, information, and belief, the sections of Technical Report that I am responsible for contain all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Signed and dated this 8<sup>th</sup> day of May 2018 at Swindon, United Kingdom.

*“Original document signed by Joseph Hirst,  
BSc (Hons), CGeol, EurGeol, FGS”*

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Joseph Hirst, BSc (Hons) CGeol, EurGeol, FGS  
Geologist  
Coffey Geotechnics Ltd.  
trading as Tetra Tech Mining and Minerals

## ROBIN SIMPSON, MAIG

I, Robin Simpson, MAIG, of Moscow, Russia, do hereby certify:

- I am a Principal Resource Geologist with SRK Consulting (Russia) Ltd. with a business address at 4/3 Kuznetsky Most, Building 1, 125009, Moscow, Russia.
- This certificate applies to the technical report entitled “Technical Report and Resource Estimate for the Unkur Copper-Silver Project, Kodar-Udokan, Russian Federation” dated 27<sup>th</sup> March 2018 (the “Technical Report”).
- I am a graduate of the University of Canterbury, New Zealand (BSc (Hons) Geology, 1996) and Leeds University (MSc Geostatistics, 2004). I am a member in good standing of the Australian Institute of Geoscientists (No. 3156). I have practiced my profession continuously since 1996. I worked as a mine and exploration geologist at gold and copper mines in Australia for seven years, and then joined SRK Consulting Ltd. In 2005 as a resource geologist. During my employment in SRK’s Perth, Cardiff, and Moscow offices I have frequently authored or reviewed mineral resource estimates for a variety of commodities, including copper. I am a “Qualified Person” for purposes of National Instrument 43-101 (the “Instrument”).
- I am a Member of the Australian Institute of Geoscientists, membership number 3156.
- I personally inspected the Property that is the subject of this Technical Report on December 10, 2014 and October 13, 2016.
- I am responsible for Sections 1.7 to 1.10, 9.0 to 12.0 the Technical Report.
- I am independent of Azarga Metals Corp. as defined by Section 1.5 of the Instrument.
- I have had prior involvement with the Property that is the subject of this Technical Report having authored the previous two Technical Reports dated March 1, 2016 and March 31, 2017.
- I have read the Instrument and the sections of the Technical Report that I am responsible for have been prepared in compliance with the Instrument.
- As of the date of this certificate, to the best of my knowledge, information, and belief, the sections of Technical Report that I am responsible for contain all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Signed and dated this 8<sup>th</sup> day of May 2018 at Moscow, Russia.

*“Original document signed by  
Robin Simpson, MAIG”*

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Robin Simpson, MAIG  
Principal Resource Geologist  
SRK Consulting (Russia) Ltd.