CSA Global
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Mineral Resource and Mineral reserve Update – Ada Tepe Mine, Krumovgrad, Bulgaria

NI 43-101 Technical Report

REPORT Nº R363.2022
Report Date: 22 February 2023
Effective Date: 31 December 2022

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Report prepared for

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Project Name/Job Code	DPMMGS06
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Purpose of this document

This Report was prepared for Dundee Precious Metals Inc. ("the Client") by CSA Global (UK) Limited ("CSA Global"), an ERM Group company. The quality of information, conclusions, and estimates contained in this Report are consistent with the level of the work carried out by CSA Global to date on the assignment, in accordance with the assignment specification agreed between CSA Global and the Client.

Results are estimates and subject to change

The interpretations and conclusions reached in this Technical Report are based on current scientific understanding and the best evidence available to the authors at the time of writing. It is the nature of all scientific conclusions that they are founded on an assessment of probabilities and, however high these probabilities might be, they make no claim for absolute certainty.

The ability of any person to achieve forward-looking production and economic targets is dependent on numerous factors that are beyond the Client and CSA Global's control. Please refer to Section 2.8 of this Technical Report for further information.

Certificates of Qualified Persons

Certificate of Qualified Person – Galen White

As a Qualified Person of the Technical Report on the Ada Tepe Mine of Dundee Precious Metals Krumovgrad, Bulgaria, I, Galen White do hereby certify that:

1. I am a Partner and Principal Consultant of CSA Global (UK) Limited and completed this work for CSA Global (UK) Limited, Springfield House, Suite 2 First Floor, Horsham, West Sussex, RH12 2RG, United Kingdom, telephone: (+44) 1403 255 969, email: csauk@csaglobal.com.
2. The Technical Report to which this certificate applies is titled "NI 43-101 Technical Report, Mineral Resource and Mineral Reserve Update, Ada Tepe Mine, Krumovgrad, Bulgaria" with an effective date of 31 December 2022 (the "Technical Report") prepared for Dundee Precious Metals Inc. ("the Issuer").
3. I hold a BSc degree in Geology from the University of Portsmouth, UK and am a registered Fellow in good standing of the Australasian Institute of Mining and Metallurgy ("AusIMM"). I am familiar with National Instrument 43-101 – Standards of Disclosure for Mineral Projects ("NI 43-101") and, by reason of education, experience in the exploration, evaluation and mining of epithermal and vein-hosted mineral deposits in Europe, Australia and Africa, and professional registration; I fulfil the requirements of a Qualified Person as defined in NI 43-101. My experience includes over 25 years continuous experience in the mining industry which includes significant experience in Mineral Resource evaluation.
4. I completed a personal inspection of the property that is the subject of this Technical Report, for two days between 10 March 2022 and 11 March 2022.
5. I am responsible for Sections 1 to 12, 14, 20 and 23 to 27 of this Technical Report.
6. I am independent of the issuer as described in Section 1.5 of NI 43-101.
7. I have had prior involvement with the property that is the subject of this Technical Report, including periodic technical reviews since 2012, preparation of an NI43-101 Technical Report in November 2020 and contribution to operational support to DPM since the start-up of the mining operation in 2019.
8. I have read NI 43-101 and the sections of the Technical Report I am responsible for have been prepared in compliance with NI 43-101.
9. As of the effective date of the Technical Report, 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.

Dated this 22nd day of February 2023

"signed and sealed"

Galen White BSc (Hons), FAusIMM
Partner and Principal Consultant
CSA Global (UK) Limited

Certificate of Qualified Person – Andrew Sharp

As a Qualified Person of this Technical Report on the Ada Tepe Mine of Dundee Precious Metals – Krumovgrad, Bulgaria, I, Andrew Sharp do hereby certify that:

1. I am an Associate Principal Mining Consultant with CSA Global Consultants Canada Limited with an office at 1000-1100 Melville St, Vancouver, BC V6E 4A6, CANADA.
2. This certificate applies to the Technical Report titled "NI 43-101 Technical Report, Mineral Resource and Mineral Reserve Update, Ada Tepe Mine, Krumovgrad, Bulgaria" with an effective date of 31 December 2022 (the "Technical Report") prepared for Dundee Precious Metals Inc. ("the Issuer").
3. I am registered as a professional engineer in good standing with Engineers and Geoscientists BC (#47907) and I am a Fellow in good standing of the Australian Institute of Mining and Metallurgy (#112949). I am a graduate from the University of Curtin, Kalgoorlie (1987). I have been involved or associated with the mining industry since 1987, in Australia, Malaysia, Bulgaria, Ghana, Mexico, Papua New Guinea, Argentina, Bolivia, Colombia, Chile and Canada in production roles for 28 years and an additional six years in consulting. In particular to the Chelopech Mine, I have more than five years applied to flotation plants, underground mining utilising open stoping and the metal commodities being produced at Chelopech. I have previous experience as lead consultant on a prefeasibility for a gold mine project in Bulgaria.
4. I completed a personal inspection of the Ada Tepe Mine and facilities for two days from 10 March 2022 to 11 March 2022.
5. I am responsible for Sections 15, 16, 19, 21 and 22 of the Technical Report.
6. I am independent of the Issuer and related companies applying all of the tests in Section 1.5 of the NI 43-101.
7. I have had no prior involvement with the property that is the subject of the Technical Report.
8. I have read NI 43-101, and the Technical Report has been prepared in compliance with NI 43-101 and Form 43-101F1.
9. As of the effective date of the Technical Report and the date of this certificate, to the best of my knowledge, information and belief, this Technical Report contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated this 22nd day of February 2023

"signed and sealed"

Andrew Willis Sharp, B.Eng. (Mining), P.Eng. (BC), FAusIMM
Principal Consultant
CSA Global Consultants Canada Limited

Certificate of Qualified Person – Gary Patrick

As a Qualified Person of this Technical Report on the Ada Tepe Mine of Dundee Precious Metals Krumovgrad, Bulgaria, I, Gary Patrick do hereby certify that:

1. I am currently Principal Consultant of Metallurg Pty Ltd, with an office at Liman Mah, 25 Sokak, Sila Apartman, 15-D-10, Antalya, Turkey, 07070.
2. The Technical Report to which this certificate applies is titled "NI 43-101 Technical Report, Mineral Resource and Reserve Update, Ada Tepe Mine, Krumovgrad, Bulgaria" and is dated effective 31 December 2022 .
3. I hold a BSc. (Chemistry/Extractive Metallurgy) and am a registered Member of the AusIMM (CP, #108090). I am familiar with National Instrument 43-101 – Standards of Disclosure for Mineral Projects ("NI 43-101") and, by reason of education, experience in exploration, evaluation and mining of gold deposits and professional registration; I fulfil the requirements of a Qualified Person as defined in NI 43-101. My experience includes 30 years in operations, metallurgical testwork supervision, flowsheet development, and study work.
4. I have not visited or completed a personal inspection of the property that is the subject of this Technical Report.
5. I am responsible for Sections 13, 17 and 18 of this Technical Report.
6. I am independent of the issuer as described in Section 1.5 of NI 43-101.
7. I have had no prior involvement with the property that is the subject of this Technical Report.
8. I have read NI 43-101, and the sections of the Technical Report I am responsible for have been prepared in compliance with NI 43-101.
9. As of the effective date of the Technical Report to the best of my knowledge, information and belief, the sections of Technical Report that I am responsible for contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated this 22nd day of February 2023

"signed and sealed"

Gary Patrick, BSc., MAusIMM, CP (Met)
Principal Consultant
Metallurg Pty Ltd

Contents

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Glossary/Abbreviations

%	percent
°	degrees
°C	degrees Celsius
€	Euros
µm	micrometre, or 0.000001m
1D, 2D, 3D	one-dimensional, two-dimensional, three-dimensional (model or data)
AAS	atomic absorption spectrometry
Ag	silver (grade measured in parts per million)
Au	gold (grade measured in parts per million)
AuEq	gold equivalent
BD	bulk density
BGN	Bulgaria's local currency, the Lev which is pegged to the Euro
BMM	Balkan Mineral and Mining EAD
BNCS	Bulgarian National Coordinate System
BWi	Bond Ball Mill Work Index
CAT	Caterpillar
CC	correlation coefficient
CEFTA	Central European Free Trade Associated
CIL	carbon-in-leach
CIM	Canadian Institute of Mining, Metallurgy and Petroleum
CITA	Corporate Income Tax Act
CoM	(Bulgarian) Council of Ministers
cm	centimetre(s)
CRM	certified reference material
CSA Global	CSA Global (UK) Limited
CSV	comma separated values
CV	Coefficient of Variation; in statistics, the normalised variation value in a sample population
DDH	diamond
DFS	definitive feasibility study
DPM	Dundee Precious Metals Inc.
DPMKr	Dundee Precious Metals Krumovgrad
E (X)	Easting; coordinate axis (X) for metre-based Projection, typically UTM; refers specifically to metres east of a reference point (0,0)
EGL	Effective Grinding Length
EFTA	European Free Trade Associated
EIA	Environmental Impact Assessment
ESIA	Environmental and Social Impact Assessment
EU	European Union
EV	expected value
FoS	factor of safety
g	gram(s)
g/t	grams per tonne
GC	grade control
GISTM	Global Industry Standard on Tailings Management
GNSS	Global Navigation Satellite System
GPS	global positioning system
HQ2	Size of diamond drill rod/bit/core

h	hour(s)
ha	hectare(s)
HPGS	high precision global positioning system
ICMM	International Council on Mining and Metals
IFRS	International Financial Reporting Standards
IMWF	Integrated Mine Waste Facility
IP	induced polarisation
IPA	Investment Promotion Act
IRA	inter-ramp angle
IRR	internal rate of return
ISO	International Standards Organisation
ITRB	Independent Tailings Review Board
JKMRC	Julius Kruttschnitt Mineral Research Centre
JORC	Joint Ore Reserves Committee (The AusIMM)
kg	kilogram(s)
kg/t	kilogram per tonne
km, km²	kilometre(s), square kilometre(s)
KNA	kriging neighbourhood analysis
koz	thousand ounces
kt	kilotonnes (or thousand tonnes)
ktpa	kilotonnes (or thousand tonnes) per annum
kV	kilovolts
kW	kilowatts
kWh	kilowatt-hour
kWh/t	kilowatt hours per tonne
lb	pound(s)
LG	Lerchs-Grossmann
LDL	lower detection limit
LOM	life of mine
M	million(s)
m, m², m³	metre(s), square metre(s), cubic metre(s)
Ma	million years
masl	metres above sea level
MD&A	Management's Discussion and Analysis
mE	metres East
MEET	Ministry of Economy, Energy and Tourism
MIK	multiple indicator kriging
ml	millilitre(s)
Mlb	million pounds
mm	millimetre
Mm³	million cubic metres
mN	metres North
ModBond	Modified Bond
MoE	Ministry of Energy
MoEW	Ministry of Environment and Waters
MOU	Memorandum of Understanding
Moz	million ounces
MRE	Mineral Resource estimate
mRL	metres Relative Level
MSO	Mine(able) Shape Optimiser

Mt	million tonnes
Mtpa	million tonnes per annum
N (Y)	Northing. Coordinate axis (Y) for meter-based Projection, typically UTM. Refers specifically to meters north of a reference point (0,0)
NAIM-BAS	National Archaeological Institute at the Museum of the Bulgarian Academy of Science
NGO	non-governmental organisation
NI 43-101	National Instrument 43-101 Standards of Disclosure for Mineral Projects
NPV	net present value or net present worth (NPW)
NQ	A diamond drill core diameter of 75.7 mm (outside of bit) and 47.6 mm (inside of bit)
OMAC	OMAC Laboratories Ltd
oz	Troy ounce (31.1034768 grams)
P_{80} -75 µm	Measure of pulverisation. 80% passing 75 microns
PAX	potassium amyl xanthate
PEA	preliminary economic assessment
ppb	parts per billion
ppm	parts per million
psi	pounds per square inch
Q1, Q2, Q3, Q4	quarter 1, quarter 2, quarter 3, quarter 4
QAQC	quality assurance/quality control
RC	reverse circulation
RL (Z)	Reduced Level; elevation of the collar of a drillhole, a trench or a pit bench above the sea level
RMS	root mean squared
ROM	run of mine
RPEEE	reasonable prospects for eventual economic extraction
RPWR	Raw and Process Water Reservoir
RSG	RSG Global
RTK	real-time kinematic
S	sulphur
SABC	SAG/Ball Mill Circuit
SAG	semi-autogenous grinding
SD	standard deviation
SFR	staged flotation reactor
SGS	Société Générale de Surveillance International laboratory group
SMP	Social Management Plan
SPI	SAG Power Index
SQL	structured query language
SSF	sample submission form
SSM	Spectrum Surveys and Mapping Pty Ltd
SWOR	Stormwater Overflow Reservoir
t	tonnes
t/m^3	tonnes per cubic metre
tpa	tonnes per annum
tph	tonnes per hour
™	Trademark
UAV	unmanned aerial vehicle
UCS	unconfined compressive strength
URA	Underground Mineral Resources Act
US$	United States of America dollars
UTM	Universal Transverse Mercator
VAT	value added tax

Wt%	percentage by weight
WTO	World Trade Organization

1 Summary

1.1 Introduction

CSA Global (UK) Limited ("CSA Global"), an ERM Group company, was requested by Dundee Precious Metals Krumovgrad ("DPMKr"), a 100% owned subsidiary of Dundee Precious Metals Inc. ("DPM"), to update the Mineral Resource Estimate ("MRE") and supervise, verify and validate the Mineral Reserve estimate for the Ada Tepe open pit gold mine located in south-eastern Bulgaria. The change being reported in this Technical Report is an update to the Mineral Resource and Mineral Reserve estimates previously reported by DPM.

The Mineral Resource and Mineral Reserve update for the Ada Tepe mine was initiated to account for detailed reconciliation studies conducted since the start-up of operations, grade control ("GC") drilling completed between 2020 and 2022 and mining depletion to 31 December 2022.

1.2 Project Description and Location

1.2.1 Summary

The Ada Tepe Mine is located in Bulgaria and is approximately 320 km southeast by paved road from the capital of Sofia. The Ada Tepe Mine is located 3 km south from the Krumovgrad townsite and trends in a north-south direction. The deposit area comprises of hilly topography abutting a major regional river system.

Construction works commenced on the site of operations in the fourth quarter of 2016. Pre-stripping and stockpiling of ore started in July 2018, followed by first concentrate production in March 2019 and ramp up to commercial production levels in June 2019.

The mining methods used at the Ada Tepe pit are conventional excavator and truck methods. Ore is processed by crushing the mined ore in the primary jaw crushing circuit, grinding in a semi-autogenous grinding ("SAG") milling circuit followed by a further secondary grind in a vertimill circuit. Tailings and waste rock material from the mine are placed in an Integrated Mine Waste Facility ("IMWF"). The mill facilities and mine are developed, constructed, and operated by DPMKr, a wholly owned subsidiary of DPM.

1.2.2 Mineral Rights and Tenement Description

Balkan Mineral and Mining EAD ("BMM", now "DPMKr"), a 100% subsidiary of DPM, was awarded the Krumovgrad licence area (130 km^2) on 12 June 2000, in accordance with the Agreement of Prospecting and Exploration reached with the Bulgarian Ministry of Economy.

The Mining Licence ("Khan Khum Concession") covers an area of 1,370 ha (13.7 km^2) and includes the area of the Ada Tepe mining operation and the satellite prospects of Kuklitsa, Kupel, Surnak, Skalak, and Synap. DPMKr has 100% ownership of the project, which operates under a concession agreement that was signed between DPMKr and the Council of Ministers of Republic of Bulgaria in 2012 for a period of 30 years.

1.2.3 Environmental Liabilities

DPM is not aware, nor has it been made aware, of any significant environmental liability associated with the Ada Tepe Mine.

An Environmental Impact Assessment ("EIA") statement was issued by the Bulgarian Minister of Environment and Water. The statement includes a number of conditions which have to be implemented during detailed design, construction, operation, closure and rehabilitation stages of the project.

1.2.4 Royalties

DPM is paying a royalty to the Bulgarian government, at a variable royalty rate applied to the gross value of the gold and silver metals combined in the ore mined. The royalty rate depends on the profitability of the operation. At a pre-tax profit to sales ratio of 10% or less, the royalty rate will be 1.44% of the value of the metals. At a pre-tax profit to sales ratio of 50% or more, the royalty rate will be 4% of the value of the metals. At intermediate levels of profitability, the royalty rate will vary on a sliding scale between 1.44% and 4% in a linear fashion.

1.3 Accessibility, Local Resources and Infrastructure

The concession area is located in East Rhodope, approximately 320 km (by road) southeast of Sofia, in the Kardjali District, 3 km south of the regional township of Krumovgrad (25° 39' 15"E and 41° 26' 15"N). Access to the operational area is available all year, by existing tarmac roads to Krumovgrad and a recently constructed road to the Ada Tepe mining operations. Access within the licence area is good, with all-weather surface roads covering the project area. Secondary roads are unsurfaced but generally accessible all year round with four-wheel drive vehicles. Krumovgrad is serviced by an international airport. A second international airport is situated in the city of Plovdiv located approximately 106 km northwest of Krumovgrad.

The operational area is located within the Continental-Mediterranean belt, the main feature of which is its proximity to the climate of Subtropical Europe, featuring markedly higher winter and substantially lower summer precipitation. Winters are mild, but during intensive cold spells temperatures may fall to -13°C. Summers are hot, reaching 36°C in warmer spells and exceeding 40°C in some locations.

The average annual precipitation is 703.5 mm. The bulk of this falls in autumn and winter, occasionally as snow in the coldest months. The highest rainfall occurs in December (96.9 mm average) and the lowest in August (24.1 mm). Estimated 1:100-year rainfall events are projected to be around 117.3 mm for a 24-hour event, and 184.1 mm for a 72-hour event. Probable Maximum Precipitation estimates are up to 383.4 mm for 24 hours and 605.4 mm for 72 hours. Average annual evaporation is 1,050.8 mm, which is similar to annual rainfall in magnitude, but peak evaporation occurs during summer months when precipitation is at its lowest. Mining operations are conducted all year round.

Small villages are widely dispersed throughout the licence area, and are mainly involved in subsistence farming, particularly livestock and the growing of tobacco on the poorly developed soils characteristic of the region. The main land use within the licence area is state controlled forestry. The population of Bulgaria is largely non-practising Eastern Orthodox Christian (85%) with a Turkish Muslim minority predominantly residing in the southeast of the country, including the concession area.

Infrastructure in the area is good, with paved roads, power and water resources available to the Ada Tepe mine site.

The Krumovgrad District is around 230 m above mean sea level and is characterised by a rugged landscape. The Ada Tepe Mine is situated in an area of moderate, hilly topography abutting a major regional river system. The mine site is readily accessible all times of the year.

1.4 History

The Ada Tepe prospect was the subject of only very brief attention in previous State-funded exploration in the early to mid-1990s, by GeoEngineering of Assenovgrad, and Geology & Geophysics of Sofia.

On 12 June 2000, BMM (a 100% owned subsidiary of DPM) was awarded the Krumovgrad Licence area (113 km^2) in accordance with the Agreement of Prospecting and Exploration reached with the Ministry of Economy.

1.5 Geological Setting

The Krumovgrad region is located within East Rhodope which comprises the eastern portion of a large metamorphic complex termed the Rhodope Massif. The massif underwent Upper Cretaceous extension leading to uplift and formation of the Kessebir metamorphic core complex. This event was accompanied by low-angle detachment faulting, by graben development, and formation of sedimentary basins.

Basement rocks in the Krumovgrad area consist of Precambrian and Palaeozoic metasediments, gneisses, and amphibolites of the Kessebir metamorphic core complex. The basement is unconformably overlain by Tertiary (Palaeocene-Eocene) conglomerates, sandstones, siltstones and limestones of the Krumovgrad Group. The basal Shavar Formation is the primary host to gold-silver mineralisation within the Krumovgrad Licence area and is composed of tectonically deformed coarse-grained breccia/conglomerates including decametric sized marble blocks and other variable in size clasts of amphibolite, quartzite and gneiss.

1.6 Mineralisation and Deposit Types

Gold and silver mineralisation in the Krumovgrad licence area is predominantly hosted within the Shavar Formation proximal to the unconformable fault contact or detachment with the underlying basement rocks of the Kessebir core complex. Sediments within the Shavar Formation typically form laterally discontinuous lenses ranging from coarse breccia to fine sands with variable clay content. Upward variations in the stratigraphy of the Krumovgrad Group reflect progression from a high-energy environment, breccia-conglomerates and coarse sandstones through to the lower energy siltstones and limestones characteristic of increasing basin maturity.

Review by RSG Global ("RSG") in 2004 suggests that the second-order structural control for mineralisation, after that of the detachment, is the proximity of northeast-southwest transfer faults. These structures dip steeply, allowing more direct access of fluids from deeper levels than the shallow dipping extensional structures. As such, the shallow extensional structures may represent trap sites or structures that accommodate local lateral fluid flow away from the transfer structures. Closely spaced transfer structures may also be important for localising mineralisation as the presence of shear couples can enhance brecciation of the intervening rock or may act to produce tensional sites. For example, dextral shear on the northwest-southeast striking faults bounding Ada Tepe may have been responsible for facilitating epithermal vein emplacement within east-west tensional sites.

The Ada Tepe deposit is a low-sulphidation gold-silver epithermal deposit formed during the Neogene within the Southern Rhodope tectonic zone and located within Palaeocene sedimentary rocks overlying the north-eastern end of the Kessebir core complex. Two major styles of mineralisation are apparent at Ada Tepe:

- Initial stage of mineralisation hosted by a massive, shallow-dipping (15° north) siliceous body forming the hangingwall to the detachment and defining the contact between the core complex and overlying sedimentary rocks. This mineralisation is termed the "Wall Zone" by local geologists and displays multiple stages of veining and brecciation.
- A second phase of mineralisation represented by steep dipping veins that exhibit textures indicative of formation within an epithermal environment. These veins have a predominant east-west strike, crosscut the shallow-dipping siliceous Wall Zone mineralisation, and extend upwards into the sedimentary breccia unit above the Wall Zone. This mineralisation is referred to as the "Upper Zone" by local geologists.

The Ada Tepe deposit is approximately 600 m long (north-south), and 300–350 m wide (east-west). The Wall Zone is up to 30 m thick. The thickness of the Upper Zone vein mineralisation is very variable, from less than 1 m thick, to more than 30 m thick. The Wall Zone exhibits very good continuity. The Upper Zone vein system exhibits less continuity than the Wall Zone, necessitating the higher drilling density that has been applied during the delineation of the Ada Tepe deposit.

1.7 Exploration

Since June 2000, BMM has conducted detailed exploration of the Ada Tepe prospect, including:

- Establishing accurate survey and topography control
- Detailed surface trenching and channel sampling and geological mapping.

Since 2014, DPM has conducted additional exploration activities within the Ada Tepe prospect, including:

- Ground gravity and magnetic surveys were carried out over the licence areas. The data was integrated with geological and geochemical data to define both near surface and covered target areas.

- In 2015, approximately 100-line km of induced polarisation ("IP") were surveyed and 15 holes totalling 3,394 m were drilled in nine target areas.

Since the commencement of operations, detailed mapping data has been routinely collected.

1.8 Drilling

Mineral resource delineation at the Ada Tepe deposit has been undertaken by a combination of reverse circulation ("RC") and diamond drilling, completed in four drilling programs between late 2000 and late 2004.

From June 2000 until March 2002, all exploration data collection at Ada Tepe was undertaken by BMM, under the upper management of Navan. From April 2002 to the end of 2004, exploration at Ada Tepe was undertaken under the management of RSG in close consultation with BMM field staff, Navan upper management until 30 September 2003, and subsequently DPM upper management.

Trenches and drill access road cut exposures were routinely channel sampled since the commencement of detailed exploration at Ada Tepe in mid-2000. The channel sampling was undertaken predominantly on north-south orientated traverses coinciding with the 25 m spaced drill traverses. Prior to March 2002, a variety of sample intervals were used, primarily controlled by changes in geology.

Between 2017 and 2022, approximately 383 km of GC drilling has been completed using a contractor based in Bulgaria, Drillex International, which operates GEMEX MP-85 truck mounted RC rigs on the mine site. RC drilling is conducted using either 125 mm or 147 mm drill bit diameters to ensure sufficient volume of sample is collected during drilling. A booster compressor is employed at all times during drilling to ensure sufficient air pressure.

All bulk density measurements were completed by an ISO 9002 rated laboratory, Evrotest Kontrol, in Sofia using an ISO 9002 approved method of wax sealed water immersion bulk density measurement. A total of 5,891 bulk density measurements are available for the Ada Tepe deposit covering all the major rock types and variations in oxidation and weathering at locations distributed throughout the deposit.

1.9 Surveying

Up to 2012, all surveying of the surface topography and exploration sites at Ada Tepe was carried out by a government licensed contractor, Dimiter Motrev of Geocom Ltd using the survey control established by Australian surveying group, Spectrum Surveys and Mapping Pty Ltd ("SSM") during the 2002 survey audit. All surveying was conducted using two electronic total station instruments.

Since the start of operations, a new survey approach has been implemented for collection and processing geospatial data and building 3D topographic model. Currently, the main survey approach used is aero photogrammetry. Using unmanned aerial vehicles ("UAV"), a large amount of data points is collected by flights across the areas of interest. The down-sampled resolution of the surveyed data points is as low as 0.5 m. In areas with high vegetation where the aerial mapping is not the appropriate approach, total stations and Global Navigation Satellite System ("GNSS") receivers are used.

1.10 Sampling and Analysis

Sample preparation procedures for samples from the Ada Tepe deposit were consistent over time and are summarised below:

- Dry samples at 105°C.
- Core and trench samples crushed in a jaw crusher to -6 mm. RC chip samples were not crushed.
- Pulverise all samples in a LM5 crusher to 95% passing 75 µm. Complete sieve analysis on 1:20 samples.
- Clean bowl and puck of the LM5 with compressed air after each sample, and with a barren flush after every 20th sample, or as required to remove residue build-up.

- Complete barren flushes after DPMKr specified samples anticipated to contain high-grade mineralisation.

Analytical laboratories and techniques used for the Ada Tepe primary samples are summarised below:

- Drilling programs from 2000 to 2004 were analysed at two principal independent internationally accredited laboratory firms (OMAC of Ireland, 2000–2001 and SGS Laboratories, 2002–2004). Assay techniques were fire assay with an atomic absorption spectrometry ("AAS") finish for gold and either a two-acid or four-acid digest with an AAS finish for silver.
- GC drilling samples were analysed at SGS Bor, SGS Chelopech or ALS Rosia Montana. ALS Bor was used as a sample preparation laboratory for samples analysed at either ALS Rosia Montana, Romania or ALS Loughrea, Ireland. Assay techniques were fire assay with an AAS finish for gold and a two-acid digest with an AAS finish for silver. Sulphur was analysed by the LECO method.

In addition, umpire assay analyses of approximately 5% of the routine exploration samples from the second and third exploration programs were performed by two internationally accredited laboratories.

The exploration and GC sample quality assurance and quality control ("QAQC") was assessed based on assays of routine quality control samples inserted into the sample stream. No significant issues or fatal flaws were noted with respect to contamination, precision or accuracy of the assaying and therefore the results can be used with confidence in any downstream work.

1.11 Data Verification

The Qualified Persons are confident that the data used to underpin Mineral Resources and Mineral Reserves are of a high quality and fit for purpose. CSA Global has completed the following data verification:

- An audit of the DPMKr acQuire relational database was completed by CSA Global on 6 July 2022 and the overall conclusions were that the database was well maintained, good practices appeared to have been followed, and data in the database should be fit for purpose for downstream work.
- Site visit activities during a visit to the property in 2022, which included:
  - Inspection of drill core
  - Review of core logging procedures
  - Review of sampling procedures
  - Audit of the assay laboratory, SGS Chelopech, on site
  - Discussion and interrogation of data flow procedures
  - Review of data and system security protocols on sites
- CSA Global independently produced and reviewed QAQC reports to verify the accuracy and precision of the assayed QAQC material and samples.
- CSA Global considers the drillhole collars, trench and channel sample locations at Ada Tepe to be accurately located in three dimensions for the purposes of Mineral Resource estimation.
- CSA Global has taken receipt of (and reviewed) the original topographic surface and the trench/collar points used in its construction and believes it to be valid for use in constraining the Mineral Resource block model, outside of the active mining area.
- In relation to ongoing data review and verification over time, CSA Global has been involved in operational improvement activities relating to mine geology, periodically since production commenced in 2019 and is ongoing in 2023. Areas of focus, which have been reviewed as appropriate as part of the 2022 MRE update include:
  - Summary report assessing "at risk material" within the GC model (2020)
  - Close out report – Mine Geology Support (2020)
  - Summary report – 2021 GC Drilling Plan (2020)
  - Close out report – Mine Geology Support (2021)
  - Summary report – GC sample contamination review (2021)

- Summary report – Review of updated GC model for pushback 3 (2021)
- Summary report – Review of updated GC model for pushback 4 (2022)
- Interpretative report – Geometallurgical Assessment for Ada Tepe (2022)
- Summary report – Review of Ada Tepe production reconciliation for 2022 calendar year (2023).

1.12 Mineral Processing and Metallurgical Testing

Various phases of testing were undertaken to determine the metallurgical properties and develop the optimal flowsheet to process the mineralisation present in the deposit at Ade Tepe.

Results from the DFS (2005) testing program confirmed that all the samples tested were considered "free-milling" and amenable to gold production by conventional cyanidation processes, combined with appropriate cyanide destruction to levels well below European and World standards at the time. In 2012 the project was "re-engineered" adopting a more conventional flotation process, combined with the introduction of an integrated mine waste and flotation tailings facility ("IMWF"). The process evolved from the 2005 flotation scoping testing which demonstrated that at a grind size P_{80} of 75 µm between 60% and 80% of the gold could be recovered to a flotation concentrate. Further optimisation tests carried out at SGS Lakefield showed that by grinding finer to a P_{80} of 30 µm high gold recoveries of circa 85% could be recovered to a high-grade cleaner concentrate.

The current process flowsheet consists of primary crushing followed by a single stage SAG mill in closed circuit with cyclones. Cyclone overflow is then further ground in two Vertimills to produce a P_{80} of 30 µm as feed to flotation. The flotation circuit consists of a rougher/scavenger in closed circuit, with regrinding of the rougher concentrate (P_{80} of 15µm) ahead of two stages of cleaning to produce a saleable gold-silver bearing concentrate.

Commissioning of the Ada Tepe plant commenced in April 2019 and ramped up to nameplate production in September 2019. The actual plant operating data supersedes any earlier metallurgical testwork. DPM is not aware of any processing factors or deleterious elements that could have a significant effect on processing Ada Tepe ore.

Further laboratory testwork is ongoing to evaluate alternate flotation circuit configurations to improve overall gold recovery to the final concentrate.

1.13 Mineral Resource Estimate

The Ada Tepe MRE has been updated based on 7,058 drillholes for 439,915 m (exploration and GC) and 253 trenches for 10,710 m. Since 2017, pre-mining GC RC drilling has been completed at 5 m x 5 m spacing. A sum of 6,608 of these GC holes for 409,782 m have been included in this MRE update.

Exploration drilling forms a notional 25 m x 25 m grid over the entire deposit, while closer spaced drilling on a 12.5 m x 12.5 m grid has been completed over two rectangular sub-regions of the deposit.

Geological and much of the mineralisation interpretation has been completed in Leapfrog using geological logging, structural data, surface and pit mapping, grade data to build oxidation models, Wall Zone mineralisation, basement mineralisation and overburden. Categorical kriging using a grade indicator defined at 0.45 g/t Au was used to estimate the volume of the Upper Zone. Traditional wireframing/grade shelling has been tested and resulted in excessive unmodelled mineralisation. The volume estimated through the indicator estimate was benchmarked against the GC model to ensure the mineralisation model built using wider spaced exploration data is reliable.

The Mineral Resource model is based on detailed statistical and geostatistical investigations generated using 1 m composite data domained using the mineralisation volumes. A sub-blocked block model was constructed using 2.5 m x 2.5 m x 2.5 m parent cells. Sub-blocking is down to 0.5 m x 0.5 m x 0.5 m (X x Y x Z) to honour volumes in both cases.

In-situ dry bulk density was assigned on the basis of oxidation state and lithology.

Grade (gold and silver) was estimated into parent cells of all domains using ordinary kriging using a three-pass search strategy. Dynamic anisotropy was used to locally rotate search ellipses to align with interpretated mineralisation trends and orientations.

Hard boundaries were used between domains, with one exception – a one-way, semi-hard boundary was used for the upper boundary of the Wall Zone and lower boundary of the Upper Zone since this boundary is highly transitional. Samples within 3 m of the boundary, from the steeply dipping Upper Zone domains were included in the Wall Zone domain to better estimate the gradational nature of grades at that boundary. Since the GC drilling is now complete and covers the entire deposit, GC data has been used in the resource model.

The block model was validated separately through the following means:

- Visual validation in 2D section and 3D views
- Statistical comparison of composite and block mean grades
- Swath plot trend analysis of composites and blocks
- Comparison and reconciliation of the model against the GC model.

The block model was classified in accordance with Canadian Institute of Mining, Metallurgy and Petroleum ("CIM") guidelines as Measured, Indicated and Inferred Mineral Resources based on confidence in data, geological and grade continuity, density measurements and estimation quality.

The MRE for the Ada Tepe Gold Mine is presented in Table 1-1. The Mineral Resources are reported exclusive of Mineral Reserves. The MRE is reported at a cut-off of 0.6 g/t for the Upper Zone and 0.8g/t Au for the Wall Zone which is supported by current mining and mining studies.

Reasonable prospects for eventual economic extraction are supported through a pit optimisation using a gold price of United States Dollars (US$) 1,600/oz gold and Mineral Resources are effective as of 31 December 2022.

Table 1-1: Ada Tepe Gold Mine – Mineral Resource statement, effective 31 December 2022

Dundee Precious Metals – Ada Tepe					
Mineral Resources within Resource Shell, excluding Reserves – Depleted					
Ada Tepe MRE as of 31 December 2022					
Resource category	**Tonnes (Mt)**	**Au (g/t)**	**Ag (g/t)**	**Metal content**	
				Au (Moz)	**Ag (Moz)**
Measured	0.08	4.27	3.19	0.011	0.008
Indicated	0.02	3.83	2.94	0.002	0.002
Total Measured + Indicated	**0.10**	**4.19**	**3.15**	**0.013**	**0.010**
Inferred	0.01	4.04	2.24	0.001	0.000

Notes to the Mineral Resource statement:

- *Figures have been rounded to reflect this is an estimate.*
- *Measured, Indicated and Inferred Mineral Resources have been reported in accordance with NI 43-101 and the classification adopted by the CIM.*
- *Estimates of Measured and Indicated Mineral Resources are reported exclusive of those Mineral Resources modified to produce Mineral Reserves.*
- *The MRE has been prepared by CSA Global who are independent of DPM.*
- *Mineral Resources are based on a gold cut-off grade of 0.6 g/t for the Upper Zone and Overburden and of 0.8 g/t for the Wall Zone and Basement Zone calculated using a gold price of US$1,600/oz.*
- *The Mineral Resource is effective as of 31 December 2022.*
- *Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability.*
- *Mineral Resources may be subject to certain risks and uncertainties.*

1.14 Mineral Reserve Estimates

The mining method is a conventional open cut, drill, blast, load and haul operation, using hydraulic excavators and haul trucks to mine the material. The mining equipment is owner operated and maintained under a contract with the equipment supplier.

The mine planning update consisted of a pit optimisation followed by open pit design, long term production scheduling and cost estimation. The main differences in relation to the previous study were:

- the use of updated economic parameters such as metal prices, metallurgical recoveries, royalty and discount rate; and
- adoption of Mine Shape Optimiser ("MSO") diluted block model, used to account for operational mine dilution and expected level of selectivity.

The MSO model has been developed to simulate dig string boundaries from the MRE model, based on mining parameters, to produce a diluted block model suitable for open pit optimisation and mine planning. The key inputs to the MSO process are mining flitch height of 2.5 m, preferred mining direction of east-west, run of mine ("ROM") and stockpile gold cut-off grades (0.6, 0.8, 1.0 and 2.5 g/t Au), minimum practical dig block mining width – perpendicular to the mining direction of 3 m and dig block advance increments – parallel to the mining direction of 5 m. The pit optimisation analysis is based on a gold price of US$1,400/oz and silver price of US$20/oz. The optimisation process is discussed in Section 15.

The open pit was designed taking into consideration the geotechnical recommendations by Golder Associates UK (2013). The updated slope design has also taken into consideration the weathered rock material in the northeast corner of the pit, near the surface, and the presence of historical waste dumps in the southeast corner of the pit, also near the surface. Three incremental cutbacks were designed – phases 2 ,3 and 4; and original phase 1 is now complete. Mine plans consider the variable rock hardness of Wall zone and Upper zone, the restricted stockpile area for both ROM and low-grade material, excavator production time available and requirements for supply of waste for the IMWF.

The estimated Mineral Reserve figures are presented in Table 1-2. The numbers are appropriate for the purpose of public reporting in that they provide an acceptable prediction of the material available to mine.

This Mineral Reserve estimate has been estimated and reported in accordance with the Canadian Institute of Mining, Metallurgy and Petroleum Definition Standards for Mineral Resources and Mineral Reserves (2014).

Table 1-2: Ada Tepe Gold Mine –Mineral Reserve estimate (DPM, 2020) effective as at 31 December 2022

Ada Tepe Mineral Reserve estimates as at 31 December 2022					
Category	**Tonnes (Mt)**	**Grade (g/t)**		**Metal content (Moz)**	
		Au	**Ag**	**Au**	**Ag**
Proven					
Upper Zone	1.13	4.20	2.56	0.153	0.093
Wall Zone	1.15	6.82	4.02	0.252	0.149
Stockpile	0.21	1.49	1.32	0.010	0.009
Subtotal – Proven	**2.49**	**5.19**	**3.13**	**0.415**	**0.250**
Probable	-	-	-	-	-
Proven and Probable					
Upper Zone	1.13	4.20	2.56	0.153	0.093
Wall Zone	1.15	6.82	4.02	0.252	0.149
Stockpile	0.21	1.49	1.32	0.010	0.009
TOTAL	**2.49**	**5.19**	**3.13**	**0.415**	**0.250**

Notes:
1. Mineral Reserves have been estimated using a gold cut-off of 0.6 g/t for the Upper Zone, and 0.8 g/t for the Wall Zone.
2. Long-term metal prices assumed for the pit optimisation were US$1,400/oz for gold and US$20/oz for silver. The optimised pit was selected based on a revenue factor of 1.14.
3. Mineral Reserves include mining depletion as of December 31, 2022.
4. Proven ore includes stockpile inventory as of December 31, 2022.
5. Sum of individual values may not equal due to rounding.

No Inferred Mineral Resources are included in the Mineral Reserves. Inferred Mineral Resources do not contribute to the financial performance of the mine and are treated in the same way as waste.

The Mineral Reserves at Ada Tepe have been estimated by including a number of technical, economic and other factors as outlined in the above text. A change to any of the inputs would have some effect on the overall results, although for appropriate sensitivity ranges for all modifying factors affecting economic outcomes none were determined to have material impact. A sensitivity of economic performance is included in Section 0. An important consideration for Ada Tepe is the existence of multiple years of reconciled performance on metallurgy, delivered tonnages and grade, along with all material being defined with grade control drilling for the life of the Mineral Reserve. The high grade of the Wall Zone and its defined extent creates a robust scenario for pit optimization and design. It is concluded that the modifying factors used to estimate the Mineral Reserve support allocation of a Proven Reserve category.

Life of mine proof of geotechnical performance is difficult to ascertain as current pit walls are not of extensive vertical height, but so far all indications are of expected performance.

1.15 Mining Operations

Drilling and blasting of ore and waste is conducted over bench heights of 5 m and explosives are delivered to the hole by the drill and blast contractor. Hydraulic excavators are used to achieve required selectivity in conjunction with good blasting practice and mine to a 2.5 m flitch height. Ore and waste are generally loaded to 40-tonne capacity off-highway haul trucks to a ROM stockpile or to the IMWF. Mining operations are conducted in two 8.0-hour shifts per day. The mining production rate is approximately 3 Mtpa total material.

1.16 Processing Operations

The ore process comprises crushing and milling of the ROM ore followed by froth flotation to produce a gold-silver-bearing concentrate. The process plant operates 24 hours per day, seven days per week, except for ore crushing which operates for 12 hours per day. The plant is designed to process approximately 100 tph at an operating availability of 91.3%.

The process plant is located on the side of the Ada Tepe hill, adjacent to the IMWF and approximately 1 km south of the open pit. Process plant tailings are thickened to a paste of maximum solids content ranging between 56 Wt% and 68 Wt% and is disposed of in the IMWF, along with waste rock from the mine. The concept of the IMWF is to place thickened tailings into cells constructed from mine waste rock. The mine waste rock provides the strength required for overall stability and internal drainage.

The plant electrical power is supplied by a local power authority via an underground high voltage cable supplied from the Krumovgrad 110 kV/20 kV substation. A 20 kV main substation is established at the plant site to facilitate power distribution to various areas within the plant.

The Ada Tepe process plant was commissioned in April 2019 and ramped up to nameplate production in September 2019. Plant performance to date, in terms of throughput and gold recovery to concentrate, supports the assumptions used in the current Mineral Resource/Mineral Reserve estimate.

1.17 Project Infrastructure

The Ada Tepe Mine has been operating at commercial production levels since June 2019 and all mine site infrastructure has been completed to support the open pit operations, including: IMWF, process plant, workshops, warehouses, control rooms, offices, and water management facilities.

1.18 Permitting and Social Impacts

The mine site has all required permits for operation. A construction permit for the main operational site was issued in 2016. A final operational permit was issued in 2019. All other major permits and construction permits (discharge pipeline, new part of the access road, existing road, pump station etc.) were issued and entered into force within the period between 2016 and 2019.

As part of the permitting process, an Environmental and Social Impact Assessment (“ESIA”) was conducted. Based upon the outcomes of the ESIA, a Social Management Plan (“SMP”) was put in place at the earliest stage and followed during project development and construction. As a living document, the SMP is being followed during operation to ensure implementation of coherent and integrated strategic initiatives targeted towards sustainable economic and social benefits.

1.19 Capital and Operating Costs

The total sustaining capital of US$52.3 million is associated with ongoing operations for the life of the mine, as well as estimated closure and rehabilitation costs.

The average estimated annual operating cost for the life of mine (“LOM”) is US$73.02/t treated, as presented below in Table 1-3.

Table 1-3: Operating Cost Summary

Item			
LOM tonnes of ore processed (Mt)	2.5		
LOM Au ounces contained in concentrate (Moz)	0.36		
LOM Au ounces payable (Moz)	0.35		
LOM Ag ounces contained in concentrate (Moz)	0.15		
LOM Ag ounces payable (Moz)	0.14		
Item	**US$ M**	**US$/t**	**US$/oz Au**
Mining	46	18.55	131
Processing	72	29.02	205
General and administration	38	15.32	108
Royalty	25	10.13	71
Total operating costs	**182**	**73.02**	**515**
TCs, RCs, penalties, freight, & other selling costs	10	4.02	28
Total operating costs plus selling costs	**192**	**77.03**	**543**
Less: by-product credits	(3)	(1.15)	(8)
Total operating costs, plus selling costs, less by-product credits(1)	**189**	**75.88**	**535**

Notes:

(1) Operating costs are reported in US$, although majority of costs incurred are denominated in non-US$, and consist of all production related expenses including mining, processing, services, royalties and general and administrative.

1.20 Financial Summary

Based on the projected LOM ore production schedule of four years, operating costs and metal prices of US$1,750 per troy ounce price for gold and US$20 per troy ounce for silver, the LOM after-tax net present value ("NPV") is estimated at US$343 million when using a discount rate of 5.0%.

1.21 Interpretations and Conclusions

The mine plan shows a high conversion of Mineral Resources to Mineral Reserves at the cut-off grades selected. The extent of the data collected through the exploration program and the quality control standards used provide the basis for a high level of confidence for mining operation.

1.21.1 Geology and Sampling Procedures

BMM conducted detailed exploration of the Ada Tepe prospect between 2000 and 2004. A total of 52.9 km of drilling, and 18.3 km of surface trenching was completed, with more than 66,000 individual assay intervals and 5,700 bulk density determinations. Since production commenced, some additional 383 km of RC drilling has been undertaken as part of operational grade control practices.

During site visits by CSA Global in 2013, 2014, 2015, 2016, 2017, 2019 and most recently in 2022, discussions have been held with DPM staff. Data and procedures were reviewed in the mine office, open pit operations, processing plant and SGS laboratory. Conclusions based on the 2022 site visit were that procedures are consistent with good mining industry practice.

Quality control results indicate that the GC assay results are accurate and repeatable with no material contamination apparent. No significant issues of bias or fatal flaws were noted in the overall QAQC review and therefore the author believes these results can be used with confidence in downstream work.

1.21.2 Geological Model

The availability of close spaced sampling data throughout the deposit has allowed for refinement of the MRE model during the 2022 update, as set out in Section 14.

CSA Global believes that the current understanding of geology and mineralisation controls is good, and that the current MRE model adequately predicts the in-situ grades and tonnes realised during open pit development and mine production. Good comparison between the GC model and sampling and drilling data with the MRE model demonstrates the robustness of the MRE model.

1.21.3 Assay QAQC

A review of the quality control data for the GC drilling was completed for gold and silver assays. Data from RC drillholes drilled between 2020 and 2022 were reviewed.

The QAQC procedures implemented at Ada Tepe are adequate to assess the accuracy and precision of the assay results obtained.

No fatal flaws were noted with respect to cross contamination or assay accuracy (blank or standard analysis respectively). CSA Global noted that accuracy and precision exhibited by SGS Bor was, at times, poorer than the other laboratory results, however no significant bias was noted and CSA Global considers that the gold and silver certified reference materials ("CRMs") analysed by the SGS Bor laboratory to be accurate and appropriate for Mineral Resource estimation studies.

CSA Global concludes that for the purpose of Mineral Resource estimation, acceptable levels of precision with no significant bias for both gold and silver were reported for all the sampling stages analysed.

Relatively high levels of inter-laboratory precision were evident for the gold analyses between primary and umpire laboratories. In addition, there was no evidence of bias between the compared datasets.

1.21.4 Database Validation

Project data is housed in an acQuire relational database which has inbuilt validation criteria, constraints and triggers to ensure that all data in the database is validated and meet these criteria. Verification checks are also completed by DPMKr on surveys, collar coordinates, lithology, and assay data. Data undergoes further validation by CSA Global through a series of Datamine loading macros.

An audit of the DPMKr database was completed by CSA Global and the overall conclusions were that the database was well maintained, good practices appeared to have been followed, and data in the database should be fit for purpose for downstream work.

The Qualified Person has reviewed the reports and believes the data verification procedures undertaken on the data collected from DPMKr adequately support the geological interpretations and the analytical and database quality, and therefore supports the use of the data in Mineral Resource and Mineral Reserve estimation.

1.21.5 Bulk Density

CSA Global concludes that the in-situ dry bulk density data is collected using appropriate sampling methods and analysis procedures. Investigations based on the geological logging codes concluded that the modelled geological constraints allowed for appropriate grouping of the bulk density (“BD”) data. CSA Global reviewed these assumptions in the July 2020 MRE update by further subdividing these geological zones based on mineralised vs waste material. Minor differences observed between the mean density values for the waste and mineralised material in the Upper Zone conclude that the previous grouping of BD values is appropriate. No material differences were identified for the Wall Zone in the updated dataset. CSA Global has therefore used the values determined in the previous study, with the inclusion of values for the basement waste rock.

1.21.6 Mineral Resource Estimation

A total of 7,058 holes for 439,915 m were used in the update to the Ada Tepe MRE. At the time of reporting the Ada Tepe deposit is essentially drilled out on 5 m x 5 m centres within the current LOM shell, constrained by permitting extents.

CSA Global believes the current understanding of geology and mineralisation controls is good, and that the current MRE model adequately predicts the in-situ grades and tonnes realised during open pit development and mine production. Good comparison between the GC model, sampling and drilling data with the MRE model, demonstrates the robustness of the MRE model.

In addition, benchmarking of the MRE against the GC model and recent production data shows close comparison (to within 5% on a tonnes, grade and contained metal basis) and CSA Global concludes that the MRE model is robust and can be used in downstream Mineral Reserve evaluation and mine planning with confidence.

Technical risk associated with downstream use of the MRE model is considered low.

The Mineral Resource was classified in accordance with CIM guidelines as Measured, Indicated and Inferred Mineral Resources. The Mineral Resource is reported exclusive of Mineral Reserves.

1.21.7 Process Plant and Infrastructure

Plant operating data indicates that the Ada Tepe processing facility is currently achieving nameplate production, and design gold and silver recoveries to saleable concentrate. Future mine production will include a higher percentage of harder wall material in the plant feed. This will result in a decrease in plant throughput rate from 105 tph down to 90 tph as per the latest LOM production and processing plan. The IMWF design and construction schedule based on the updated LOM plan waste quantity and tails volume indicates sufficient available tailings storage throughout the LOM.

1.21.8 Mine Operations

The successful establishment and construction of the mine has resulted in a viable mining operation that has reached its design capacity and realised planned milestones. The established operational approach is indicated to continue to deliver the production and results of the LOM Plan.

No risks are considered to be fatal flaws in the context of the Ade Tepe Operation, although continuing actions to improve the risk profile will be undertaken. Recent increases in costs require monitoring and opportunities to decrease inflationary pressure should be sought.

1.21.9 Qualitative Risk Assessment

Table 1-4 summarises the areas of uncertainty and risk associated with the operation, informed by the conclusions summarised above, and recommendations discussed in Section 26.

Table 1-4: Project-specific risks

Project risk area	Summary	Outcome	Mitigation
Geology and data management	Upper Zone mineralisation is complex. Volume estimation through Indicator Kriging has been benchmarked against the current good performance of the GC model in production.	Performance may change as mining moves from predominantly oxide to fresh.	As production moves out of oxide and into fresh, performance must be monitored to ensure assumptions remain valid.
Mineral Resource estimation	The wireframes have been interpreted with the current reporting cut-offs in mind.	Any changes to cut-off, either increasing or decreasing may result in different volumes being interpreted, data being selected and therefore tonnes and grades being estimated.	If a broader spectrum of cut-off grades is of interest, a non-linear estimation method is recommended.
Mining	The Upper Zone mineralisation is highly complex and exhibits a high nugget component and significant short-range grade variability.	Misallocation of ore and waste. Unplanned dilution within feed.	Continue to ensure that RC GC drilling is undertaken ahead of mining, preferably one year ahead. Careful mining practices to minimise dilution, such as the use of BMM and HPGPS guided excavators should continually be used during ore extraction.
Processing	No significant risks.		
Waste and tailings management	Shortage of waste available from pit for constructing tailings cells, or excessive volume of tailings, due to misalignment between design and actual waste/tailings mass balance.	Alternative local and/or imported waste required. Periods of lower plant throughput or plant stoppage to allow.	Detailed LOM plan showing waste and tails production indicate that cell construction schedule allows sufficient available volume for tails throughout the LOM. This schedule is progressively reviewed and adjusted as the mine progresses to account for as-built situation. Contingency tailings storage capacity available.
War and pandemic outbreaks (Force Majeure)	Could affect labour and supply chain which could impact capital and operating costs. Could affect obligations under the concession and exploration contracts.	Could impact on the mining and exploration schedule.	Managing inventories and reviewing alternative supply options should any disruptions occur. Focus on managing outbound supply chains, including, by considering multiple sale and transportation outlet.

Project risk area	Summary	Outcome	Mitigation
			Written notice to Ministry of Energy for temporary suspension of the concession contract for the period of force majeure. Additional agreements for extending the exploration contract terms and extension of other contracts for land use.

1.22 Recommendations

The following recommendations are made in relation to the Ada Tepe Mine operations.

1.22.1 Geology and Mineral Resources

Characterisation of "voids" are recommended to ensure they are adequately mapped, and that grade and density relationships are well understood.

Moving forward, the MRE model essentially becomes the GC model, since no additional drilling is planned by DPM. As successive levels of the deposit are mined over the remaining years of the LOM, the performance of the MRE model should be routinely assessed against production data as part of regular reconciliation reviews.

1.22.2 Mining and Processing

Continue with the following activities:

- Training and development of the technical workforce to further optimise and improve management and operational practices.
- Production Reconciliation, with particular focus on comparisons as mining commences into fresh material to ensure assumptions remain valid, with respect to the Mineral Resource model and the MSO parameters used in estimation of dilution and ore loss in the Mineral Reserve model.
- Careful monitoring of the IMWF and continued management of the waste and tailings placement process according to the design principles.
- Monitoring of inflationary costs and development of programs to seek alternative suppliers and reduced energy consumption based on trade-off studies.
- Focus on continuous improvement and application of appropriate innovations to operational activities, allowing for improved flotation control performance.
- Implement the further process plant optimisation opportunities to improve flotation performance and provide increased process control measures to ensure "steady state" operations.
- Apply the recently developed geometallurgical block model in combination with the plant performance predictive model, to the production planning process. This would allow for further process optimisation through improved planning, prediction and control of the mining operation, feed blend and plant control.

1.22.3 Recommended Work Programs

During 2022 the results of extensional drilling to the north of the deposit returned a series of narrow intervals of mineralisation above the mine cut-off and within the commercial discovery boundary, which may represent incremental extensions of Upper Zone vein swarms. A recommendation is that DPMKr consider RC infill drilling to the north of the deposit to properly assess the Mineral Resource potential of these volumes.

An estimate of 8,000 m of RC drilling would be required to complete this assessment at an approximate cost of USD$480,000.

2 Introduction

2.1 Issuer

CSA Global was requested by DPMKr, a 100% owned subsidiary of DPM, to update the MRE and supervise, verify and validate the Mineral Reserve estimate for the Ada Tepe open pit gold mine located in south-eastern Bulgaria. The change being reported in this Technical Report is an update to the Mineral Resource and Mineral Reserve estimates previously reported by DPM.

DPM is a public company headquartered in Toronto, Canada and listed on the Toronto Stock Exchange (TSX: DPM). This Technical Report has been prepared for DPM in accordance with the requirements of National Instrument 43-101 Standards of Disclosure for Mineral Projects ("NI 43-101").

2.2 Terms of Reference – CSA Global

CSA Global is an international independent geological and mining consultancy with offices in Australia, the United Kingdom, Ireland, Canada, Indonesia and South Africa, and is an ERM Group company. CSA Global was engaged by DPMKr to update the MRE and supervise, verify and validate the Mineral Reserve estimate for the Ada Tepe open pit gold mine located in south-eastern Bulgaria. This Technical Report is prepared in accordance with the disclosure and reporting requirements set forth in NI 43-101, including Companion Policy 43-101CP and Form 43-101F1.

The authors of this Technical Report do not disclaim any responsibility for the content contained herein and make appropriate limited disclaimers as permitted under Section 3 (Reliance on Other Experts).

CSA Global's technical staff used geological data and interpretations, data relating to underground development and mined areas, drilling and assay data and other relevant technical data for the purposes of preparing this Technical Report.

2.3 Ownership

DPMKr, a 100% subsidiary of DPM, was awarded the Krumovgrad licence area (130 km^2) on 12 June 2000 in accordance with the Agreement of Prospecting and Exploration reached with the Bulgarian Ministry of Economy. The licence area is located in East Rhodope, approximately 320 km (by road) southeast of Sofia, in the Kardjali District, immediately south of the regional township of Krumovgrad (latitude 25° 39' 15" and longitude 41° 26' 15").

The Mining Licence ("Khan Krum Concession") covers an area of 1,370 ha (13.7 km^2) and includes the area of the Ada Tepe mining operation and the satellite prospects of Kuklitsa, Kupel, Surnak, Skalak, and Synap. DPMKr has 100% ownership of the mine, which operates under a concession agreement that was signed between DPMKr and the Council of Ministers of the Republic of Bulgaria in 2012 for a period of 30 years. Under Bulgarian regulations, the Mining Licence area is applied for on the basis of geographical coordinates.

2.4 Principal Sources of Information

The data used to update the MRE reported herein was collected to up 31 March 2022. The MRE has an effective date of 31 December 2022. The mined pit surface used to deplete the Mineral Resource is as of 31 December 2022. The updated Mineral Resource has been used as the basis for estimating the Mineral Reserves as outlined in this document, with an effective date of 31 December 2022.

This Technical Report is an update to the NI 43-101 Technical Report issued on 20 November 2020 (CSA Global, 2020).

Qualified Persons for the NI 43-101 are:

- Mr Galen White (Qualified Person) – Geology and Mineral Resources
- Mr Andrew Sharp (Qualified Person) – Mining and Mineral Reserves
- Mr Gary Patrick (Qualified Person) – Metallurgy and Processing.

A full listing of the principal sources of information is included in Section 27 of this Technical Report.

2.5 Units

All units of measurement used in this Technical Report are metric unless otherwise stated and are contained in the Glossary/Abbreviations in the front of this Technical Report.

2.6 Site Visits

2.6.1 Current Personal Inspection (1) – Geology and Sampling

CSA Global Principal Consultant and report author (Qualified Person), Mr Galen White visited the Ada Tepe site between 10 and 11 March 2022 for the purposes of reviewing mining activity, practises, drilling activity, facilities (including a tour of the processing plant, information centre, tailings management facility) and administration areas. Site discussions were held with key personnel and various aspects of data collection, management, chain of custody and resource estimation workflow was reviewed.

Mr White found all requests for access to locations and information to be willingly obliged and all information supplied supportive of observations. Mr White considers that the proper amount of review through reports, technical data, interviews and physical presence has been completed to support this report.

2.6.2 Current Personal Inspection (2) – Mining and Mineral Reserves

Andrew Sharp, Associate Principal Mining Engineer of CSA Global Consultants Canada Ltd visited the site on 10 and 11 March 2022. During the site visit, the following review was undertaken:

- Review of mining activities which included drill and blast, excavator loading and grade control activities.
- Mine planning process which included short-term planning, whittle optimisation and grade control using blast movement monitors.
- Integrated Waste Management Facility, construction, placement of waste and rehabilitation activities.
- Mine offices, and processing plant.

2.6.3 Current Personal Inspection (3) – Site Visit Metallurgy

Mr. Gary Patrick has been providing support to the DPM metallurgical team on a regular basis since 2019. A site visit to the Ada Tepe operation was planned for the first week of March 2020, but this was cancelled due to COVID-19 travel restrictions and safety precautions. Mr Patrick is familiar with the operation and plant performance due to ongoing communication with key personnel and is familiar with the regional setting from previous visits to the Krumovgrad area, providing technical support to other projects. He has reviewed the production and testwork results, as well as related operating and technical information. As a result, it is Mr. Patrick's opinion that the required amount of review for this report has been completed and a site visit was not required.

2.7 Independence

The external contributors to this study neither have, nor have had previously any material interest in DPM or related entities or interests. The relationship with DPM is solely one of professional association between client and independent consultant. This Technical Report is prepared in return for fees based upon agreed commercial rates and the payment of these fees is in no way contingent on the results of this Technical Report.

CSA Global (including its directors and employees) does not have nor hold:

- Any vested interests in any concessions held by DPM
- Any rights to subscribe to any interests in any of the concessions held by DPM either now or in the future
- Any vested interests either in any concessions held by DPM, or any adjacent concessions
- Any right to subscribe to any interests or concessions adjacent to those held by DPM either now or in the future.

2.8 Cautionary Statements

2.8.1 Forward-Looking Information

This Technical Report contains "forward-looking information" or "forward-looking statements" that involve a number of risks and uncertainties. Forward-looking information and forward-looking statements include, but are not limited to, statements with respect to the future prices of gold and other metals, the estimation of Mineral Resources and Reserves, the realisation of mineral estimates, the timing and amount of estimated future production, costs of production, capital expenditures, costs (including capital costs, operating costs, and other costs) and timing of the development of new mineral deposits, success of exploration activities, permitting timelines, LOM, rates of production, annual revenues, cash flows, internal rate of return ("IRR"), NPV, and various other operational, economic and financial metrics, currency fluctuations, requirements for additional capital, government regulation of mining operations, environmental risks, unanticipated reclamation expenses, title disputes or claims, limitations on insurance coverage and timing and possible outcome of pending litigation, if any.

Often, but not always, forward-looking statements can be identified by the use of words such as "plans", "expects", or "does not expect", "is expected", "budget", "scheduled", "estimates", "forecasts", "intends", "anticipates", or "does not anticipate", or "believes", or variations of such words and phrases or state that certain actions, events or results "may", "could", "would", "might" or "will" be taken, occur or be achieved.

Forward-looking statements are based on the opinions, estimates and assumptions of contributors to this Technical Report. Certain key assumptions are discussed in more detail herein. Forward looking statements involve known and unknown risks, uncertainties and other factors which may cause the actual results, performance or achievements of DPM and/or Ada Tepe to be materially different from any other future results, performance or achievements expressed or implied by the forward-looking statements.

Such risk factors include, among others: inherent uncertainties with respect to the actual results of current exploration activities, actual results of reclamation activities, cost estimates, conclusions of economic evaluations and mineral resource and mineral reserve estimates; changes in project parameters, including schedule and budget, as plans continue to be refined; future prices of gold and other metals; possible variations in grade or recovery rates; failure of plant, equipment or processes to operate as anticipated; accidents, labour disputes and other risks of the mining industry; delays in obtaining or renewing governmental approvals , fluctuations in metal prices; shortages of labour and materials, the impact on the supply chain and other complications facing the economy; inflationary pressures; risks of recession; the situation relating with the war in Ukraine and geopolitical uncertainties; risks of sanctions that may affect supplies of fuel, or the cost thereof, for mining operations; risks associated with pandemics, including any resurgence of the COVID-19 (coronavirus) pandemic; as well as those risk factors discussed or referred to in this Technical Report and in DPM's latest annual information form under the heading "Risk Factors" and other documents filed from time to time with the securities regulatory authorities in all provinces and territories of Canada and available at www.sedar.com.

There may be other factors than those identified that could cause actual actions, events or results to differ materially from those described in forward-looking statements, there may be other factors that cause actions, events or results not to be anticipated, estimated or intended. There can be no assurance that forward-looking statements will prove to be accurate, as actual results and future events could differ materially from those anticipated in such statements. Accordingly, readers are cautioned not to place undue reliance on forward-looking statements. Unless required by securities laws, the authors undertake no obligation to update the forward-looking statements if circumstances or opinions should change.

3 Reliance on Other Experts

The authors of this Technical Report have reviewed available Company documentation relating to the Ada Tepe operation and other public and private information as listed in Section 27 (References). In addition, this information has been augmented by first-hand review and on-site observation and data collection conducted by the authors.

The Qualified Persons take responsibility for all scientific and technical content of this Technical Report and believe it is accurate and complete in all material aspects. CSA Global has relied on information provided by DPM relating to legal, political, environmental and tax matters relevant to this Technical Report. CSA Global relied on DPM's legal representation to describe the following sections:

- Section 4.4 (Mineral Rights and Tenement Description)
- Section 4.5 (Permitting)
- Section 4.6 (Royalties)
- Section 4.7 (Environmental Liabilities)
- Section 20 (Environmental Studies, Permitting and Social or Community Impact)
- Section 24.1 (Legal Framework)
- Section 24.2 (Foreign Investment).

These items have not been independently reviewed by CSA Global and CSA Global did not seek independent legal review of these items.

4 Property Description and Location

4.1 Background Information

Bulgaria is a Slavic Republic in south-eastern Europe, bounded to the north by Romania, to the west by Serbia and Macedonia, to the south by Greece and Turkey, and to the east by the Black Sea. The capital city is Sofia and the national population is approximately 6.59 million[1].

Bulgaria became a member of the European Union ("EU") on 1 January 2007 and has been a member of NATO since April 2004. The local currency, the Bulgarian Lev ("BGN") has been pegged to the Euro (1.95583 BGN/EUR€) since 1999.

Educational standards within the country are high. Mineral exploration was important under the communist regime, resulting in a large pool of well-qualified geologists and technical staff. The historical lead-zinc mining industry in Eastern Rhodopes is also a source of both skilled and unskilled personnel.

Bulgaria is well serviced by facilities and infrastructure. Large towns usually have the facilities normally found in western European countries. The country is served by an extensive network of paved roads, except in the most mountainous districts. There is a comprehensive rail network.

4.2 Company Information

DPMKr is a joint stock company, solely owned by Dundee Precious Metals Krumovgrad BV, a subsidiary of Dundee Precious Metals Inc.

4.3 Project Location and Accessibility

The Ada Tepe mine operations are located in East Rhodope, approximately 320 km (by road) southeast of Sofia, in the Kardjali District immediately south of the regional township of Krumovgrad (25° 39' 15"E and 41° 26' 15"N). Figure 4-1 displays the location of the concession area in the context of Bulgaria and the surrounding region. Krumovgrad is located approximately 320 km by paved road southeast of Sofia and some 15 km north of the border with Greece.

[1] Source: Bulgarian National Statistical Institute – 2021 year population counting campaign

Figure 4-1: Location plan of the Krumovgrad Concession area
Source: DPM, 2020

The Ada Tepe deposit is located 3 km south of the Krumovgrad townsite and trends in a north-south direction. The deposit area comprises of hilly topography abutting a major regional river system. The mine site is readily accessible at all times of the year.

4.4 Mineral Rights and Tenement Description

The licence area is located in East Rhodope, approximately 320 km (by road) southeast of Sofia, in the Kardjali District, immediately south of the regional township of Krumovgrad (latitude 25° 39′ 15″ and longitude 41° 26′ 15″).

On 25 April 2001, the Company registered the geological discovery of the Khan Krum deposit at the Ministry of Environment and Waters ("MoEW") hosting gold located in the Krumovgrad licence area.

Based on the prospecting and exploration permit, the Company submitted to the MoEW, Application with Incoming No. ZNPB-1149/27.04.2007 for the registration and certification of a commercial discovery: Khan Krum deposit comprising the prospects of Ada Tepe, Surnak, Skalak, Synap, Kuklitsa, and Kupel. On 28 August 2009, the MoEW formally issued the Certificate for Commercial Discovery No. 0417/28.08.2009 for the Khan Krum deposit, including Mineral Reserves, Mineral Resources and coordinates. This entitles DPM to plan and develop those Mineral Resources and Mineral Reserves within the commercial discovery boundaries and is valid for 30 years.

The Mining Licence ("Khan Krum Concession") covers an area of 1,370 ha (13.7 km^2). The current Ada Tepe commercial discovery boundary encompasses an area of 16.1 ha (0.161 km^2). A plan view of the commercial discovery boundaries and enveloping concession area is shown in Figure 4-2.

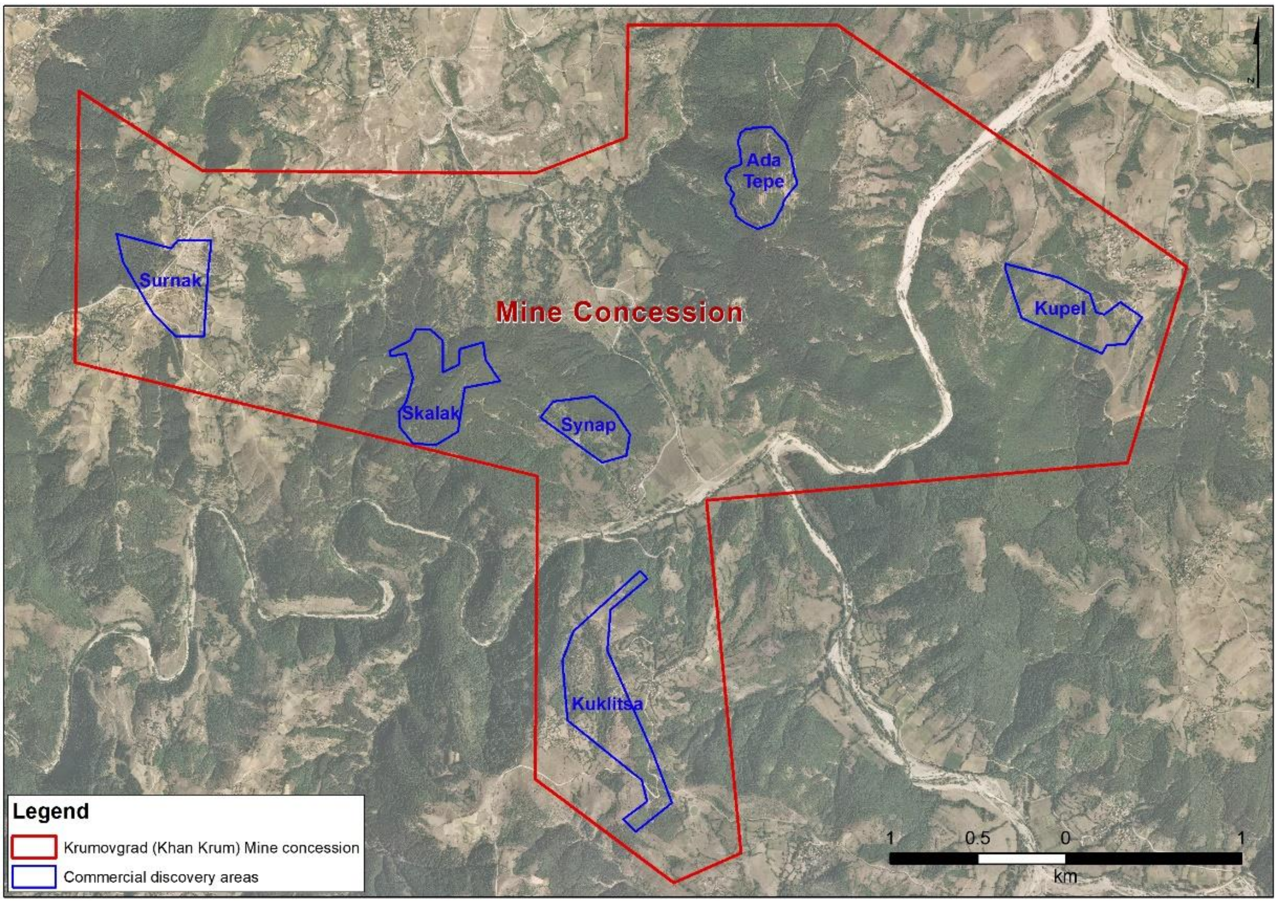


Figure 4-2: Plan view of the commercial discovery boundaries and enveloping mine concession area
Source: DPM, 2020

The Underground Resources Act regulates the conditions and the procedures for prospecting, exploration and mining of underground Mineral Resources located on the territory of the Republic of Bulgaria, the continental shelf and the exclusive economic zone in the Black Sea.

The Underground Resources Act came into force in March 1999 and has been amended several times since its promulgation, with the last amendment in September 2020, in force from September 2020. This act established the objects over which mining concessions may be granted and setting forth the conditions and the procedure for granting concessions.

4.5 Permitting

The mine site has obtained all required permits for operation. There are no pending obligations related to the property or other tenure rights. The permits can be divided into four main categories, and their histories are summarised below.

4.5.1 Concession Rights

The process of securing the concession rights began in 2007. To secure the rights, a number of key steps were completed which required the coordination of applications between different ministries, administrations and departments. In August 2009, a Commercial Discovery Certificate was issued for the Krumovgrad Gold Project by the MoEW. The final concession rights were granted to the Company in 2011 by the Bulgarian Council of Ministers ("CoM"). Based on the CoM's Resolution, DPMKr signed the Concession Agreement with CoM on 25 April 2012 which secured the Company's concession rights

4.5.2 Environmental Impact Assessment and Environmental Permits

In parallel with the process of securing concession rights, the Company started the process of environmental permitting. The first application was submitted in 2010 and the main environmental act was granted by Resolution of the MoEW was issued in late 2011. The EIA resolution was subject to an appeal by Krumovgrad Municipality and three non-governmental organisations ("NGOs"). In 2014, a five-member Supreme Administrative Court panel issued a ruling upholding the original ruling of the three-member panel, rejecting the appeals by the NGOs against the EIA Resolution. This ruling was final, and the EIA Resolution entered in force.

4.5.3 Land Ownership

The Company has purchased all the required land for the Ada Tepe Mine and has all rights to the surrounding facilities and infrastructure.

4.5.4 Construction and Operational Permits

A construction permit for the main operational site was issued in 2016. A final operational permit was issued in 2019. All other major permits and construction permits (discharge pipeline, new part of the access road, existing road, pump station etc.) were issued and entered into force within the period between 2016 and 2019.

4.6 Royalties

The Company is paying a royalty to the Bulgarian government, at a variable royalty rate applied to the gross value of the gold and silver metals combined in the ore mined. The royalty rate depends on the profitability of the operation. At a pre-tax profit to sales ratio of 10% or less, the royalty rate will be 1.44% of the value of the metals. At a pre-tax profit to sales ratio of 50% or more, the royalty rate will be 4% of the value of the metals. At intermediate levels of profitability, the royalty rate will vary on a sliding scale between 1.44% and 4% in a linear fashion.

4.7 Environmental Liabilities

An EIA statement was issued by the Bulgarian Minister of Environment and Water. The statement includes a number of conditions which have to be implemented during detailed design, construction, operation, closure and rehabilitation stages of the mine.

The Closure and Rehabilitation Plan was approved by the Minister of Economy and Energy and was updated in 2020. Total cost estimate for closure of the site and IMWF, plus rehabilitation, is BGN 16.7 million (approximately US$9.28 million). The financial guarantee for closure and rehabilitation of the site was determined as part of the Closure and Rehabilitation Plan. In November 2022, the financial guarantee was renewed for a further year and presented to the Ministry of Energy ("MoE").

DPM is not aware, nor has it been made aware, of any other significant environmental liability associated with the Ada Tepe Mine.

4.8 Other Risks

COVID-19 as a circumstance is determined as force majeure in the concession and exploration contracts with the MoE. The definition of force majeure is an extraordinary event or circumstance beyond the control of the Parties occurring after the effective date of the Agreement including an intervening act of God or public enemy, such as fire, epidemic, flooding, earthquake, unfavourable weather conditions or other natural disaster, hostile acts or environment arising from or relating to acts of war or active hostilities (whether declared or not), civil commotions, revolution, strike, riot or other public disorder, lockouts, etc.

If the Company cannot perform its concession and exploration obligations as a result of COVID-19, the Company is required to promptly notify the MoE. The performance of the affected obligations shall be suspended for the duration of the force majeure. Additional agreements in writing shall be concluded to make arrangement for the period of suspension.

To date, DPM has not declared force majeure on any major Ada Tepe contract due to COVID-19 at the time of filing but there is no assurance that the situation with respect to another new pandemic situation might change and DPM may have no choice but to declare force majeure.

The situation with respect to the war in the Ukraine and international sanctions associated with Russia may impact fuel and other supplies in Bulgaria, including the cost thereof, and thereby affect operations at Ada Tepe. For more information, see DPM's management's discussion and analysis for the year ended December 31, 2022 which can be accessed through the System for Electronic Document Analysis and Retrieval ("SEDAR") website at www.sedar.com and the Company's website at www.dundeeprecious.com

To the extent known, the authors of this Technical Report are not aware of any other significant factors or risks that may affect access, licence title or the ability to perform work on the property.

5 Accessibility, Climate, Local Resources, Infrastructure and Physiography

5.1 Accessibility

The town of Krumovgrad is approximately 320 km southeast by paved road from the capital of Bulgaria, Sofia, which is serviced by a modern international airport. A second international airport is situated in the city of Plovdiv located approximately 106 km northwest of Krumovgrad town. The Ada Tepe deposit is located some 3 km south of Krumovgrad town. Access to the general area is available at all times of the year, by sealed roads to Krumovgrad. Access within the licence area is good, with all-weather surface roads transecting the licence area. Secondary roads are unsurfaced but generally accessible with four-wheel drive vehicle year-round.

5.2 Physiography and Climate

The Krumovgrad District is around 230 m above mean sea level and is characterised by a rugged landscape. The Ada Tepe deposit is located in an area of moderate, hilly topography abutting a major regional river system.

The concession area climate is Continental-Mediterranean, featuring markedly higher winter and substantially lower summer precipitation. Winters are mild, but during intensive cold spells temperatures may fall to -13°C. Summers are hot, reaching 36°C in warmer spells and exceeding 40°C in some locations.

The average annual precipitation is 703.5 mm. The bulk of this falls in autumn and winter, occasionally as snow in the coldest months. The highest rainfall occurs in December (96.9 mm average) and the lowest in August (24.1 mm). Estimated 1:100-year rainfall events are 117.3 mm for 24 hours duration, and 184.1 mm for 72 hours. Probable Maximum Precipitation estimates are up to 383.4 mm for 24 hours and 605.4 mm for 72 hours. Average annual evaporation is 1,050.8 mm, similar overall to annual rainfall in magnitude, but opposite in seasonal sense. Mining operations are conducted all year round.

5.3 Local Resources

The Ada Tepe mine operation currently employs 288 people on site with the majority from surrounding communities. The town of Krumovgrad has a population of approximately 9,000.

Educational standards within Bulgaria are high. Mineral exploration was important under the communist regime, resulting in a large pool of well qualified geologists and technical staff. The historical lead-zinc mining industry in Eastern Rhodopes is also a source of both skilled and unskilled personnel in the local area.

Small villages are dispersed widely throughout the concession area involved in subsistence farming, particularly livestock and the growing of tobacco and other vegetables on the poorly developed soils characteristic of the region. The other main land use within the concession area is state-controlled forestry.

5.4 Infrastructure

Infrastructure in the area is good, with paved roads, power and water resources available within close proximity to the Ada Tepe mine site.

The Company is holder of a Permit No. 31530328/04.03.2013 for groundwater abstraction using new abstraction facilities – tube well with infiltration lateral, issued by the Director of Basin Directorate for Water Management – East Aegean Region – Plovdiv with a 10-year validity term. The permit for water abstraction is in force and due to expire on 04.03.2031. The purpose of abstraction is industrial and independent drinking water supply.

Electric power for the mine operations is supplied by the "EVN" EAD via a single overhead line. A backup supply line is also available. The Company has its own site substation and the site distribution system. Most of the electric power is used for ore crushing and grinding, and the remainder is used in the other process stages, the offices, and other ancillary facilities.

The Company is holder of a water discharge permit #33140188/21.08.2015 and operationalised 6.8 km of discharge pipeline in August 2019. The discharge pipeline crosses different types of land (agriculture, private, municipal, state owned and national forestry lands). DPMKr has been granted all rights necessary to use the land.

6 History

6.1 History of Ownership and Exploration

The Ada Tepe prospect was the subject of only very brief attention in previous State-funded exploration in the early to mid-1990s, by GeoEngineering of Assenovgrad, and Geology & Geophysics of Sofia. In the early to mid-1990s, GeoEngineering of Assenovgrad carried out an extensive program of geological mapping, trenching and drilling over the nearby Surnak prospect together with minor trenching on the Skalak and Kuklitsa prospects.

Geology & Geophysics included the entire licence area in a Southeast Rhodopes regional soil sampling program (average sample grid 250 m x 50 m) conducted during the early to mid-1990s. Magnetic and IP surveys were also conducted across the prospect. The results of this early work showed the presence of gold soil geochemical anomalies of significant intensity and extent over the Krumovgrad licence area, and a variety of geophysical anomalies.

On 12 June 2000, BMM (a 100% subsidiary of DPM, now referred to as DPMKr) was awarded the Krumovgrad licence area (113 km^2) in accordance with the Agreement of Prospecting and Exploration reached with the Ministry of Economy, Energy and Tourism (“MEET”).

6.2 Historical Mineral Resource and Mineral Reserve Estimates

There was no historical Mineral Resource and Mineral Reserve estimates in accordance with section 2.4 of NI 43-101.

6.3 Historical Production

Ancient mining pits, dated to 2nd millennium BC, have been uncovered by archaeologists indicating ancient artisanal mining activity, the extent of which is low. There are also several areas of the deposit that have ancient mining spoils tips. These often have elevated gold grades and have been modelled based on intercepts in drillholes. Figure 6-1 to Figure 6-3 shows photos of mining pits, overburden spoils and a plan view of overburden mapped in the licence area.

No other production has been undertaken at the property prior to DPM’s ownership.

Figure 6-1: Ancient mining pits (water filled) exposed by archaeologists.
Source: CSA Global, 2012

Figure 6-2: Overburden mapped in east Ada Tepe
Source: CSA Global, 2019

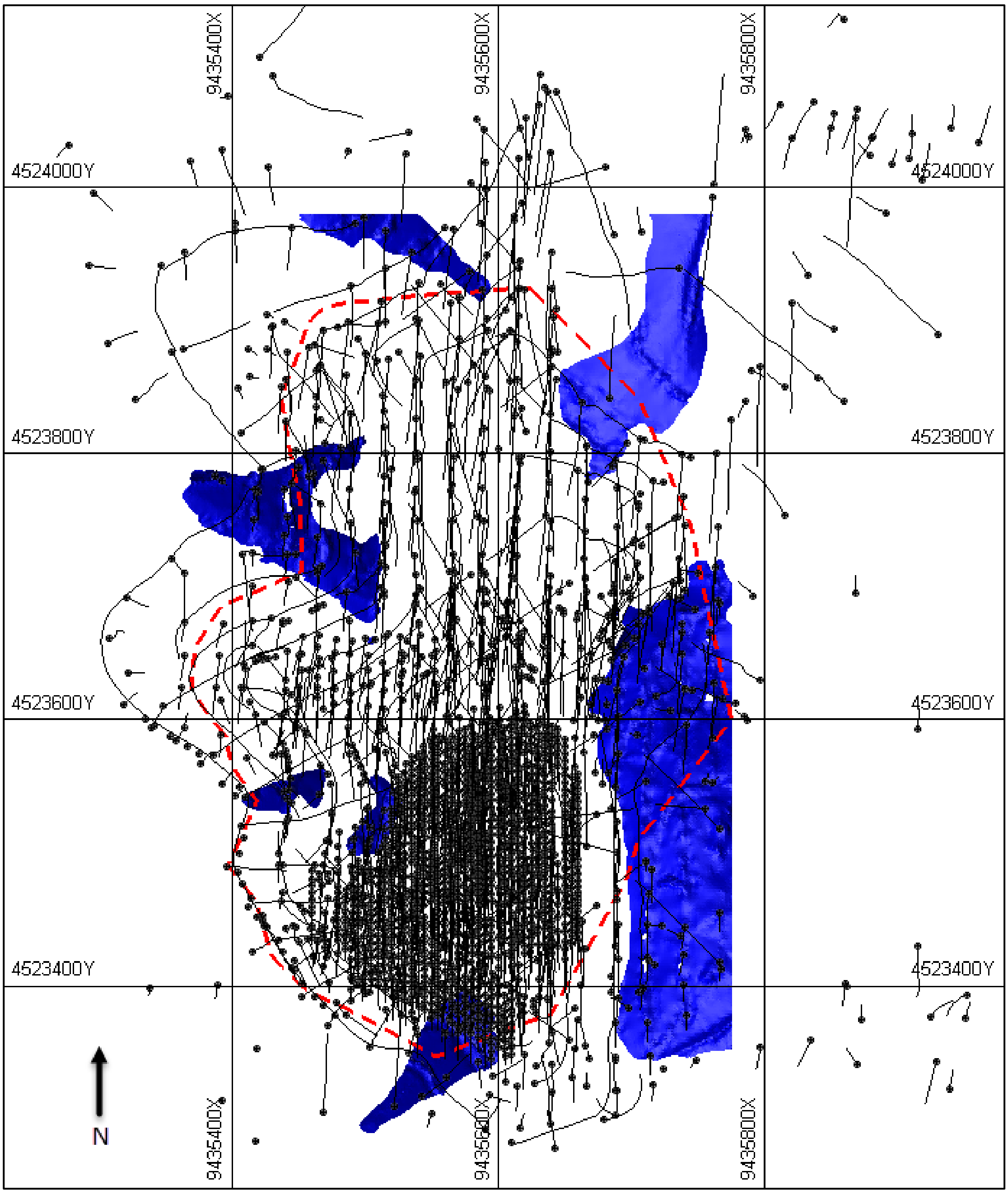


Figure 6-3: Wireframes created of "overburden" or historical mining spoils

Note: Licence area shown as red dashed line.

Source: CSA Global, 2020

7 Geological Setting and Mineralisation

7.1 Regional Geology

The Krumovgrad region is located within East Rhodope which comprises the eastern portion of a large metamorphic complex termed the Rhodope Massif. The massif underwent Upper Cretaceous extension leading to uplift and formation of the Kessebir metamorphic core complex. This event was accompanied low-angle detachment faulting, by graben development, and formation of sedimentary basins. The basins to the north of the Kessebir core complex contain Palaeocene terrestrial sediments that are transitional upwards into marine sediments. Figure 7-1 displays a plan of the regional geology of the Krumovgrad region.

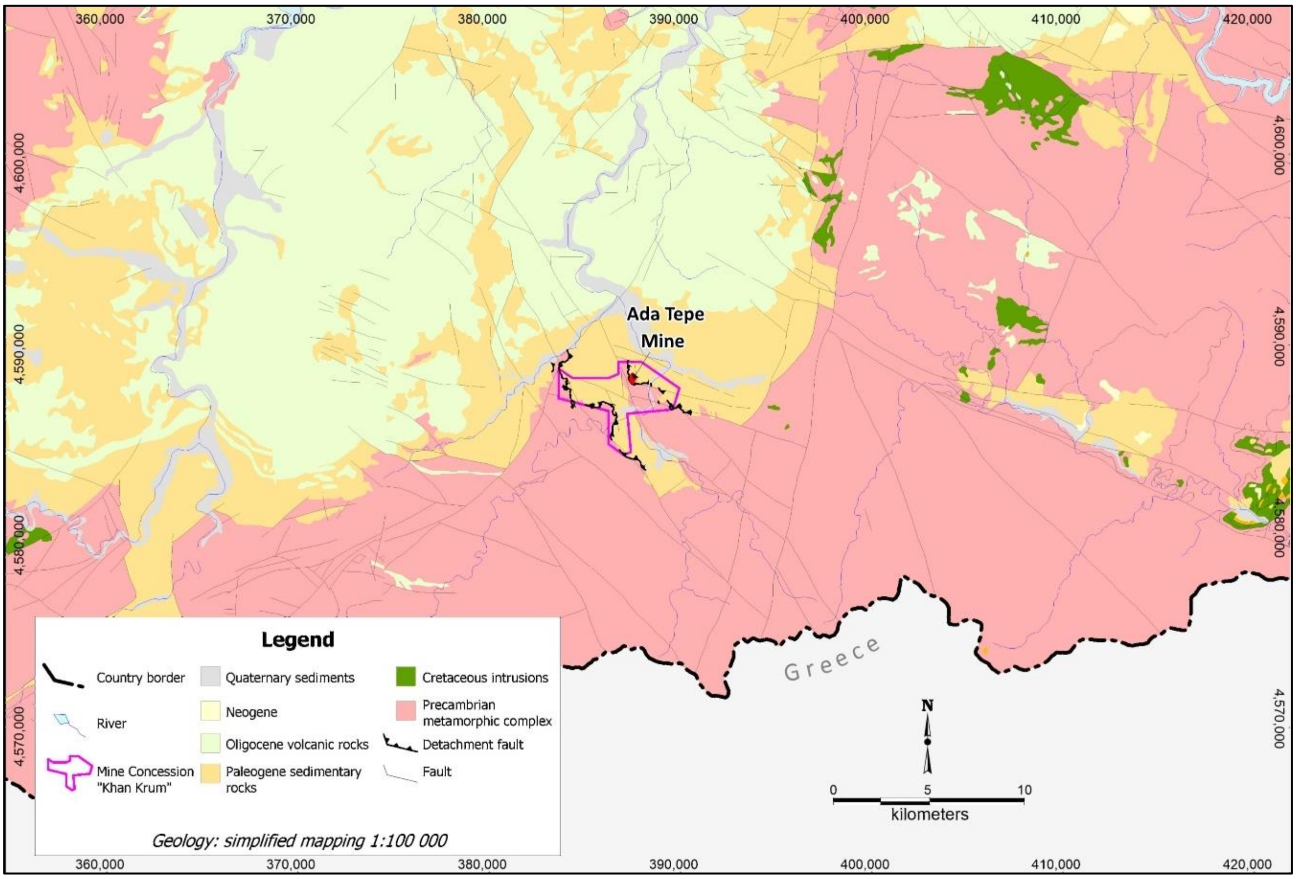


Figure 7-1: Regional geology of Krumovgrad area
Source: DPM, 2020

Basement rocks in the Krumovgrad area consist of Precambrian and Palaeozoic metasediments, gneisses, and amphibolites of the Kessebir metamorphic core complex. The basement is unconformably overlain by Tertiary (Paleocene-Eocene) conglomerates, sandstones, siltstones and limestones of the Krumovgrad Group. The basal Shavar Formation is the primary host to gold-silver mineralisation within the Krumovgrad Licence area and is composed of tectonically deformed coarse-grained breccia/conglomerates including decametric-sized marble blocks and other variable in size clasts of amphibolite, quartzite and gneiss. The Shavar Formation is unconformably overlain by Late Eocene and Oligocene conglomerate, coal-bearing sandstone, siltstone, and marl-limestone, interlayered with volcanogenic successions.

Felsic to intermediate volcanism began in the Upper Eocene and progressed episodically until the Upper Oligocene. Several lead-zinc (gold-silver) epithermal vein deposits are related to volcanoes formed during this period including Zvezdel and Madjarovo, which are situated 15 km west and 25 km northeast of Krumovgrad, respectively. More recent Neogene-Quaternary sedimentary cover occurs throughout the region.

The structural architecture of the Krumovgrad area reflects several stages of extensional deformation associated with uplift of the Kessebir core complex. Extensional faults generally strike east-west to northwest-southeast and dip shallow to steep towards the north-northeast. Extension on these structures was accommodated by the formation of north-south to northeast-southwest striking, steeply dipping transfer faults. The contact between the core complex and the overlying sedimentary rocks of the Krumovgrad Group is commonly a shallow northeast-dipping fault which has been interpreted as a major district wide detachment. All prospects currently identified to date are located on or very close to the basement/sediment contact and are generally associated with topographic highs.

The detachment structure has had a protracted history, initiating in the late Cretaceous and undergoing numerous stages of reactivation that pre-date and post-date identified epithermal mineralisation in the Krumovgrad area. The most conspicuous stage is also the youngest, evident in diamond drill core as a metre-scale, poorly indurated cataclasite that exhibits well developed fabric asymmetries indicative of non-coaxial shearing.

The final stage of extensional deformation associated with evolution of the Kessebir Dome is represented by a north-south to northwest-southeast trending graben. The orientation of the graben, and of faults that crosscut it suggest that the extension direction for graben opening has also been oriented approximately north (east) to south (west), similar to that during pre-graben extension.

7.2 Local Geology and Mineralisation Controls

Gold and silver mineralisation in the Krumovgrad licence area is predominantly hosted within the Shavar Formation proximal to the unconformable fault contact or detachment with the underlying basement rocks of the Kessebir core complex. Sediments within the Shavar Formation typically form laterally discontinuous lenses ranging from coarse breccia to fine sands with variable clay content. Upward variations in the stratigraphy of the Krumovgrad Group reflect progression from a high-energy environment, breccia-conglomerates and coarse sandstones through to the lower energy siltstones and limestones characteristic of increasing basin maturity. The location of the Ada Tepe deposit and other prospect areas in the Krumovgrad licence are displayed in Figure 7-2.

The Ada Tepe deposit is approximately 600 m long along strike (north-south), and 300–350 m wide (east-west). The dominant structure at the Ada Tepe deposit is the detachment structure that separates the Kessebir core complex rocks (basement) from the overlying sedimentary rocks, which forms a 10–15° north-dipping lower structural bounding surface to the deposit. The deposit is bound to the north and south by approximately northeast-southwest striking, steep dipping faults.

Review by RSG in 2004 suggests that the second-order structural control for mineralisation, after that of the detachment, is the proximity of northeast-southwest transfer faults. These structures dip steeply, allowing more direct access of fluids from deeper levels than the shallow dipping extensional structures. As such, the shallow extensional structures may represent trap sites or structures that accommodate local lateral fluid flow away from the transfer structures. Closely spaced transfer structures may also be important for localising mineralisation as the presence of shear couples can enhance brecciation of the intervening rock or may act to produce tensional sites. For example, dextral shear on the northwest-southeast striking faults bounding Ada Tepe may have been responsible for facilitating epithermal vein emplacement within east-west tensional sites.

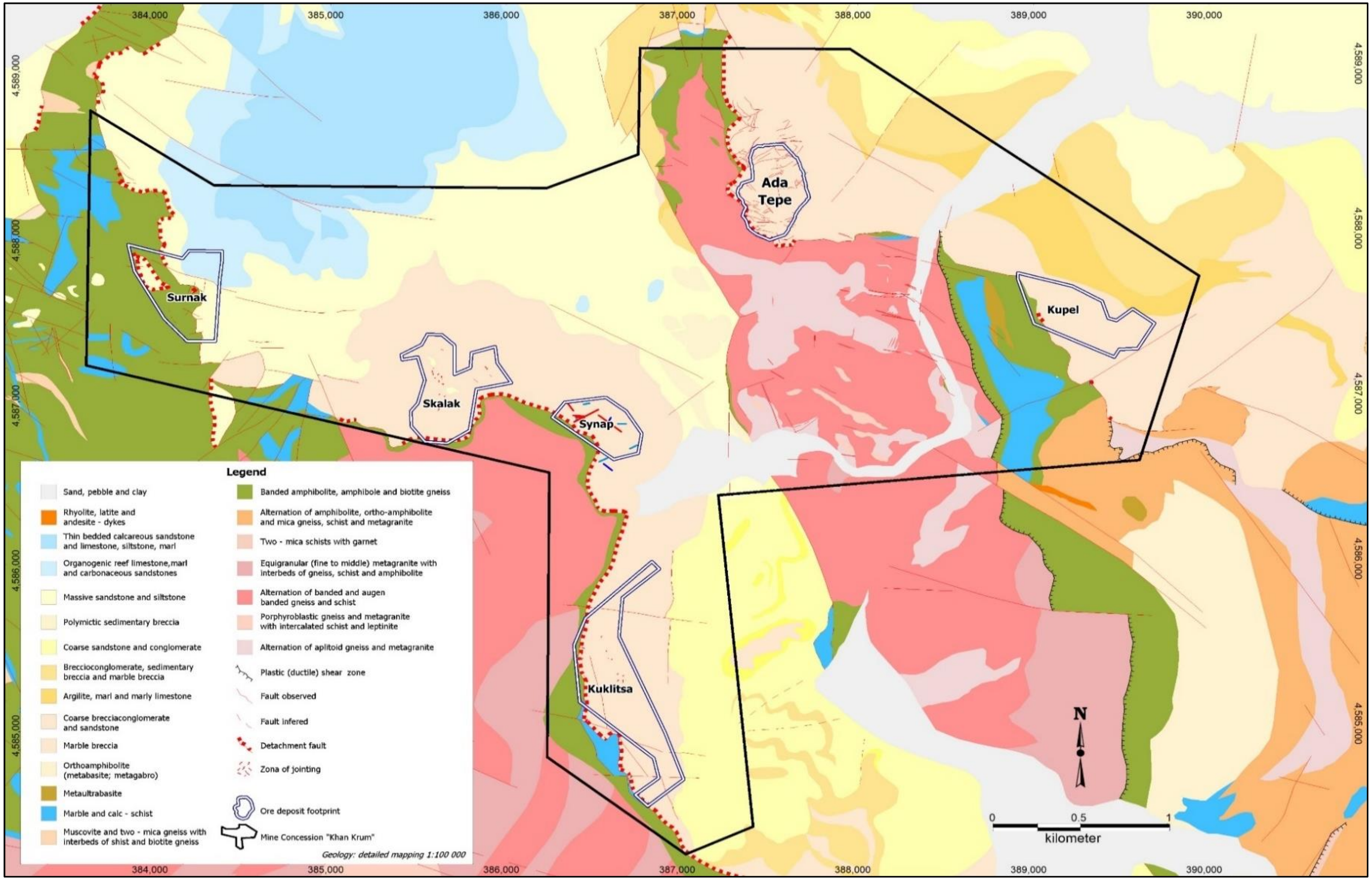


Figure 7-2: Krumovgrad Project geology (Source: DPM, 2020)

Another important control on the localisation of mineralisation is exhibited by the sedimentary rocks overlying the detachment. The Shavar Formation is a highly porous, poorly sorted breccia that is bound on its contact with the Kessebir core complex by the detachment. The porosity of this unit is interpreted as a second-order control in localising fluid flow.

Mapping and structural data from diamond drill core indicate that the latter stages of movement along the detachment structure at Ada Tepe post-dates emplacement of epithermal mineralisation and were responsible for translation of the hanging wall sediments (and deposit) towards 030°. Consequently, any basement feeder structures are interpreted as lying to the south and may have been eroded or are concealed beneath later graben sediment fill.

Gold precipitated in veins where the mineralisation observed macroscopically consists mainly of silica, quartz, carbonate (calcite, manganese-rich), adularia, and some opaque minerals as chalcopyrite and pyrite.

The veins occur in two domains: the "Wall Zone" and the "Upper Zone". The term "Wall Zone" describes a siliceous body shallowly dipping 15° north, forming the hangingwall of the detachment and defining the contact between the core complex and the overlying sedimentary rocks. The "Upper Zone" is the rest of the sedimentary cover above the Wall Zone.

The veins appear as a series of east-west sub-vertical structures which extend through the Wall Zone and upwards to the Upper Zone. A series of north-south gently dipping sub-horizontal veins form the Wall Zone. A schematic cross-section through the Ada Tepe deposit is shown in Figure 7-3.

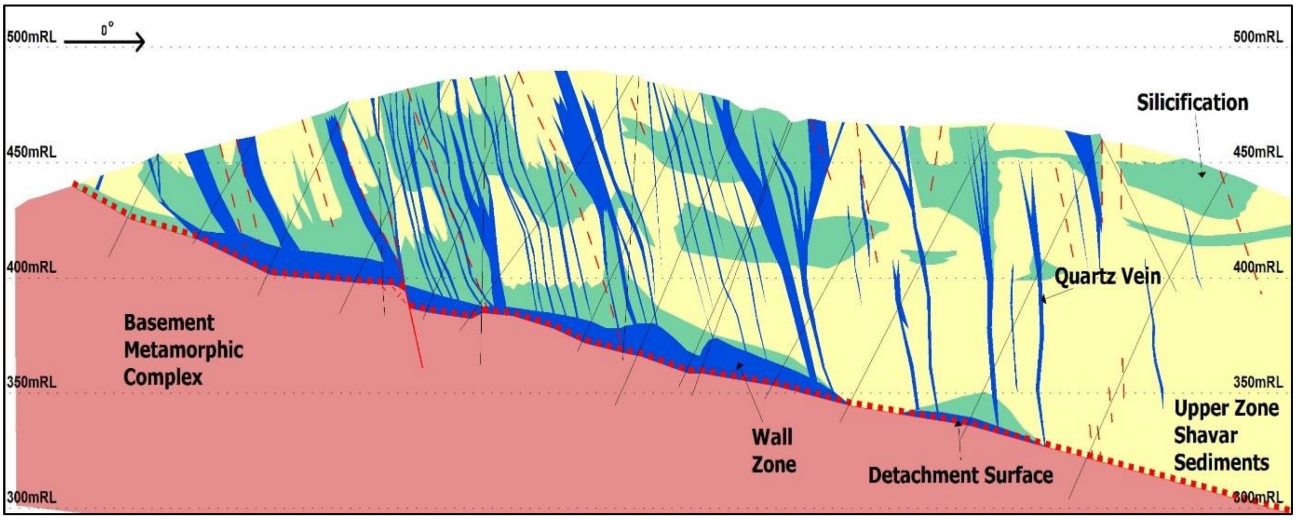


Figure 7-3: Schematic cross-section through the Ada Tepe deposit with key geological attributes (looking west)
Source: DPM, 2020

Both domains and type of veins show the same mineralisation and textures, such as boiling texture (bladed calcite, silica, adularia), indicative of forming within an epithermal environment. Those parts of the Wall Zone cut by the Upper Zone vein mineralisation are typically thicker, more intensely brecciated and have higher gold grades.

The Wall Zone is up to 30 m thick. The thickness of the Upper Zone vein mineralisation is very variable, from less than 1 m thick, to more than 30 m thick. The Wall Zone exhibits very good continuity. The Upper Zone vein system exhibits less continuity than the Wall Zone, necessitating the higher drilling density that has been applied during the delineation of the Ada Tepe deposit.

Mineralisation is also observed on and proximal to the detachment surface contact, in the form of highly irregular fault gauge and fault breccia masses hosting mineralised clasts. In general this mineralisation is thin, up to 5m in thickness and does not persist into the metamorphic basement complex.

8 Deposit Types

The Ada Tepe deposit is a prime example of a high-level epithermal gold-silver deposit, formed during the Neogene within the Southern Rhodope tectonic zone. It is characterised as a low-sulphidation epithermal gold silver deposit. These deposit types are common throughout the world and form in association with volcanic arcs along subduction zones on plate boundaries. Epithermal gold-silver deposits are often associated with deeper porphyry-related copper-gold mineralisation. Major porphyry-epithermal belts elsewhere include the Carpathian Belt in Europe, the Andes Mountains in South America, and the Indonesian Archipelago.

The Ada Tepe deposit is a low-sulphidation adularia-sericite gold-silver epithermal deposit located within Palaeocene sedimentary rocks overlying the north-eastern end of the Kessebir core complex.

The gold precipitates predominantly in the veins. The Ada Tepe deposit shows a multiphase history of formation with several brecciation and vein emplacement events resulting in complex overprinting infill stages and crosscutting relationships between the veins.

Two major styles of mineralisation are apparent at Ada Tepe:

- Initial stage of mineralisation hosted by a massive, shallow-dipping (15° north) siliceous body forming the hangingwall to the detachment and defining the contact between the core complex and overlying sedimentary rocks. This mineralisation is termed the "Wall Zone" by local geologists and displays multiple stages of veining and brecciation.
- Second phase of mineralisation represented by steep dipping veins that exhibit textures indicative of formation within an epithermal environment. These veins have a predominant east-west strike, crosscut the shallow-dipping siliceous Wall Zone mineralisation, and extend upwards into the sedimentary breccia unit above the Wall Zone. This phase of mineralisation has been locally termed the "Upper Zone".

The initial stage Wall Zone mineralisation is interpreted to be associated with early silica flooding and relatively low gold grades. However, regions of the Wall Zone through which well-developed Upper Zone vein mineralisation passes are typically thicker, more intensely brecciated and contain epithermal vein and hydraulic breccia infill textures and associated high gold grades that are not present in regions where Upper Zone vein mineralisation is absent. These thick strongly continuous regions of high-grade Wall Zone mineralisation generally thin and diminish in grade away from and between regions of well-developed Upper Zone vein mineralisation.

Typical epithermal textures present at the Ada Tepe deposit include the following:

- Crustiform and colloform banding
- Chalcedonic banding
- Bladed silica replacement textures after carbonate
- Compositionally zoned crystals
- Hydraulic breccia textures
- Late-stage carbonate veins.

The textural style and grade of mineralisation at Ada Tepe, high grades in association with open-space fill textures, such as bladed silica replacement after carbonate (i.e. evidence of boiling), hydrothermal breccias and also the presence of sinter material, suggests proximity to the paleo surface and a low-sulphidation nature of mineralisation. Examples of some of the epithermal textures present at Ada Tepe are shown in Figure 8-1.

Figure 8-1: Top left – quartz veining through Upper mineralised breccia zone; Top right – silica replacement textures; Bottom left – boiling textures next to silica flooding; Bottom right – brecciation texture in fresh rock exposure near to mineralised zone

Source: DPM, 2014

Strategies employed by DPMKr whilst exploring for low-sulphidation mineralisation in the Krumovgrad area are focused on identifying sites of structural, lithological and chemical traps which may be potential hosts for mineralisation. Geochemistry is routinely used to identify pathfinder element zonation patterns and potential vectors towards gold mineralisation.

Marton et al. (2015) noted that major ore controlling structures are the north-northeast striking high angle faults, their conjugate (extensional duplex) east-west veins and the low angle detachment fault. The coincidence of reactive (marble) and permeable basal breccias of Shavar and Kandilka formations lithologies at Krumovgrad district favoured gold transport and precipitation over extended areas.

Tosdal (2012) observed that Ada Tepe deposit and most of the other nearby gold occurrences are located at changes in strike and dip orientation of the detachment fault. Slip movement along the fault in these areas creates extensive permeable damage zones in the hangingwall block. These areas are particularly advantageous for concentrating fluid flow as the curvi-planar nature of the contact will focus any fluids along the detachment contact.

In addition, areas of K metasomatism have been mapped in the hangingwall strata in the Ada Tepe area. These are not mineralised, but probably mark the sites of up-flow zones along hangingwall faults. Thus, in the area surrounding Ada Tepe, understanding the spatial association of the areas of K metasomatism to deeper gold mineralisation might prove fruitful.

9 Exploration

9.1 Summary

Since June 2000, the following detailed exploration has been conducted at the Ada Tepe prospect:

- Establishment of a more accurate survey control over the licence area, surveying of the surface topography
- Detailed geological mapping, surface trenching and channel sampling of all prospects within the Krumovgrad (Khan Krum) mine concession area.

In 2014, ground gravity and magnetic surveys were carried out over the licence areas. The data was integrated with geological and geochemical data to define both near surface and covered target areas.

In 2015, approximately 100-line km of IP were surveyed and 15 holes totalling 3,394 m were drilled in nine target areas. These are also outlined in Section 10 (Drilling).

Since the commencement of operations, detailed mapping data has been routinely collected.

9.2 Geological Mapping

In areas with outcrop, ground geological mapping together with rock sampling was undertaken in the area over the exploration licences. All existing surface outcrops have been mapped, including those created by earthworks activities associated with drill pad construction and cuttings for access roads. Geological maps were created using available lithology, alteration and structure fact data, followed by interpretation. Before the start of mining operations, the entire footprint of the Ada Tepe deposit was mapped at 1:1,000 scale, which served as a basis for geological modelling to support Mineral Resource estimation and GC models.

In-pit geological mapping is conducted with the intent to document, on a daily basis, all available exposures in order to produce fact and interpretation maps for each 5 m bench. Most of the mapping is conducted on un-blasted pit walls and active mine faces at a 1:250 scale.

Geotechnical line mapping is conducted along un-blasted pit walls and ramps. Mapping of pit floors is of little benefit to the mapping process and is not routinely undertaken.

9.3 Geophysics

Shallow penetrating geophysical methods (up to 100 m from surface) were performed in 2003 via dipole-dipole IP surveys. The early IP surveys were accomplished by local contractors using a Bulgarian made single channel receiver device.

More recent surveys have been designed to help understand underlying structural architecture and identify potential targets in the areas surrounding Ada Tepe.

In 2014, detailed gravity measurements were performed along a series of east-west and north-south profiles across the Ada Tepe deposit at a 50 m station spacing. GEM magnetometers and SCINTREX CG-5 gravimeters were used for data acquisition. The results of this gravity survey helped to resolve some of the questions concerning the internal structure of upper sedimentary sequences.

Furthermore, the results show that the Ada Tepe deposit appears as distinct gravity low; caused by the significant amount of weathering, porosity and silicification relative to its surroundings. This observation is used as part of a set of targeting criteria when exploring for near mine mineralisation. The processing and interpretation of geophysical datasets includes in-house quality control, 2D and 3D inversion models, which are continuously being reviewed and interrogated.

Industry standard IRIS multichannel receiver and transmitters have been used for a more recent (2015) dipole-dipole IP survey. The results of this survey highlighted that the metamorphic basement appears to be more resistive than the younger sedimentary cover which allowed for improved definition of the contact between these two lithologies in the areas surrounding Ada Tepe.

9.4 Channel Sampling

Since the commencement of detailed exploration at Ada Tepe in mid-2000, trenches and drill access road cut exposures were routinely channel sampled. The channel sampling was undertaken predominantly on north-south orientated traverses coinciding with the 25 m spaced drill traverses (Figure 9-1).

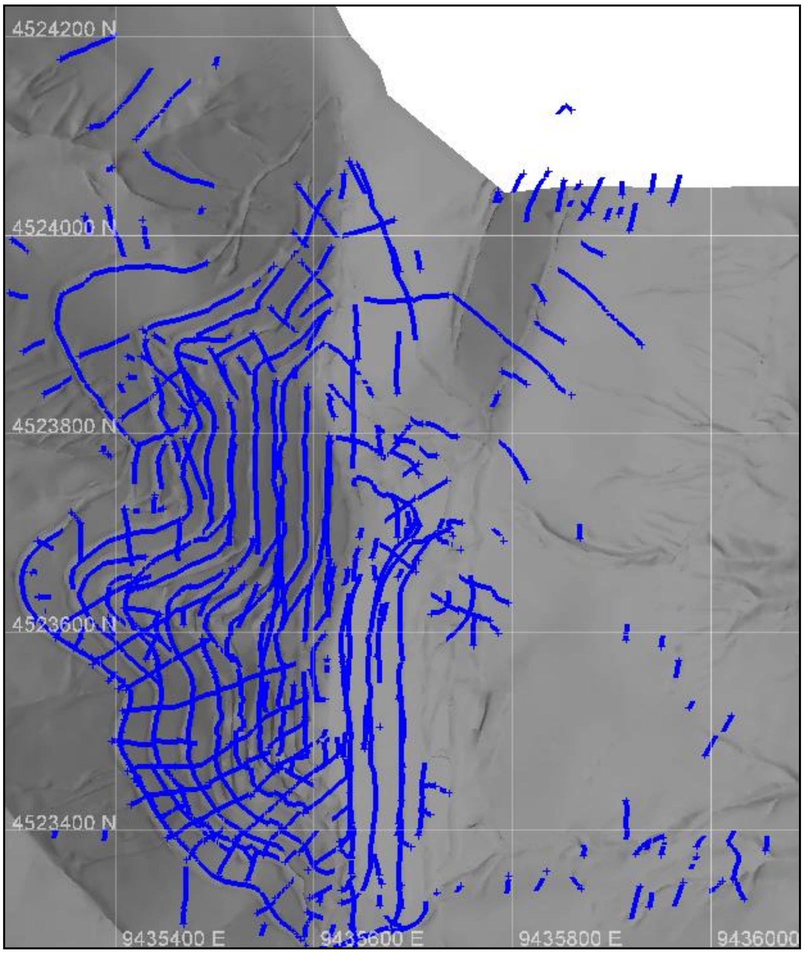


Figure 9-1: Ada Tepe trench and channel sampling locations
Source: DPM, 2014

Prior to March 2002, a variety of sample intervals were used, primarily controlled by changes in geology. In April 2002, a standard channel sampling method was introduced (RSG, 2002) which is summarised below:

- All surfaces to be channel sampled are cleaned of loose debris prior to beginning sampling
- The channel sampling line and channel interval (1 m) for each sample are marked up, using spray paint, by geologists prior to the initiation of sampling
- Each channel sample is chiselled out over standard width and depth to avoid sampling bias due to variations in rock hardness
- Channel samples are routinely weighed to ensure that a constant sample weight of approximately 3 kg is collected (approximating half HQ core)
- A duplicate channel sample located approximately 20–25 cm above the standard channel run is routinely collected over 5% of the sample intervals to enable statistical assessment of sampling errors.

Some 425 surface channels were excavated at Ada Tepe from which a total of 14,770 channel samples were collected representing a total of 18,299.8 m of sampling.

Weights were recorded for 8,988 channel samples. While there is considerable variation in the sample weights for the range of sample interval lengths (Figure 10-3), the sample weights generally increase with increasing interval lengths consistent with 3 kg samples being collected over 1 m intervals. In addition, there is no evidence of any bias in the sample gold grades relating to the variations in the sample weights (Figure 10-4).

CSA Global verified the location of some trench and drill access road cut exposures during site visits and was able to confirm the positions of some sampling points.

9.5 Topography

Prior to commencement of operations, topographic control over the Ada Tepe prospect area was established based on the following surveying activities:

- Numerous ground traverses
- Surveying of all drill access roads, including crest and toe locations in regions of cut and fill
- Surveying of all trenches
- Surveying of all drill collars.

The resultant array of survey points forms at least a notional 25 mE x 25 mN grid over the entire prospect area. However, additional survey points along the drill access roads, drainage gullies and flanks of the Ada Tepe hill result in a closer spacing of topographic control points over much of the prospect area.

Since the start of operations, a new survey approach has been implemented for collection and processing geospatial data and building 3D topographic model. Currently the main survey approach used is aero photogrammetry. Using UAVs, a large amount of data points is collected by flights across the areas of interest. The down-sampled resolution of the surveyed data points is as low as 0.5 m. A model generated using this approach is shown in Figure 9-2.

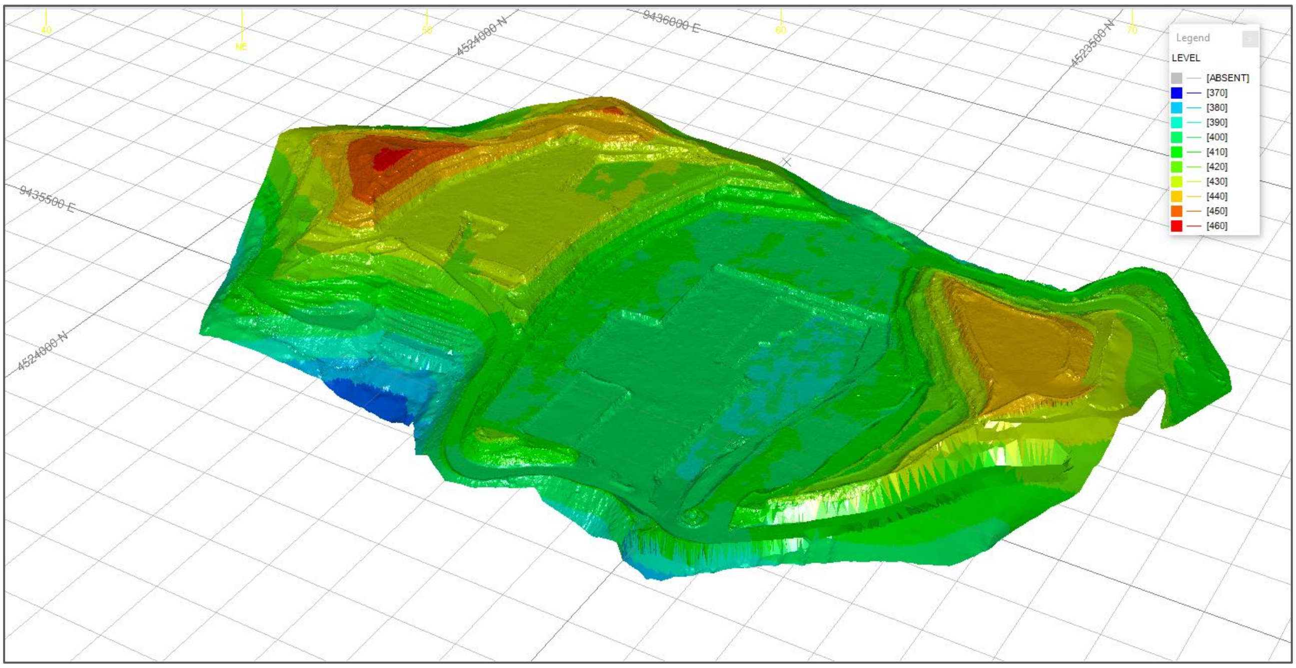


Figure 9-2: Perspective view of the open pit surface at the Ada Tepe mine, surveyed as of 31 December 2022 (looking northeast)

Source: DPM, 2023

In areas with high vegetation where the aerial mapping is not an appropriate approach, total stations and GNSS receivers are used. Conventional survey instruments such as total stations and GNSS receivers are still used in cases when the weather conditions do not allow the flights of UAVs.

9.6 Survey Control Audit

In May 2002, SSM was contracted to conduct an audit of the survey control at Ada Tepe prior to further exploration being undertaken. The activities undertaken and results, as provided in the SSM report of the audit, are summarised below.

Audit surveying activities were conducted using two geodetic accuracy global positioning system ("GPS") units, with one unit used as a base station positioned at a known (Bulgarian) trigonometric station, and the other used to investigate and establish control points at various locations in the licence area. Most investigations were undertaken in rapid static model, however, spot checks on existing control points and drillhole collars were also conducted using the Real Time Kinematic ("RTK") function on the GPS.

The following surveying activities were undertaken during the audit:

- Investigation of the Bulgarian Government 1970 Grid system to evaluate its suitability for the future of the mining and exploration program
- Verification of existing government survey control points
- Audit of the integrity of existing local exploration survey control points
- Establishment of 11 new high order survey control points throughout the Krumovgrad licence area (five at Ada Tepe).

The following key observations and conclusions are provided in the audit report produced by SSM:

- There are no published geodetic parameters for the 1970 grid or the level datum.
- The 1970 system is a non-earthed (planar) grid system based on four separate zones on which there is coordinate overlap. Geodetic corrections are applied to surveys to obtain the reduced coordinates.
- A closed static GPS survey of seven government survey control points distributed over the licence area indicated that all points surveyed agree to within centimetres of the Bulgarian government supplied horizontal Universal Transverse Mercator ("UTM") coordinates, and the levels also agree within centimetres at all control points surrounding the Ada Tepe and Surnak prospects.
- The accuracy of the local survey control points at Ada Tepe checked by RTK GPS indicates that the government control point at the top of Ada Tepe Hill gives reduced coordinates within 0.12 m horizontal and 0.1 m elevation of the specified location. However, the accuracy of various additional survey points checked steadily diminishes with increased distance away from this point.

For optimal survey control, the reference system for Ada Tepe and the Krumovgrad licence should change to a planar UTM system using a central point as the origin which has the same coordinates in both planar UTM and real world UTM and a common reference bearing.

10 Drilling

10.1 Introduction

Mineral Resource delineation at the Ada Tepe deposit has been undertaken by a combination of RC and diamond (DDH) drilling, completed in four drilling programs between late 2000 and late 2004. GC drilling was initiated in 2017 in preparation for mining of the deposit. A total of 307,666 m of GC drilling was completed between 2017 and early 2022.

The drilling programs have included DDH and RC drilling, rock chip sampling, bulk density measurements and detailed geological mapping. To date, the exploration drilling forms a notional 25 mN x 25 mE grid over the entire deposit. Within the deposit, close spaced GC RC drilling on a 5 mN x 5 mE grid has been completed over the entire volume of the LOM pit design, from surface to the bottom of the final stage of mining in pushback 4. A summary of all drilling completed within the mine licence area is provided in Table 10-2.

10.2 Drilling Programs

The initial drilling program, undertaken in 2000 and 2001, comprised 74 DDH drillholes completed on a notional 50 m x 50 m grid. Most holes were declined 65° towards the southwest (230° azimuth), and remaining holes were drilled vertically or declined towards the northeast. The drilling was completed by BMM, Bulgarian drilling contractors GEOPS, and Romanian-based drilling contractors, RB Drilling, predominantly using Boyles-BBS37, CKB-4 and BOBY-150 coring rigs. Mostly HQ (78%) and to a lesser extent NQ (20%), and minor PQ (2%) size core was collected.

The second drilling program was carried out in May through August 2002 and included 17 DDH drillholes and 54 RC drillholes mostly declined 60° towards the south along grid north-south orientated drill traverses on a notional 50 m x 50 m pattern. The drilling orientation was changed from the grid southwest orientation used in the initial program to optimise drill intersections in the predominant east-west trending veins in the Upper Zone and shallow north-dipping Wall Zone mineralisation. All drilling in the second program was completed by a Bulgarian drilling contractor, International Drilling Services using DT1000 and CM1200 multi-purpose rigs, with HQ (62%) and HQ-3 (38%) size core collected. All RC drilling was completed using a 125 mm face sampling hammer drill bit.

The third and most substantial drilling program was undertaken between September 2003 and June 2004, by Drilling Services Bulgaria (formerly International Drilling Services) using DT1000 and CM1200 multi-purpose rigs, and by GEOPS using Diamec 282 and Boyls-BBS37 coring rigs. The program comprised 137 DDH holes (including 94 completely cored and 35 DDH-tail Mineral Resource definition holes, five “wild cat” exploration holes and eight metallurgical holes) and 333 RC holes (including 298 complete Mineral Resource definition holes and 35 pre-collar holes). This program resulted in a notional drilling density of 25 mE x 25 mN over majority of the deposit, with most of the holes declined 60° towards the south and several scissor holes declined 60° towards the north and northwest. In addition, RC infill drilling was completed to a notional 12.5 m x 12.5 m hole spacing in two selected areas in the south-western and central-western regions of the deposit to allow investigation of the close spaced variability of gold and silver assay grades. The DDH drilling collected PQ-3 (23%), HQ-3 (57%), HQ (4%) and NQ-3 (16%) size core, while all RC drilling was completed using a 125 mm face sampling hammer drill bit.

The fourth drilling program was undertaken between late October 2004 and mid-November 2004 by Drilling Services Bulgaria using a DT1000 multi-purpose rig. The program comprised 36 RC drillholes designed to selectively infill strongly mineralised zones within the southern third and to a lesser extent the northern flank of the deposit. All drilling was completed using a 125 mm face sampling hammer drill bit, with drillholes inclined 60° towards northerly and southerly directions, and a variety of scissor orientations.

Between 2010 and 2013, a series of technical drillholes were undertaken to support the 2012 DFS. A series of geotechnical holes were completed to support with the assessment of the final pit slope parameters.

Furthermore, one drillhole was completed for water monitoring purposes. Between 2013 until 2017, no further drilling was completed until the relevant permits were received.

Between 2017 and 2022, GC drilling has been completed using a contractor based in Bulgaria, Drillex International, which operates GEMEX MP-85 truck mounted RC rigs on the mine site. RC drilling is conducted using 125–147 mm drill bit diameters to ensure sufficient volume of sample is collected during drilling. A booster compressor is employed at all times during drilling to ensure sufficient air pressure.

Furthermore during 2018, several DDH drillholes were completed using a Company owned mobile DDH drill rig. The LM™ 30SS is a compact and mobile drill rig, designed for quick setup and ease of moving from site to site. The drill utilises a standard LM30 drill rig powered by a CAT® 246D Skid Steer with a 54-kW diesel engine. Along with a lightweight control panel and hydraulic system, the LM30SS comes with an integrated positioner and turntable that enables it to drillholes at all angles from vertically-up to vertically-down.

A summary of all drilling completed within the mine licence area is provided in Table 10-2 and the location of the drillhole collars, colour-coded by hole purpose and method, is displayed in Figure 10-1. Representative cross sections are provided in Figure 10-2.

Table 10-1: Drill type definition

Drill type	Drill code
Diamond from surface	DDH_S
Trench	TR_S
Reverse circulation	RC
Diamond tail	DDH_T

Table 10-2: Summary of exploration drilling, channel sampling and GC drilling

Year	Drill code	Hole purpose	Number	Total metres	Average length	No. of assays
2000	DDH_S	Resource	4	179	45	360
	TR_S	Exploration	83	2,612	31	3,087
2001	DDH_S	Resource	69	5,941	86	14,751
	TR_S	Exploration	107	3,891	36	11,355
2002	DDH_S	Resource	17	1,647	97	8,081
	RC	Resource	54	4,546	84	9,652
	TR_S	Exploration	48	3,532	74	11,227
2003	DDH_S	Resource	34	3,739	110	-
		SD twin	4	495	124	-
		Sterilisation	3	331	110	646
	RC	Resource	94	8,075	86	1,828
	TR_S	Exploration	91	4,874	54	8,876
2004	DDH_S	Geotech	1	146	146	-
		Metallurgy	8	776	97	802
		Resource	27	2,974	110	14,987
		SD twin	24	1,909	80	4,796
	DDH_T	Resource	35	4,353	124	2,160
	RC	GC	138	10,000	72	19,474
		Resource	137	11,322	83	36,883
	TR_S	Exploration	48	2,390	50	5,610
2005	RC	GC				537
	DDH_S	Sterilisation	3	377	126	750
2010	DDH_S	Water monitoring	1	25	25	-
2012	DDH_S	Geotech	3	66	22	-
	TR_S	Exploration	3	20	7	209

Year	Drill code	Hole purpose	Number	Total metres	Average length	No. of assays
2013	DDH_S	Geotech	6	581	97	3,498
	TR_S	Exploration	38	693	18	7,169
2017	DDH_S	Exploration	2	382	191	7,950
		GC	7	693	99	1,360
	RC	GC	303	25,065	83	61,433
	TR_S	GC	1	117	117	351
2018	DDH_S	GC				411
	RC	GC	752	31,409	42	109,600
2019	RC	GC	460	26,869	58	68,553
2020	RC	GC	1514	82,303	54	222,402
2021	RC	GC	3,133	210,102	67	553,152
2022	DDH_S	Exploration	17	2,777.00	163	8,061
	RC	GC	203	7,368	36	121,070
Total			**7,472**	**462,579**	**62**	**1,321,081**

Source: DPM, 2022

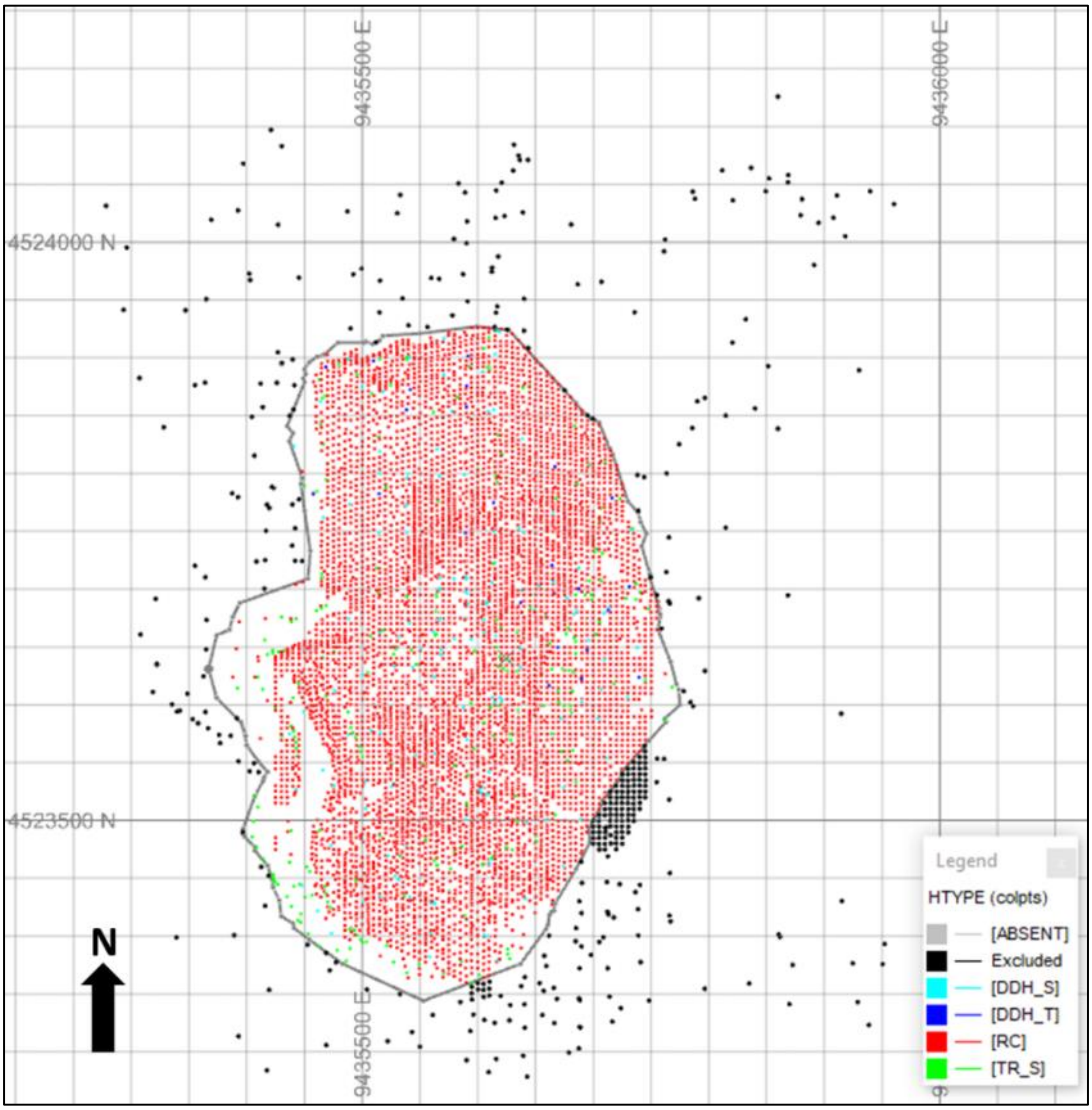


Figure 10-1: Plan map of hole types in the database for Ada Tepe

Note: Data used in the MRE was restricted to data within the licence boundary denoted here by string.
Source: CSA Global, 2022

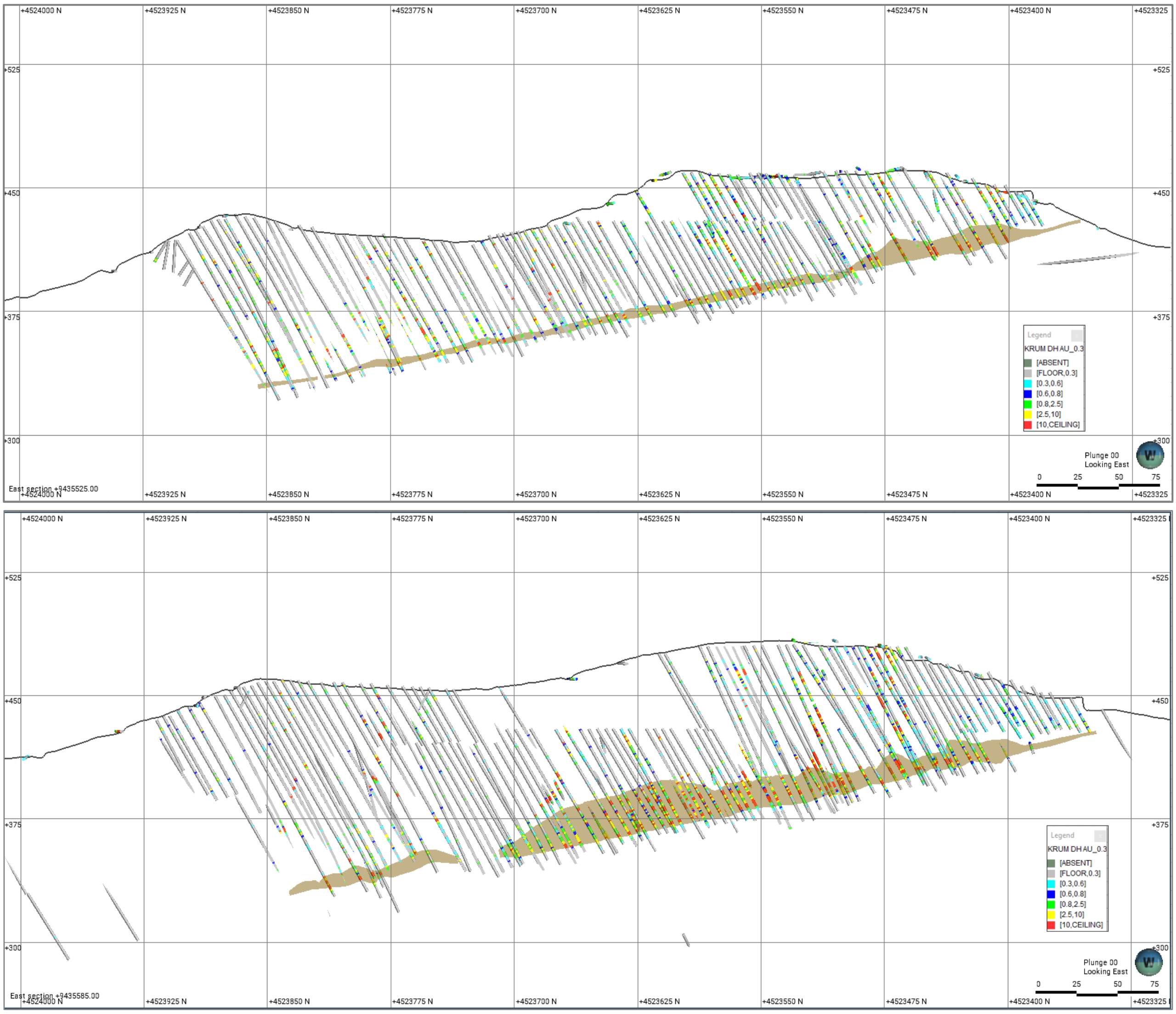


Figure 10-2: Representative cross-sections of the Ada Tepe deposit (9,435,525E – top, 9,435,585E – bottom); drillholes coloured by Au g/t; pre-mine topography (black line) and Wall Zone (brown)

Source: DPM, 2022

10.3 Logging

10.3.1 Core Logging

All surface trenches and channel sampled road cut exposures, RC drilling and DDH core were geologically logged using a logging scheme defined by BMM. Geological logging was carried out with particular attention to oxidation type, rock type, tectonic/structural fabrics, veining/intensity, alteration/intensity, sulphides/ intensity, and moisture content. In addition, the occurrences of voids and/or insufficient samples were recorded.

Detailed geological drawings of all channel sampled trenches and road cut exposures were generated. Geological logging of core was mostly conducted over intervals equal to the sampling interval (generally one metre), except for the first drilling program when logging intervals were chosen on a geological basis.

All core was geotechnically logged, including rock quality designation, recovery per drill run, and number of fractures per metre. Core recoveries were calculated by comparing the measured length of recovered core with the distance recorded on the core blocks between each drill run. Detailed structure orientation logging was completed for all orientated intervals of core including recording of structure types and associated alpha/beta measurements. Dip and dip direction measurements were also collected for structures exposed by trenching and along channel sampling pathways in road cut exposures.

Due to the difficulty in obtaining robust orientation marks for much of the core, an alternative method was also used to record vein orientation data for most of the core. This involved recording the number of veins with alpha angle measurements lying within a series of alpha angle intervals (Alpha 0–20°, 20–50°, 50–70° and 70–90°) over each sampling interval, thus at least allowing the orientation of vein structures to the core axis to be considered during geological modelling.

The great majority of logging information was collected digitally on palm top Hewlett Packard IPAQ computers using Field Marshall software. All core was photographed, both wet and dry, using a digital camera. The geological, geotechnical and structure orientation logging of the drilling and trenching completed at Ada Tepe has been conducted to high industry standards.

10.4 Surveying

10.4.1 Introduction

All surveying at Ada Tepe was conducted using the Bulgarian National Coordinate System ("BNCS"), a close variant of the Stereo 70 system. The BNCS divides the country into roughly quarters, with the BG5 zone covering the southeast quadrant of Bulgaria, including the Krumovgrad area.

10.4.2 Routine Surveying

Up to 2012, all surveying of the surface topography and exploration sites at Ada Tepe was carried out by a government licensed contractor, Dimiter Motrev of Geocom Ltd using the survey control established by Australian surveying group, SSM, during the 2002 survey audit. All surveying was conducted using two electronic total station instruments. Geocom has established a dynamic net of some 183 survey stations covering the Ada Tepe hill using the five survey control points established by SSM during the 2002 survey audit. All the Geocom survey stations were established on closed survey loops.

10.4.3 Drillhole Collar and Trench Locations (Exploration)

The preserved drillhole collars from the 2000–2001 DDH drilling and all drillhole collars from the 2002–2004 drilling at Ada Tepe were surveyed based on the SSM established survey control. All channel sampled surface trenches and road cut exposures were also surveyed based on SSM survey control. Any non-preserved drillhole collars from the 2000–2001 program and trench sampling completed over the same period were surveyed based on the pre-audit survey control.

CSA Global became involved in the project in 2012, and by then, the drillhole collars relevant to the MRE for Ada Tepe had been rehabilitated, having been completed 8–12 years previously. However, CSA Global has reviewed documentation prepared by RSG which involved cross checking of the location and elevation of proximal early and more recent exploration sites suggest that the location accuracy of the earlier exploration sites is to industry accepted standards.

A consistent approach has been used to survey continuous channel sampling along trenches and road cut exposures. This involves surveying the start and end points of a trench or channel, and all intermediate points where the azimuth or dip of the trench or channel changes. The resultant survey coordinates were used to calculate azimuth and dip values for the surveyed positions along each channel, allowing the trenches and channels to be treated as pseudo-drillholes for Mineral Resource modelling.

10.4.4 Drillhole Collar Locations (Grade Control)

Drillhole collars are picked up by surveyors using a GPS Trimble SPS 985 Base or GPS Trimble SPS 986.

10.4.5 Downhole Surveying (Exploration)

Downhole surveying was routinely conducted using an Eastman single-shot camera, Tropari, or Sperry Sun multi-shot instruments. Survey measurements were recorded at downhole intervals typically ranging from 25 m to 50 m. Some 580 of the 614 drillholes (94%) and 90% of the total drilling metreage were surveyed. Downhole deviations from the drillhole collar azimuth and dip measurements are typically small, primarily due to the shallow depth of the great majority of the drillholes.

CSA Global concluded that the downhole orientations of the drillholes and 3D locations of the drill samples were accurately located for the purposes of Mineral Resource estimation.

10.4.6 Downhole Surveying (Grade Control)

GC drillholes were downhole surveyed using a Reflex-GYRO tool which is calibrated regularly. The survey file contains a "calculated" value at 0 m and a measured value at the end of hole.

10.5 Sampling

10.5.1 Introduction

From June 2000 until March 2002, all exploration data collection at Ada Tepe was undertaken by BMM, under the upper management of Navan. From April 2002 to the end of 2004, exploration at Ada Tepe was undertaken under the management of RSG in close consultation with BMM field staff, Navan upper management until 30 September 2003, and subsequently DPM upper management.

GC sampling is undertaken by DPMKr, following site operating procedures.

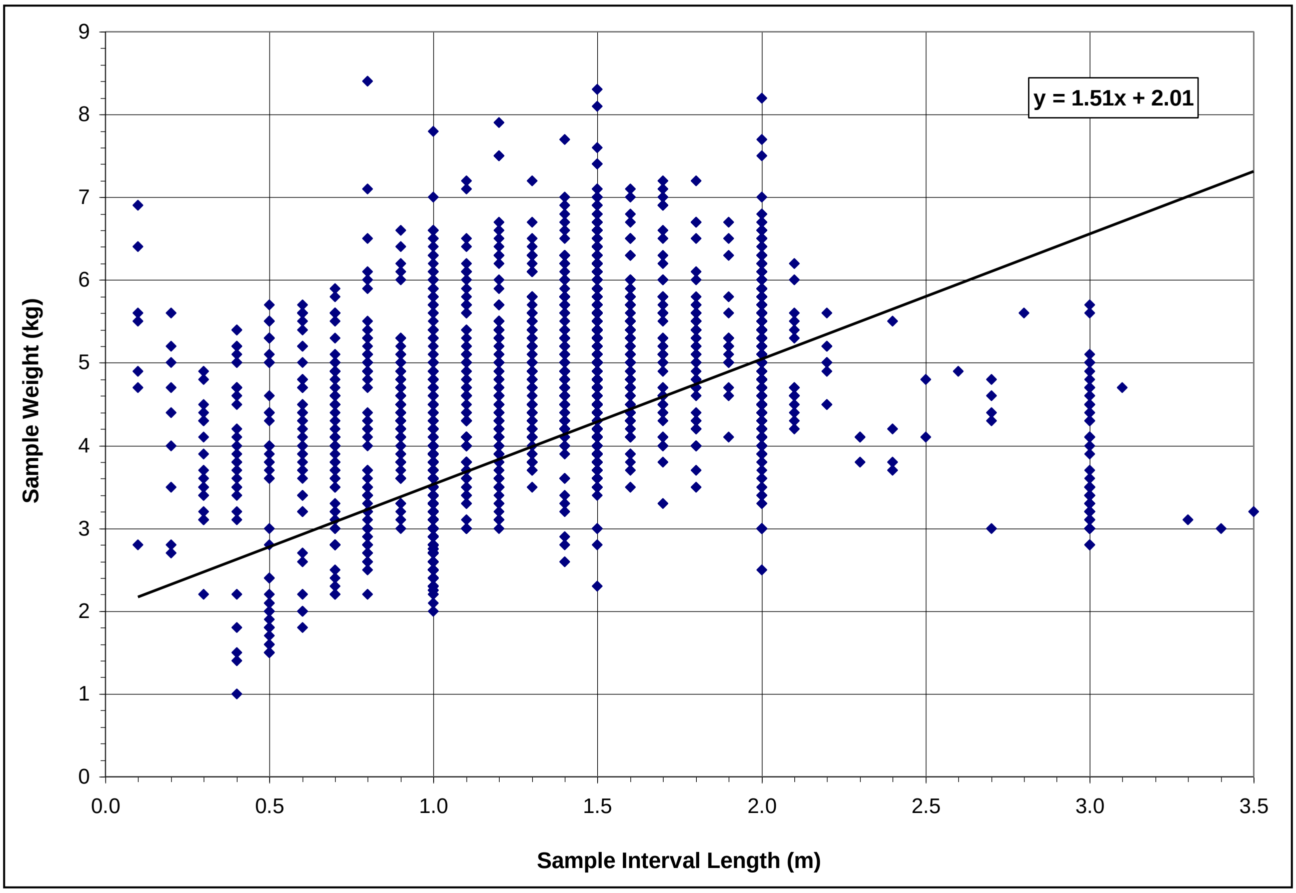


Figure 10-3: Channel sample interval lengths vs sample weights
Source: DPM, 2020

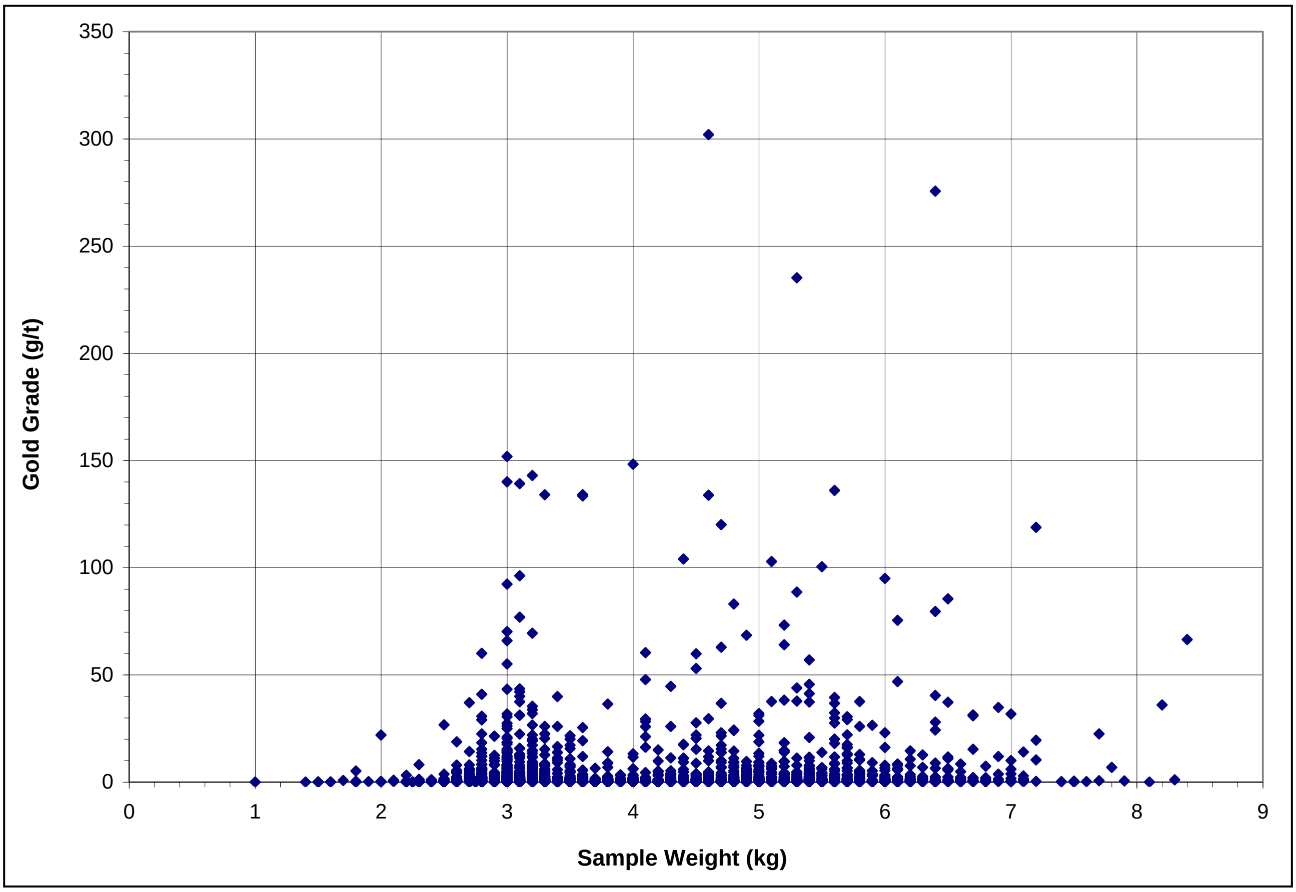


Figure 10-4: Channel sample gold assay grades vs sample weights
Source: DPM, 2020

10.5.2 Reverse Circulation Drilling

RC samples were routinely collected at 1 m intervals and the following is summarised from the document, "Reverse Circulation Drill Hole Logging and Sampling, DPMK-SOP-11":

- The pit technician/sampler takes the plastic bag, full of sample, taken from the cyclone and records the weight.
- The sampler covers the splitter with a clean plastic sheet prior to sample splitting. The RC cuttings must pass evenly through the sampler grill after removing the plastic cover.
- The sampler places a cloth bag with a special ID code written on it at one of the sampler chutes. The bag collects one-eighth of the cuttings, which makes the assay sample. The original plastic bag is placed at the other chute to collect and store the remaining portion (seven-eighths) of the sample.
- The sampler sieves clean a representative portion of RC cuttings from the plastic bag for the geologist, washes the chips with water and places them in labelled plastic chip trays. In addition, the sampler arranges the washed and unwashed cuttings in rows on the ground.
- The sampler weighs the one-eighth samples and records the data in a notebook. If the amount of material that is going to be assayed is not enough (i.e. less than 1.5 kg), the sampler puts the cuttings from the plastic bag again through the sampler following the rules described above.
- After completing each 1 m sample, the sampler cleans the splitter and the plastic sheet with wire brushes and an air gun and gets it ready for the next sample.
- Upon completion of the hole, the samplers and the drillers clean the drill site, and move the rig off the hole.
- The sampler and the geologists deliver the samples to the sample prep store at the end of each shift.

The following processes are followed in order to ensure sample integrity:

- Prior to drilling, the driller checks/places an accurate 1 m mark on the mast to enable the drill to be stopped precisely at the end of each metre, and thus recover samples of correct length.
- The driller completes routine blow backs every metre to clean the drill string. The sample bag must remain in place during this time. Once the sample bag is removed, the bottom lip of the cyclone should be brushed clean.
- At the end of each rod, the driller must engage the "blow down" device and the cyclone must be cleaned with a brush and an air gun to prevent contamination.
- If no sample is recovered during drilling, then the numbering sequence is continued through the void area. This results in empty bags, but avoids confusion when data are entered into the database.

The RC drilling was always supervised by a trained geologist, assisted by four field assistants, who operated the sample splitter and weighed each metre sample bag. A representative portion of RC cuttings from each successive metre was also sieved clean and stored in neatly labelled chip trays.

It is the opinion of CSA Global that the RC drilling and associated sampling was completed to high industry standards. This opinion is informed by a review of data collection procedures, protocols and metadata contained in the database for the project, and additionally through ongoing operational support (mine geology) being provided by CSA Global to DPMKr (see Section 12).

10.5.3 Diamond Drilling

The DDH drilling and core sampling procedures employed for Mineral Resource delineation at the Ada Tepe deposit are summarised in Figure 10-5. The DDH drilling at Ada Tepe has been performed using strict quality control procedures.

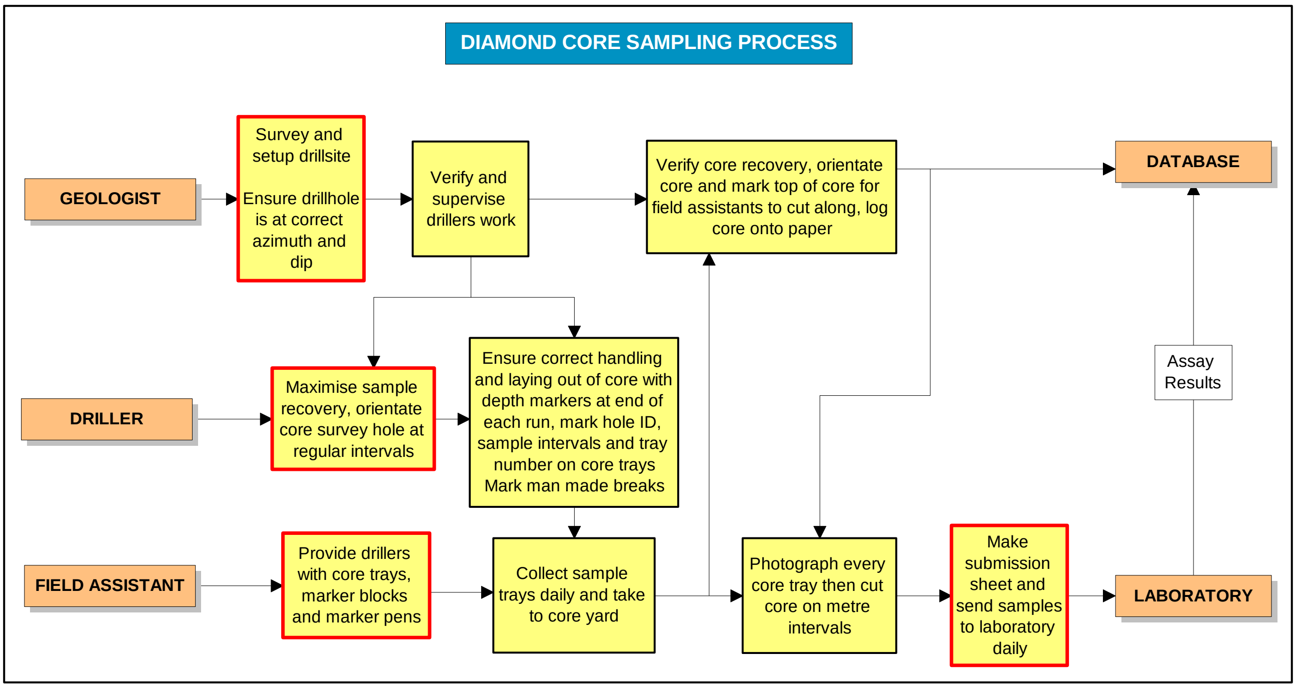


Figure 10-5: DDH core sampling process (DPM Orange Book procedures)
Source: DPM, 2007

The key technical considerations used for majority of the DDH drilling at Ada Tepe are as follows:

- Most of the drilling was completed using 1.5 m PQ and HQ triple tube; however, core diameter reduction to NQ triple tube was used if ground conditions were deemed unstable. Where possible, PQ core was used to drill approximately 5 m past the base of oxidation, thereafter the hole was continued with HQ.
- In cases of poor core recovery, the drill runs were reduced from 1.5 m to less than 0.5 m.

- Specialised drilling muds and polymers were routinely used to maximise core recovery.
- Triple tube splits and core lifters were washed prior to re-use in successive drill runs.
- Drill core was orientated every 3 m using the spear method.
- Wooden core blocks were placed between runs, recording the length of the run and/or core loss.
- Forced breaks made by the drillers were marked on the core with a red cross.

The DDH core was marked up with a longitudinal line coinciding with the orientation mark when available, or otherwise perpendicular to the dominant structural fabric in the core. The core was then marked off predominantly at 1 m intervals for sampling and then cut in half lengthways using DDH core saws. Mostly half-core samples were submitted for sample preparation and laboratory analysis. Coarse crush duplicates were produced from the same half-core sample following jaw crushing at a frequency of 1:20 samples.

10.6 Sample Quality/Recovery

10.6.1 Reverse Circulation Drilling

RC drill sample weights were routinely measured as part of the standard RC drilling procedures. Statistical analysis was undertaken based on 3 m composites of the RC sample weight data for the deposit host breccia conglomerate unit converted to percent recovery data using theoretical sample weights of approximately 26 kg (per metre) for strongly to moderately oxidised conglomerate, 29 kg for weakly oxidised conglomerate, and 30 kg for fresh conglomerate.

Average RC sample recoveries ranged from 88% in strongly to moderately oxidised conglomerate to 93% in fresh conglomerate, and average 92% for all RC intersections of conglomerate. The trend of increasing recovery with decreasing oxidation is also reflected in the core recovery data (discussed in Section 10.6.2). Figure 10-6 displays a box-and-whisker plot of the RC samples weights for different level of oxidation.

Figure 10-7 displays a histogram of the RC samples weights for different level of oxidation.

The average RC sample recoveries achieved in the different oxidation zones at the Ada Tepe deposit are consistent with those achieved by diamond drilling and are considered to be of industry accepted standards for the ground conditions and styles of mineralisation in the deposit. Figure 10-8 displays a scatterplot of the RC sample weights vs gold grade. There is no evidence that anomalously low or high sample weights are associated with high (or low) gold grades.

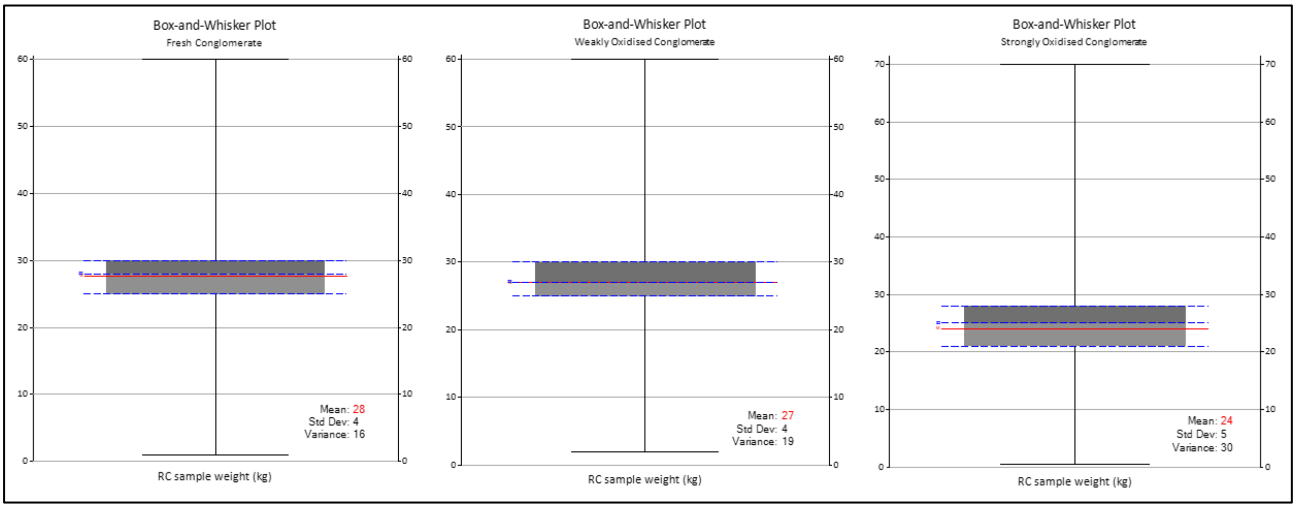


Figure 10-6: Box-and-whisker plots of RC sample weights
Source: DPM, 2022

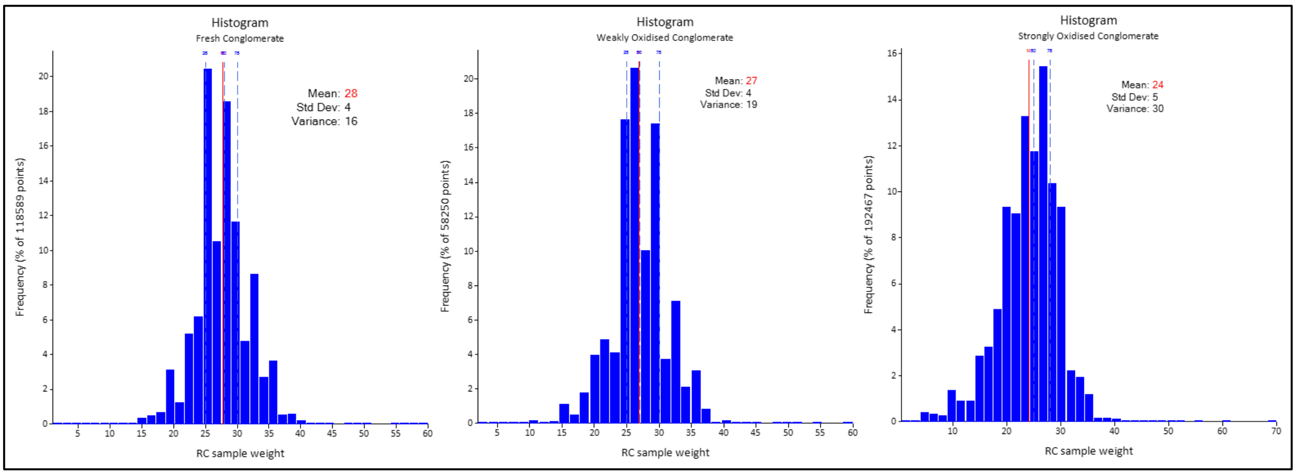


Figure 10-7: Histograms of RC sample weights

Source: DPM, 2022

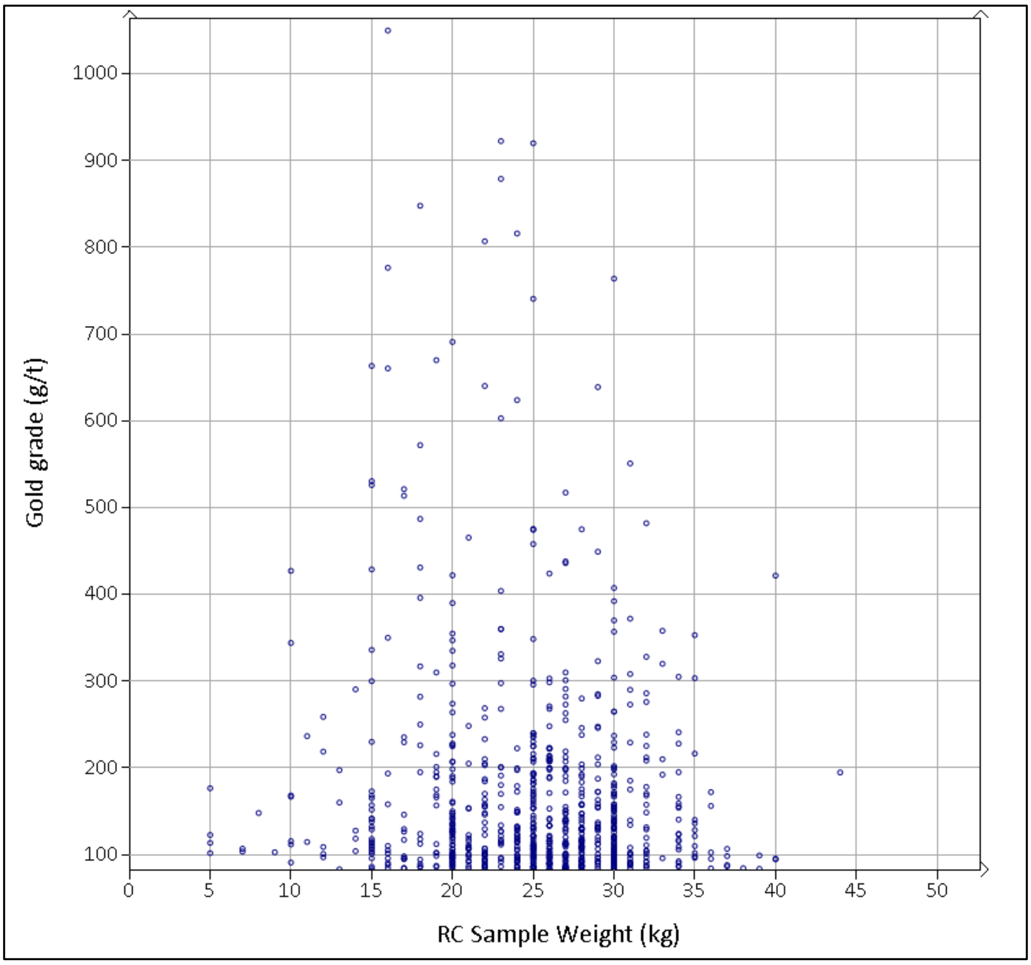


Figure 10-8: RC sample weights vs gold grade

Source: DPM, 2022

10.6.2 Core Recovery

Statistical analysis was undertaken based on 3 m composites of the core recovery data for the host breccia conglomerate unit. Average core recoveries range from 89% in strongly to moderately oxidised conglomerate to 99% in fresh conglomerate, and average 94% for all DDH core intersections of conglomerate, as presented in Table 10-3. It is considered that these recoveries are good for the ground conditions at Ada Tepe.

Table 10-3: Summary statistics of 3 m DDH core composites

Percentage core recovery data for breccia conglomerate				
	Completely and Moderately Oxidised	Weakly Oxidised	Fresh	Combined
Number	2,533	836	1,744	5,113
Minimum	0	0	20	0
Maximum	100	100	100	100
Mean	89	97	99	94
Median	97	100	100	100
Standard deviation	18	11	4	15
Variance	337	122	18	216
Coefficient of variation	0.21	0.11	0.04	0.16

Figure 10-9 displays a scatterplot of percentage core recovery vs gold grade for the DDH drilling at Ada Tepe. There is no evidence that low core recoveries are associated with high gold grades and in fact, the opposite appears to be the norm.

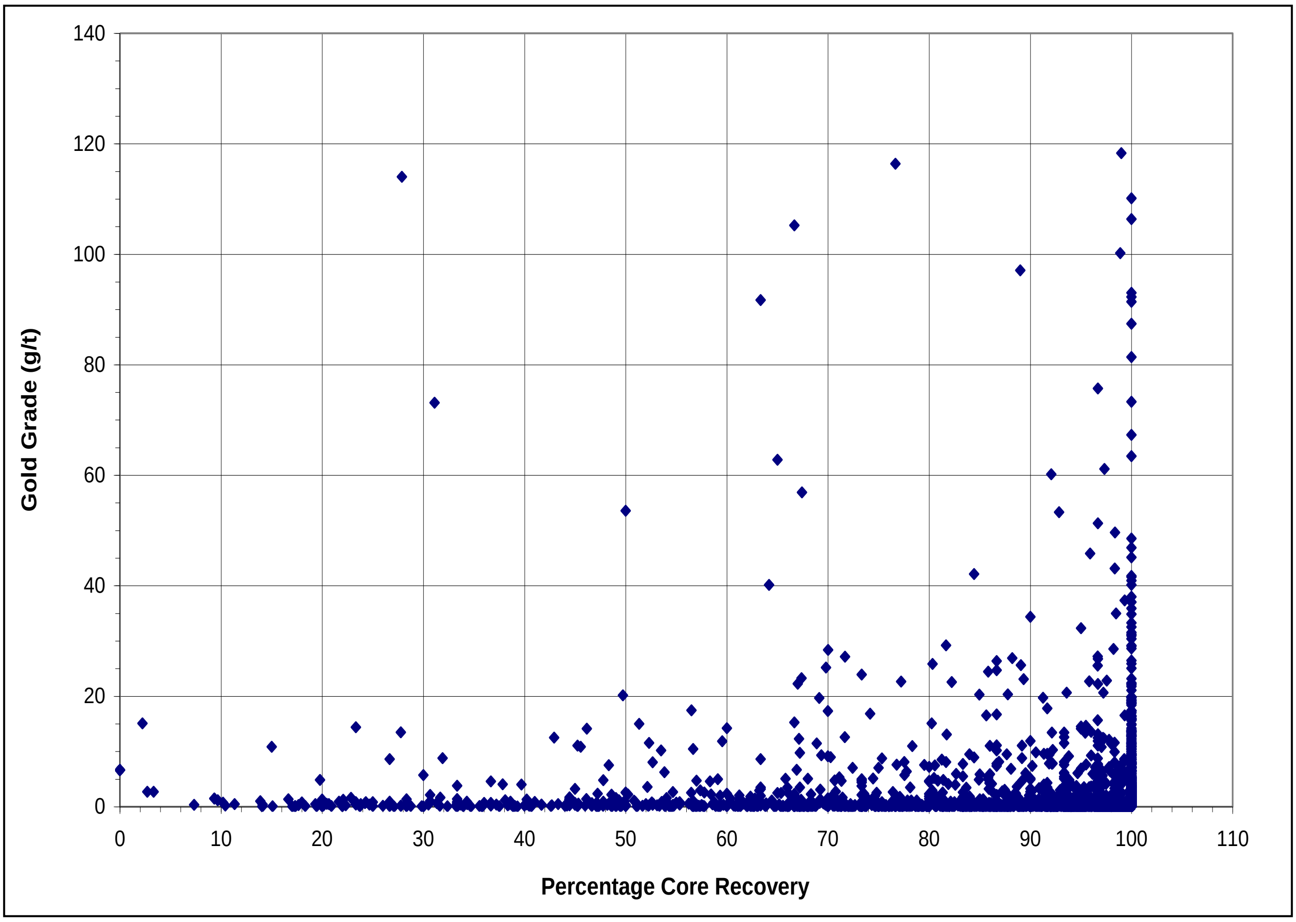


Figure 10-9: Percentage core recovery vs gold grade

Source: DPM, 2020

10.7 Bulk Density Measurements

A review of BD data undertaken prior to the 2002 exploration program indicated that inappropriate techniques had been used (water immersion without sealing and air pycnometer), such that a density reading closer to the specific gravity rather than the in-situ BD had been measured. As a result, all pre-2002 density data were rejected, and new BD data based on DDH drill core and trench grab samples were collected from

March 2002 onwards (RSG, 2005). BD measurements were routinely collected from core billets at approximately 3 m down intervals and trench grab samples collected at 5 m intervals.

All BD measurements were completed by an ISO 9002 rated laboratory, Evrotest Kontrol, in Sofia using an ISO 9002 approved method of wax sealed water immersion bulk density measurement. The laboratory and the technique used were inspected by RSG prior to the beginning of routine sample submissions for density analysis from Ada Tepe. A total of 6,429 BD measurements are available for the Ada Tepe deposit covering all the major rock types and variations in oxidation and weathering at locations distributed throughout the deposit. In addition to the BD determinations, a suite of tests was completed to ascertain the residue moisture in the core billets (53 oxide samples and 10 fresh samples). Negligible moisture was recorded, with the average moisture for both oxide and fresh samples being <1%.

10.8 Operational Grade Control Drilling

Since the start of operations, GC drilling has been planned ahead of mining, to ensure sufficient time for GC modelling, planning and scheduling. As a result of the intensive drilling programs conducted during the previous years, a sufficient amount of new data was collected and used for remodelling of the ore zones and update of the short-term and long-term block models.

Since January 2022, the entire extents of the LOM pit design have been subject to operational GC drilling at a spacing of 5 m x 5 m. As at the effective date of this report, DPMKr has no further GC drilling planned.

11 Sample Preparation, Analyses and Security

11.1 Sample Preparation

Samples from the 2000 and 2002 trench sampling and drilling were transported either to the OMAC Laboratories Ltd ("OMAC") or SGS Gura Rosiei facilities for both sample preparation and analysis. Both are independent laboratories. An independent SGS sample preparation facility, within a fully secured and enclosed core farm and RC sample storage facility with 24-hour security, was established at Krumovgrad for the 2003 program.

Except for the first 600 RC samples from the 2003–2004 drilling program (transported to the SGS Gura Rosiei facility for both sample preparation and analysis), all subsequent samples from the third and fourth drilling programs underwent sample preparation at the SGS facility in Krumovgrad, and subsequent transport to the following independent laboratories: SGS Gura Rosiei (Romania), SGS Welshpool (Western Australia) or SGS Chelopech (Bulgaria) laboratories for assay analysis. All the above laboratories are independent of the issuer.

From 2000 to 2004, the following routine procedures were used to prepare the trench, RC drilling, and core samples for analysis:

- Dry samples at 105°C.
- Jaw crush core and trench samples to minus 6 mm.
- Pulverise all samples in a LM5 crusher to 95% passing 75 µm. Complete sieve analysis on 1:20 samples.
- Clean bowl and puck of the LM5 with compressed air after each sample, and with a barren flush after every 20th sample, or as required to remove residue build-up.
- Complete barren flushes after BMM specified samples anticipated to contain high-grade mineralisation.

Since the commencement of GC RC drilling in late 2017 until completion of the drill-out program in 2022, samples have been sent to various analytical laboratories for sample preparation. Primary crushing was not required as samples were RC chips.

From June 2020, a new sample preparation facility located within the Ada Tepe mine site was put into operation. This sample preparation facility is owned and operated by DPMKr and has been specifically built for the preparation of RC samples and the equipment and procedures are identical to those used by SGS Chelopech. The procedures followed by all laboratories for the preparation of GC samples are listed in Table 11-1 below.

Table 11-1: Sample preparation procedures for GC samples

Lab code	Procedure
SGS Bor, Serbia	
PRP94	Dry, crush, split to ~1,000 g, pulverise
SGS Chelopech, Bulgaria	
Sample preparation	Sample drying at 105°C, coarse crushing, split, pulverising in chrome steel bowl, wet screen 95% passing 75 µm, barren flush after every 20th sample or as required
DPMKr Sample Preparation Laboratory, Ada Tepe Mine Site	
Sample preparation	Sample drying at 105°C, coarse crushing, split, pulverising in chrome steel bowl, wet screen 95% passing 75 µm, barren flush after every 20th sample or as required
ALS Rosia Montana, Romania	
DRY-21	High temperature drying
SPL-21	Split sample – riffle splitter
PUL-32	Pulverise 100 g to 85% passing 75 µm
PUL-QC	Pulverising quality control test

Lab code	Procedure
ALS Bor, Serbia	
DRY-21	High temperature drying
SPL-21	Split sample – riffle splitter
PUL-32	Pulverise 100 g to 85% passing 75 µm
PUL-QC	Pulverising quality control test

11.2 Analytical Methods

Assay techniques used by the primary laboratories (Table 11-2 and Table 11-3) and umpire laboratories (Table 11-4) during each of the following periods of exploration activity are summarised below:

- Program 1: Navan Mining PLC, 2000–2001 exploration drilling and trenching
- Program 2: Navan Mining PLC, 2002 drilling and trenching
- Program 3: Precious Metals EAD, 2003–2004 feasibility study drilling and trenching
- Program 4: Dundee Precious Metals EAD, November 2004 feasibility study additional infill RC drilling and trenching (note, additional trenching completed during field season of Program 3)
- GC program: Dundee Precious Metals EAD, 2017–2022.

Sample preparation and assay of analysis samples of drilling programs 1 to 4 were undertaken at two principal independent internationally accredited laboratory firms:

- OMAC of Ireland (2000–2001)
- SGS Laboratories of Perth (Welshpool), Western Australia, Gura Rosiei (near the Rosia Montana mine site), Romania and Chelopech, (part of Chelopech Mine) Bulgaria (2002–2004).

Gold analysis has been undertaken systematically for all exploration samples using fire assay with AAS finish. Silver analysis has been undertaken with either two-acid or four-acid digestion followed by AAS finish.

Not all samples were analysed for silver in the initial exploration program:

- None of the trench samples (1,954) submitted to OMAC were analysed
- 72% of the trench samples (1,707) submitted to SGS Gura Rosiei were not analysed
- 15% of the core samples (627) submitted to SGS Gura Rosiei were not analysed
- 5% of the core samples (66) submitted to OMAC were not analysed.

Table 11-2 summarises the assay methods used in programs 1 to 4.

Table 11-2: Analytical procedures – primary laboratories (programs 1 to 4)

Element	Lab code	Sample types	Detection limit	Procedure
SGS Chelopech, Bulgaria – Program 4				
Au	F650	Primary, Repeat, Split	>0.01 ppm	50 g fire assay, lead collection, with AAS finish
Ag	A117	Primary, Repeat, Split	1 ppm to 100 ppm	0.3 g charge dissolved in 15 ml (x50 dilution factor) two-acid aqua regia digest (hydrochloric and nitric acid) with AAS finish
	A104	Primary, Repeat, Split	>100 ppm	0.25 g charge dissolved in 50 ml (x200 dilution factor) four-acid digest (hydrofluoric, perchloric, hydrochloric, and nitric acid) with AAS finish
Within each batch of 50 samples, internal lab QAQC checks consist of 3 repeats, 3 second splits, 2 standards, and 1 blank				

Element	Lab code	Sample types	Detection limit	Procedure
SGS Analabs, Welshpool, Australia – Program 3 only				
Au	F650	Primary, Repeat, Split	>0.01 ppm	50 g fire assay, lead collection, with AAS finish (gravimetric finish on samples nominally greater than 80 g/t)
Ag	A117	Primary, Repeat, Split	1 ppm to 100 ppm	0.4 g charge dissolved in 20 ml (x50 dilution factor) two-acid aqua regia digest (hydrochloric and nitric acid) with AAS finish
	A119	Primary, Repeat, Split	>100 ppm	0.25 g charge dissolved in 500 ml (x2000 dilution factor) four-acid digest (hydrofluoric, perchloric, hydrochloric, and nitric acid) with AAS finish
Within each batch of 50 samples, internal lab QAQC checks consist of 2 repeats, 3 second splits, 2 standards, and 1 blank				
SGS Analabs, Gura Rosiei, Romania – Programs 2 and 3				
Au	F650	Primary, Repeat, Split	>0.01 ppm	50 g fire assay, lead collection, with AAS finish
Ag	A108	Primary, Repeat, Split	1 ppm to 300 ppm	0.5 g charge dissolved in 25 ml (x50 dilution factor) two-acid aqua regia digest (hydrochloric and nitric acid) with AAS finish
	A108	Primary, Repeat, Split	>300 ppm	0.25 g charge dissolved in 25 ml (x100 dilution factor) two-acid digest (hydrochloric and nitric acid) with AAS finish
Within each batch of 50 samples, internal lab QAQC checks consist of 4 repeats, 3 second splits, 2 standards, and 1 blank				
OMAC Laboratories, Galway, Ireland – Program 1 only				
Au	Au4	Primary	>0.01 ppm	30 g fire assay, lead collection, with AAS finish
	Au5	Repeat, Re-repeat	>0.01 ppm	30 g two-acid aqua regia digest (hydrochloric and nitric acid) mixed in a MIBK solution (hydrocarbon compound) with AAS finish
	Au6	Primary	>0.01 ppm	30 g two-acid aqua regia digest (hydrochloric and nitric acid) with AAS finish. 10% of samples checked with fire assay
Ag	GAR	Primary, Repeat	0.5 ppm to 200 ppm	0.2 g charge dissolved in 10 ml (x50 dilution factor) two-acid aqua regia digest (hydrochloric and nitric acid) with AAS finish
	BM2	Primary, Repeat	>1,500 ppm	1 g charge dissolved in 200 ml (x200 dilution factor) two-acid digest (hydrochloric and nitric acid) with AAS finish
Within a normal batch of 50 samples, internal lab QAQC checks consists of 4 repeats, 1 standard, and 1 blank				

Table 11-3 lists the assay laboratories and techniques used in the GC program. Note that ALS Bor was used as a sample preparation laboratory with samples sent onwards to either ALS Rosia Montana, Romania or ALS Loughrea, Ireland for analysis.

Table 11-3: Analytical procedures – primary laboratories (2017–2022 GC drilling)

Element	Lab code	Sample types	Detection limit	Procedure
SGS Bor, Serbia – GC program				
Au	FAA25	Primary, Repeat, Split	0.01 ppm to 1,000 ppm	25 g fire assay, lead collection, AAS finish
	FA15G	Primary	3 ppm to 1,000 ppm	15 g fire assay with gravimetric finish
Ag	AAS12B	Primary, Repeat, Split	1 ppm to 100 ppm	Two-acid (aqua regia) digest with AAS finish
S	CSA06V	Primary, Repeat, Split	0.05% to 55%	Total sulphur, LECO method
SGS Chelopech, Bulgaria – GC program				
Au	FAA25	Primary, Repeat, Split	0.01 ppm to 1,000 ppm	25 g fire assay, lead collection, AAS finish
	FA15G	Primary	3 ppm to 1,000 ppm	15 g fire assay with gravimetric finish
Ag	AAS12B	Primary, Repeat, Split	1 ppm to 100 ppm	Two-acid (aqua regia) digest with AAS finish
S	CSA06V	Primary, Repeat, Split	0.05% to 55%	Total sulphur, LECO method

Element	Lab code	Sample types	Detection limit	Procedure
ALS Rosia Montana, Romania – GC program				
Au	AA25	Primary, Repeat	>0.01 ppm	30 g ore grade fire assay with AAS finish
Ag	AA45	Primary, Repeat	>0.2 ppm	Trace method, aqua regia (two-acid) digest with AAS finish
S**	IR08	Primary, Repeat	>0.01%	Total sulphur, LECO method
ALS Bor, Serbia – GC program				
Au*	AA25	Primary, Repeat	>0.01 ppm	30 g ore grade fire assay with AAS finish
Ag*	AA45	Primary, Repeat	>0.2 ppm	Trace method, aqua regia (two-acid) digest with AAS finish
S**	IR08	Primary, Repeat	>0.01%	Total sulphur, LECO method

**Analysis at ALS Rosia Montana, Romania.*
***Analysis at ALS Loughrea, Ireland.*

External check (umpire) assay analyses of approximately 5% of the routine exploration samples from the second and third exploration programs were performed by three independent internationally accredited laboratories:

- Genalysis Laboratory Services, Maddington, Western Australia, Australia (2002 and 2004); ISO9002:1984 and ISO17025
- ALS Chemex, Vancouver, British Columbia, Canada (2004); ISO9001:2000 and ISO17025.
- SGS Analabs, Welshpool, Perth, Australia.; ISO 9001:2015, certificate N: FS717158, accreditation ISO/IEC 170–5 - National Association of Testing Authorities, Australia.

Table 11-4 summarises the assay methods used for the external check (umpire) assay analysis. No samples from the GC drilling program have been sent for umpire analysis.

Table 11-4: Analytical procedures – umpire laboratories

Element	Lab code	Sample types	Detection limit	Procedure
Genalysis – Maddington, Australia – Program 2, 3 and 4				
Au	FA50	Primary	>0.01 ppm	50 g fire assay, lead collection, with AAS finish
	FA25	Repeat	>0.01 ppm	25 g fire assay, lead collection, with AAS finish
Ag	B/AAS	Primary, Repeat	0.1 ppm to 100 ppm	10 g charge, dissolved in 50 ml (x5 dilution factor) two-acid aqua regia digest (hydrochloric and nitric acid) with AAS finish
	B/AAS	Primary, Repeat	>100 ppm	1 g charge dissolved in 50 ml (x50 dilution factor) two-acid aqua regia digest. Alternatively, a four-acid digest is used (hydrofluoric, perchloric, hydrochloric, and nitric acid) with AAS finish
Internal lab QAQC consists of one blank inserted at the start of each job, one standard/blank randomly inserted at a ratio of one standard/blank every 26 samples, plus one standard/blank inserted at the end of the job. 10% of gold samples are repeated, consisting of a routine duplicate every 25 samples and 6% repeats on selected assay results. In addition, laser sizing has been completed on every 10th sample.				
ALS Chemex, Vancouver, Canada – Programs 3 and 4				
Au	Au-AA26	Primary, Repeat	>0.01 ppm to 100 ppm	50 g fire assay, lead collection, with AAS finish
	Au-GRA22	Primary	0.05 ppm to 1,000 ppm	50 g fire assay, lead collection with gravimetric finish
Ag	Ag-AA45	Primary, Repeat	0.2 ppm to 100 ppm	0.5 g charge dissolved in 12.5 ml (x25 dilution factor) two-acid aqua regia digest with AAS finish
	Ag-AA46	Primary	1 ppm to 1,500 ppm	0.4 g charge dissolved in 10 ml (x25 dilution factor) aqua regia digest with AAS finish
Within a normal batch of 84 assays internal lab QAQC checks consist of 2 standards, 3 duplicates, and 1 blank. In addition, every 10th sample has undergone.				

Element	Lab code	Sample types	Detection limit	Procedure
SGS Analabs, Welshpool, Australia – Program 4 only – Intra Lab Check with SGS Chelopech				
Au	FAA005	Primary, Repeat, Split	>0.01 ppm	50 g fire assay, lead collection, with AAS finish (gravimetric finish on samples nominally greater than 80 g/t)
Ag	AAS12s	Primary, Repeat, Split	1 ppm to 100 ppm	0.4 g charge dissolved in 20 ml (x50 dilution factor) two-acid aqua regia digest (hydrochloric and nitric acid) with AAS finish
	AAS42s	Primary, Repeat, Split	>100 ppm	0.25 g charge dissolved in 500 ml (x2000 dilution factor) four-acid digest (hydrofluoric, perchloric, hydrochloric, and nitric acid) with AAS finish
Within each batch of 50 samples internal lab QAQC checks consist of 2 repeats, 3 second splits, 2 standards, and 1 blank. Note: FAA005 same method as F650; AAS12s same method as A117; AAS42s same method as A119 (scheme codes changed during October 2004).				

11.3 Quality Assurance and Quality Control Procedures

Quality control employed by BMM for external monitoring of the precision and accuracy of the assay analyses completed during exploration programs 2 and 3 included:

- Submission of internationally accredited gold and silver CRMs, produced by Rocklabs of New Zealand, routinely inserted into the sample stream at a frequency of 1:20 routine exploration samples
- Insertion of a blank sample (beach sand) before the first sample of each drillhole from March 2004 onwards
- Routine collection of duplicate RC drill sample splits at a frequency of 1:20 routine samples
- Routine collection of duplicate channel samples at a frequency of 1:20, approximately 20 cm above the primary channel sample location
- Collection of a duplicate sample split after jaw crushing of trench and core samples at a frequency of 1:20.

The DPM Red Book (2007) details the Quality Control, Data Tracking and Reporting Policies used by DPM. Quality assurance procedures are summarised below:

- The combined total of the Company's and primary laboratory check samples, duplicates, and CRMs should equal at least 30% of all assay results.
- Primary charting tools to review QAQC of the assay data consist of:
  - scatterplot of actual assays vs diamond core recovery
  - analysis of actual assays vs duplicate, split, and repeats samples
  - analysis of DPM and Laboratory CRM expected values vs the reported assay from the laboratory
  - comparison of actual assays vs umpire samples.
- The objectives of these analyses are to determine relative precision and accuracy levels between various sets of assay pairs and the quantum of relative error.
- Following a general inspection of data to catch simple mistakes and to spot outliers, the analytical results should be viewed at values greater than 10 times detection level.
- Quality control samples are inserted as follows:
  - Field duplicate RC and trench samples – every 20th sample.
  - Crushed core and trench duplicates collected after jaw crushing – every 20th sample.
  - Coarse grained blanks placed at the start of each RC and diamond drillhole. Alternatively, or in addition to, coarse grained blanks may be inserted as routine control samples every 50th sample.
  - CRMs are inserted as a every 20th primary sample using certified sulphide and oxide CRMs. At least five different types of CRMs including a blank pulp should be used and the grade ranges should be representative of the deposit.
- Laboratories applied their own internal check regime of lab duplicates, second splits, repeats, and CRMs.

- The reliability of the primary assay data is further assessed by comparison of 5% of the original assay results with umpire assays completed at an independent laboratory. Quality control samples are submitted with the umpire samples. Umpire samples are not required for the grade control program RC drilling.
- If failures are noted, the lab is contacted to perform 10 repeat assays either side of the anomalous quality control assay and is requested to include a lab standard within the run of repeats:
  - if the repeat assays show no evidence of bias, the original results are accepted
  - if the repeat assays show bias, then the complete submission is re-assayed.
- The complete laboratory submission must be re-assayed if:
  - the batch has more than two failed CRMs
  - most of the lab repeats and/or lab splits show greater than ±10% bias
  - RC field and trench/DDH core crusher duplicates display a consistent poor correlation (allowing for occasional spikes)
  - Company CRMs indicate a consistent positive or negative bias greater than ± 5% of the expected values.

11.4 Security

An enclosed core farm and RC sample storage facility with 24-hour security, was established at Krumovgrad for the 2003 program and was used from 2003 onwards. A pulp library is maintained of all samples prepared by SGS Krumovgrad, which are stored in a locked room within the Exploration Department at Krumovgrad. CSA Global observed this pulp library facility during the 2012 site visit and performed random spot checks of sample numbers and compared these with data contained in the project database. No issues were detected.

Samples collected from the drilling operations are transported to the site-based geology core shed, where the samples are geologically logged and are prepared for chemical analysis. The sampling procedures are appropriate and adequate security exists on the site to minimise any risk of contamination or inappropriate mixing of samples.

GC pulp samples collected between 2017 and 2022 are stored in a secure pulp library facility within the mine site building.

11.5 Statistical Analysis of Assay Quality Control Data

11.5.1 QAQC Analysis (Exploration)

Introduction

The precision and accuracy of the gold and silver assay data for the Ada Tepe exploration samples were assessed based on assays of routine quality control samples inserted into the sample stream, both as part of each laboratory's internal quality control procedures, and external monitoring of laboratory performance by BMM. In addition, the reliability of the assay data from the primary laboratories (SGS Gura Rosiei and Welshpool labs) were further assessed by comparison of the original assay results with external check (umpire) assays completed by ALS Chemex and Genalysis.

No significant issues of bias or fatal flaws were noted and results are summarised in the relevant sections below.

Assay Accuracy and Contamination

The accuracy of the gold and silver assay data and the potential for cross contamination of samples during sample preparation was assessed based on the assay results of the submitted CRMs and blanks. Both oxide and sulphide CRMs were used which represented the range of most of the gold and silver grades evident.

SGS – Gura Rosiei:

- The results of the submitted blanks and CRMs assayed showed no evidence of systematic bias.
- CSA Global considered that the gold and silver CRMs analysed by the SGS Gura Rosiei laboratory were accurate and appropriate for Mineral Resource estimation studies.

SGS Chelopech:

- The results of the statistical analysis of the blanks and CRMs analysed by the SGS Chelopech laboratory can be summarised as follows:
  - There is little evidence of cross contamination of samples.
  - Most of the gold and silver assays of the laboratory and BMM submitted CRMs are within ± 10% of the expected CRM values.
  - There is no evidence of significant bias in gold and silver assays for any of the analysed CRMs.

SGS Bor:

- The results of the statistical analysis of the blanks and CRMs analysed by the SGS BOR laboratory can be summarised as follows:
  - There is little evidence of cross contamination of samples.
  - Most of the gold and silver assays of the laboratory and BMM submitted CRMs are within ± 10% of the expected CRM values.
  - There is no evidence of significant bias in gold and silver assays for any of the analysed CRMs.

ALS Bor:

- The results of the statistical analysis of the blanks and CRMs analysed by the SGS BOR laboratory can be summarised as follows:
  - There is little evidence of cross contamination of samples.
  - Most of the gold and silver assays of the laboratory and BMM submitted CRMs are within ± 10% of the expected CRM values.
  - There is no evidence of significant bias in gold and silver assays for any of the analysed CRMs.

Assay Precision

The results of the statistical analyses are summarised below for each laboratory. Statistical analysis of the gold datasets considered only the assay data greater than or equal to 10 times the SGS analytical detection limit (i.e. data at or above 0.1 g/t Au). Similarly, a lower selection threshold of five times the SGS analytical detection for silver (i.e. data at or above 5 g/t Ag) was used for statistical analysis of the silver assay datasets.

CSA Global reviewed the results of the check analyses (duplicates, repeats and pulp splits) and no significant bias or material issues were detected.

SGS Gura Rosiei:

- Precision of the gold assays for samples analysed at the SGS Gura Rosiei facility was based on routine duplicate RC sample splits, routine duplicate splits of jaw crushed core, routine duplicate splits of pulverised core, RC, and routine laboratory repeat assay data for core, RC, and trench samples.
- Results of the statistical analysis of the gold repeat assay data was summarised as follows:
  - Increasing levels of precision were reported in relation to each successive sampling stage approaching final laboratory analysis (as expected)
- Silver analysis precision was assessed predominantly based on laboratory repeat assay data, although a relatively small number of assay pairs were also available for duplicate RC and trench field samples and duplicate jaw crusher splits of core and trench samples.
- CSA Global concluded that for the purpose of Mineral Resource estimation, acceptable levels of precision with no significant bias for both gold and silver were reported for all the sampling stages analysed.

SGS Chelopech:

- Gold assay precision for samples analysed at the SGS Chelopech laboratory was assessed based on routine duplicate RC sample splits, routine duplicate splits of pulverised core and RC, and routine laboratory repeat assay data for RC samples.
- Acceptable levels of precision evident for all the sampling stages.
- Acceptable levels of precision for the Chelopech silver assays were also evident based duplicate field sample and laboratory repeat data datasets.
- CSA Global concluded that acceptable levels of precision were reported for all the sampling stages for the purpose of Mineral Resource estimation.

SGS Bor:

- Gold assay precision for samples analysed at the SGS Bor laboratory was assessed based on routine duplicate RC sample splits, routine duplicate splits of pulverised core and RC, and routine laboratory repeat assay data for RC samples.
- CSA Global noted that precision exhibited by SGS Bor was, at times, poorer than the other laboratory results; however, no significant bias was noted and CSA Global considered that the gold and silver CRMs analysed by the SGS Bor laboratory to be accurate and appropriate for Mineral Resource estimation studies.

ALS Bor:

- Gold assay precision for samples analysed at the ALS Bor laboratory was assessed based on routine duplicate RC sample splits, routine duplicate splits of pulverised core and RC, and routine laboratory repeat assay data for RC samples.
- Acceptable levels of precision evident for all the sampling stages.
- Acceptable levels of precision for the ALS Bor silver assays were also evident based duplicate field sample and laboratory repeat data datasets.
- CSA Global concluded that acceptable levels of precision were reported for all the sampling stages for the purpose of Mineral Resource estimation.

11.5.2 QAQC Analysis (Grade Control)

Introduction

A high-level review of the quality control data for the GC data was completed for gold and silver assays. Data from RC drillholes drilled between 2020 and 2022 and analysed at the following four laboratories were reviewed:

- ALS Bor (ALS_BO)
- ALS Rosia Montana, Romania (ALS_RO)
- SGS Bor (SGS_BO)
- SGS Chelopech (SGS_CH).

Cross Contamination

Blank Beach is a beach sand blank which requires pulverisation and therefore will indicate whether cross contamination is noted in the sample preparation process. Blank analysis results from the labs are summarised below.

Table 11-5: Blank data

Standard code	No. of samples	Mean Au	Expected value	No. of failures (>10x LDL)
BLANK_BEACH	5,171	0.005	0.01	0
BLANK_SGS_CHE	3,901	0.005	0.01	0

No failures were noted in the preparation blanks and therefore no issues are expected with respect to cross contamination.

Assay Accuracy (Bias)

Shewhart control plots and summary statistics were produced for DPMKr inserted silver and gold CRMs. These were reviewed per CRM and results are summarised below.

Table 11-6: Silver CRM data (absolute bias >5% highlighted in red)

CRM code	No. of samples	Mean Ag	No. of failures (>3x SD)	Mean bias
CPB-2	1	360	0	0.00%
G310-3	905	1.8256	0	0.00%
G310-6	3	2.3333	0	0.00%
G311-7	226	7.042	0	0.00%
G312-7	2,774	1.2481	0	0.00%
G313-4	2,233	4.2518	0	0.00%
G314-1	3	1.8667	0	0.00%
G314-10	476	1.4891	0	0.00%
G315-8	1,611	8.3425	0	0.00%
G907-1	6	2.2	0	0.00%
G910-2	2	1.3	0	0.00%
G910-8	3	3.0333	0	0.00%
G912-7	409	1.7905	0	0.00%
G912-8	263	2.9179	0	0.00%
G913-1	2,300	2.468	0	0.00%
G913-10	1	1.6	0	0.00%
G915-2	2,087	9.89	0	0.00%
G998-3	116	0.7888	0	0.00%
GBM301-9	1,824	11.085	0	-1.03%
GBM310-1	1,866	19.3462	0	1.82%
GBM399-1	2,046	0.8081	0	-26.54%
GBM399-6	2,046	14.9216	0	-3.73%
GBM915-13	8	180.775	0	-1.16%

There is no systemic bias visible in any of the CRMs at any of the laboratories.

Table 11-7: Gold CRM data (failures and absolute bias >5% highlighted in red)

Standard code	No. of samples	Mean Au	No. of failures (>3x SD)	Mean bias
AUOE-12	886	0.7855	0	0.00
AUOI-6	587	2.5003	0	0.00
AUSK-5	61	2.91	0	0.00
AUSK-6	174	3.3301	0	0.00
BN_79275	41	0.6895	0	0.00
G310-10	10	48.247	0	-0.01
G310-3	905	0.0608	0	-0.13
G310-6	3	0.66	0	0.02
G311-7	226	0.3931	0	-0.02
G312-7	2,774	0.2111	0	-0.04
G313-4	2,233	1.9991	0	0.00
G314-1	3	0.7267	0	-0.03
G314-10	476	0.3838	0	0.00

Standard code	No. of samples	Mean Au	No. of failures (>3x SD)	Mean bias
G314-4	194	0.1406	0	0.00
G314-7	1,683	2.4189	0	0.00
G315-5	637	0.1	0	0.00
G315-8	1,611	9.8942	0	0.00
G907-1	6	0.7617	0	-0.04
G910-2	83	0.906	0	0.00
G910-8	3	0.6033	0	-0.04
G912-7	409	0.4138	0	0.00
G912-8	263	0.5174	0	-0.02
G913-1	2,416	3.33	1	-5.06
G913-10	1	0.37	0	0.00
G915-2	2,087	5.0028	0	0.00
G916-6	208	30.9413	0	0.00
G918-3	1,514	0.5081	0	0.00
G998-3	258	0.8097	0	0.00
ST05_2	943	2.4596	0	0.00
ST17	634	0.7269	0	-0.04
ST413	763	0.787	0	0.00
ST575	269	2.413	0	-0.01
ST627	513	0.1	0	0.01
ST637	90	3.1926	0	-0.01

No systemic bias was noted and there are no significant concerns regarding gold assay bias.

The charts below show examples of results from SGS Chelopech for low-grade, medium-grade and high-grade gold CRMs. Results are acceptable with (mean bias between -2% and 0%).

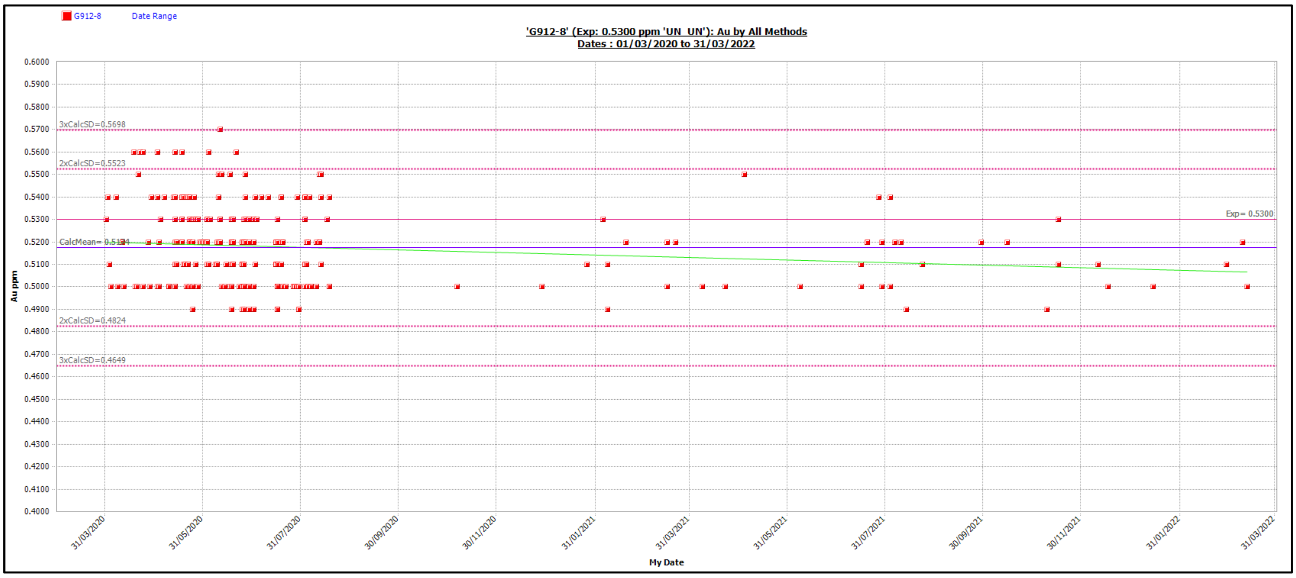


Figure 11-1: Gold CRM G912-8 showing acceptable results (expected value 0.53 ppm Au)
Source: DPM, 2022

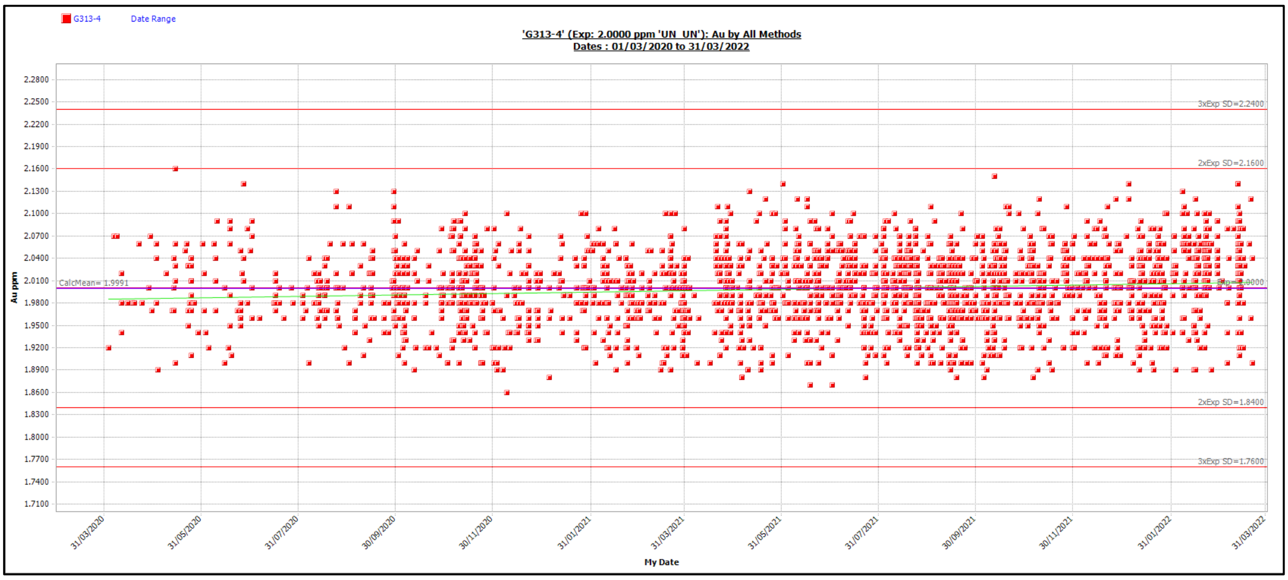


Figure 11-2: Gold CRM G313-4 showing accurate and precise results (expected value 2.00 ppm Au)

Source: DPM, 2022

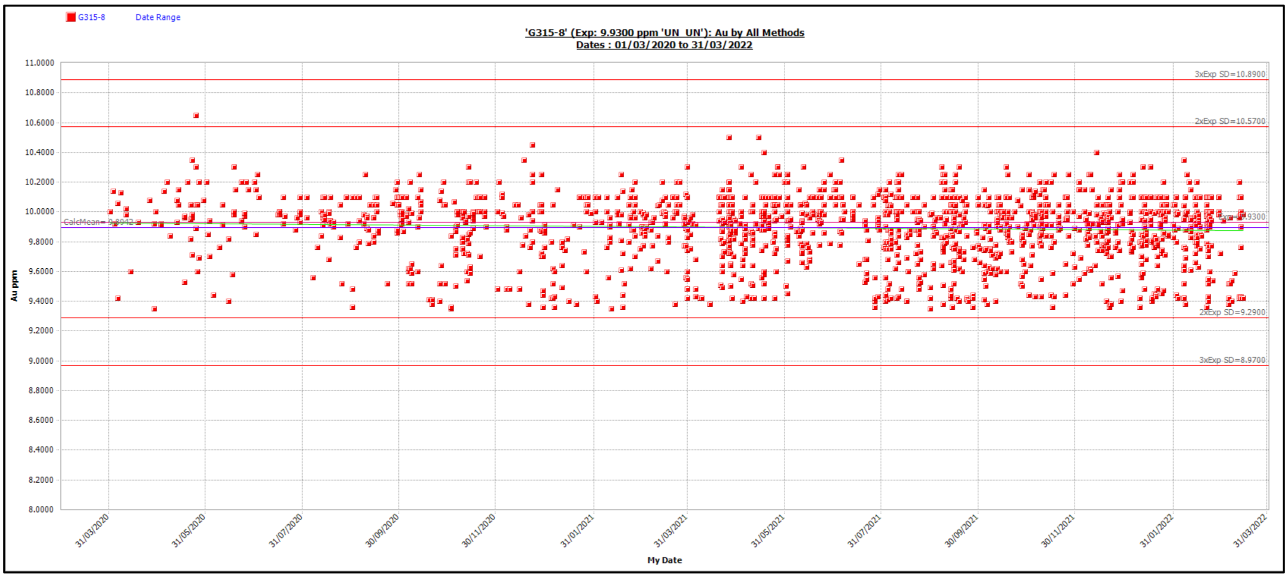


Figure 11-3: Gold CRM G315-8 showing overall accurate results (expected value 9.93 ppm Au)

Note precision and accuracy deterioration in the later samples.

Source: DPM, 2022

Gold CRM results were mostly accurate with no significant bias or failures. Silver low-grade CRMs have multiple bias issues, but these are attributed to the imprecision of the assay methods at low grades.

Assay Precision

Precision error can be estimated by measuring the precision error at each stage of the sampling and assay process. Field duplicates contain all sources of error (sampling error, sample reduction error and analytical error), Laboratory duplicates contain sample reduction error and analytical error, pulp duplicates contain analytical error only.

The data were assessed using coefficients of variation (CV = standard deviation/average – also known as relative standard deviation) calculated from individual duplicate pairs and averaged using the root mean squared (“RMS”) approach. This approach is recommended by Abzalov (2008) as a way of defining a fundamental measure of data precision using duplicate paired data.

Precision errors (CV_{AVR}(%)) were calculated for duplicates with mean values ≥10 times the analytical detection limit and compared to acceptable limits. Acceptable and best practice limits are obtained from Abzalov's 2008 paper, "Quality Control of Assay Data: A Review of Procedures for Measuring and Monitoring Precision and Accuracy". Table 11-8 to Table 11-15 summarise the precision results for silver and gold field and laboratory duplicates, lab replicates and laboratory splits. Relative difference plots and logarithmic scatterplots for silver and gold field duplicates are shown below for all laboratories (Figure 11-4 and Figure 11-5 respectively).

Table 11-8: Silver field duplicate data (including acceptable and best practice limits)

Duplicate type	Lab_Orig	Element	Pairs (total)	Count of pairs (>10 x DL)	$CV_{(AVR)}$ %	Acceptable	Best	Mean orig.	Mean dup.	Bias
FIELDDUP	ALS RO	Ag (ppm)	4,538	5	26	30.0%	20%	0.92	0.92	-1%
FIELDDUP	ALS BO	Ag (ppm)	4,021	21	27	30.0%	20%	0.99	0.99	0%
FIELDDUP	SGS CH	Ag (ppm)	3,192	9	28	30.0%	20%	1.32	1.32	0%
FIELDDUP	SGS BOR	Ag (ppm)	3,124	4	31	30.0%	20%	1.15	1.16	1%

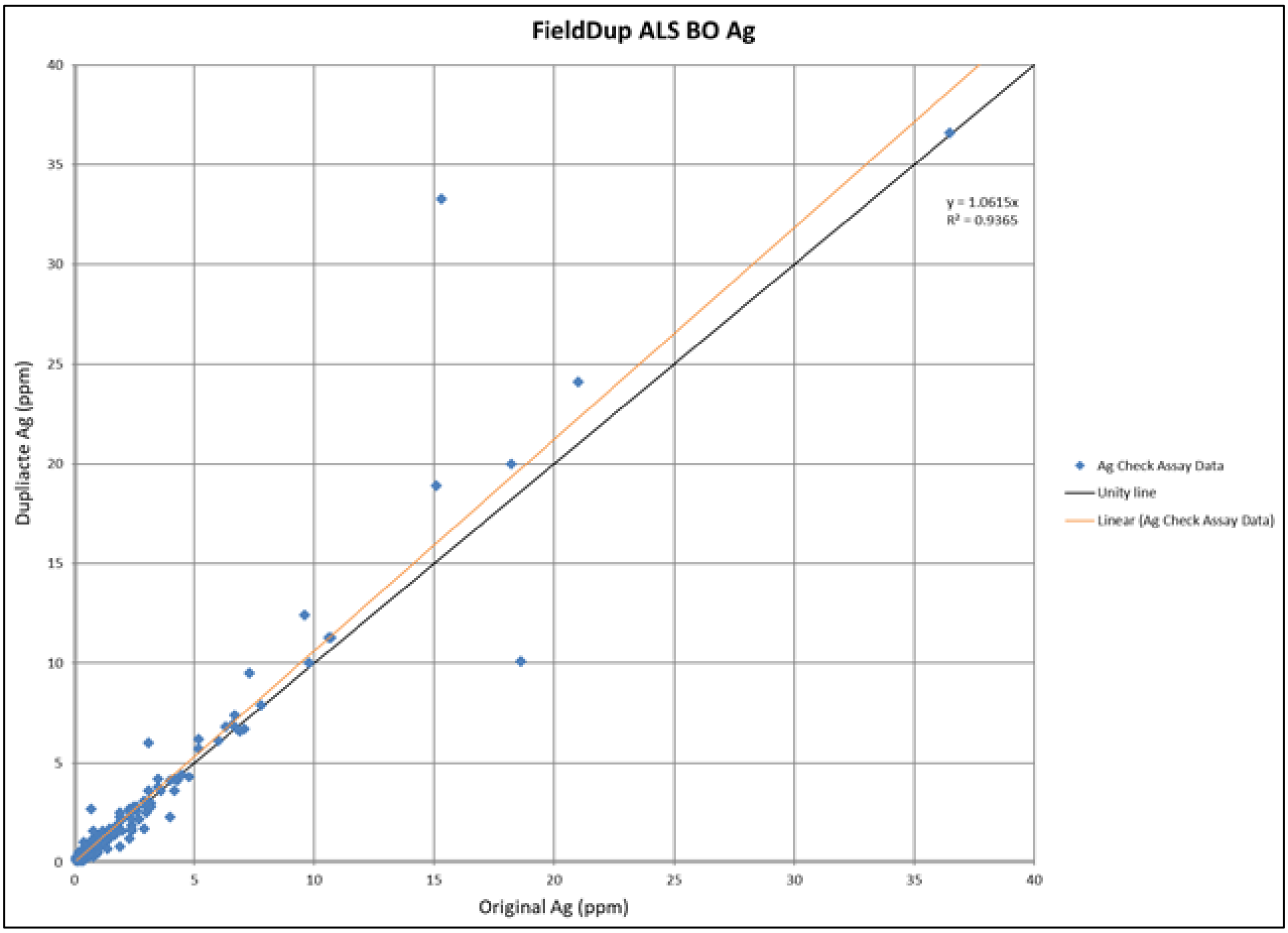


Figure 11-4: Silver field duplicate relative difference and log scatterplots for SGS_BO

Source: DPM, 2022

Table 11-9: Gold field duplicate data (including acceptable and best practice limits)

Duplicate type	Lab_Orig	Element	Pairs (total)	Count of pairs (>10 x DL)	$CV_{(AVR)}$ %	Acceptable	Best	Mean orig.	Mean dup.	Bias
FIELDDUP	ALS RO	Au (ppm)	4,525	15	25	30.0%	20%	1.05	1.04	-1%
FIELDDUP	ALS BO	Au (ppm)	4,010	13	27	30.0%	20%	1.17	1.17	1%
FIELDDUP	SGS CH	Au (ppm)	3,188	6	31	30.0%	20%	1.09	1.10	2%
FIELDDUP	SGS BOR	Au (ppm)	3,118	4	43	30.0%	20%	0.91	0.89	-2%

Field duplicates analysed at SGS_BO show poorer precision than any of the other laboratories, there is no systemic bias to the duplicate results at SGS_BO.

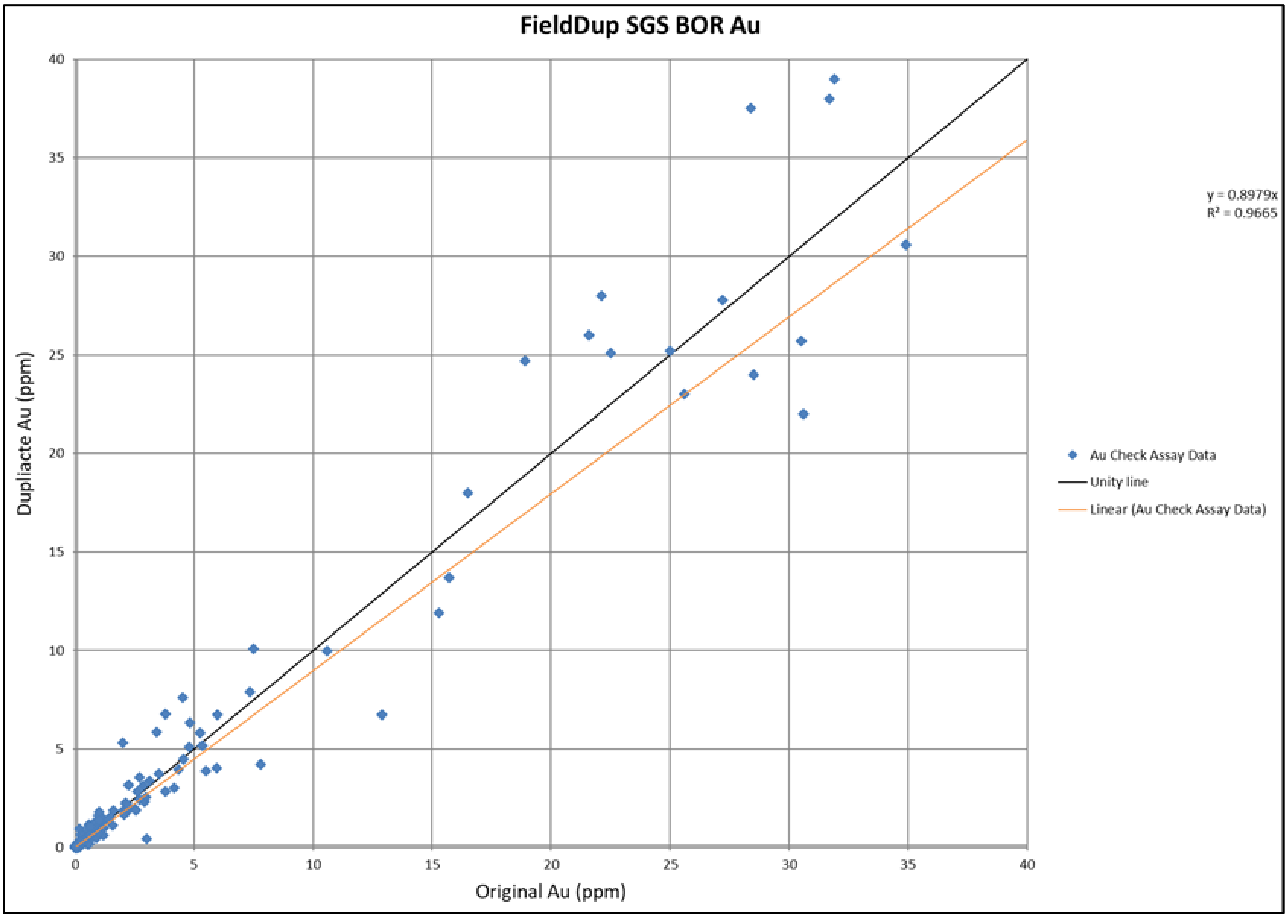


Figure 11-5: Gold field duplicate relative difference and log scatterplots for SGS_BO
Source: DPM, 2022

Lab duplicate precision at SGS_BO was poorer than expected (Table 11-10).

Table 11-10: Silver lab duplicate data (including acceptable and best practice limits)

Duplicate type	Lab_Orig	Element	Pairs (total)	Count of pairs (>10x DL)	CV(AVR) %	Acceptable	Best	Mean orig. (ppm)	Mean dup. (ppm)	Bias
LABDUP	SGS CH	Ag	734	14	23	20%	10%	1.38	1.38	0%
LABDUP	SGS BOR	Ag	1,001	21	24	20%	10%	1.10	1.12	2%
LABDUP	ALS BO	Ag	936	18	22	20%	10%	0.71	0.70	-1%
LABDUP	ALS RO	Ag	862	24	20	20%	10%	1.05	1.03	-2%

Lab replicate and lab split precision for silver pairs is acceptable at both SGS_BO and SGS_CH with no significant bias. However, there seems to be a positive bias for SGS Bor, even though precision is acceptable (Table 11-11 and Table 11-12).

Table 11-11: Silver lab replicate data (including acceptable and best practice limits)

Duplicate type	Lab_Orig	Element	Pairs (total)	Count of pairs (>10x DL)	CV(AVR) %	Acceptable	Best	Mean orig. (ppm)	Mean dup. (ppm)	Bias
LABREP	SGS CH	Ag	1,346	18	24	20%	10%	1.23	1.24	1%
LABREP	SGS BOR	Ag	478	8	21	20%	10%	1.01	1.10	9%
LABREP	ALS BO	Ag	1,425	27	21	20%	10%	1.18	1.17	-1%
LABREP	ALS RO	Ag	1,521	55	22	20%	10%	1.35	1.35	0%

Table 11-12: Silver lab split data (including acceptable and best practice limits)

Duplicate type	Lab_Orig	Element	Pairs (total)	Count of pairs (>10x DL)	CV(AVR) %	Acceptable	Best	Mean orig. (ppm)	Mean dup. (ppm)	Bias
LABSPLIT	SGS CH	Ag	275	5	23	20%	10%	1.44	1.43	-1%
LABSPLIT	SGS BOR	Ag	363	5	18	20%	10%	0.88	0.90	3%

The gold lab duplicates are mostly precise with no bias. The SGS_BO precision is lower than expected (Table 11-13).

Table 11-13: Gold lab duplicate data (including acceptable and best practice limits)

Duplicate type	Lab_Orig	Element	Pairs (total)	Count of pairs (>10x DL)	CV(AVR) %	Acceptable	Best	Mean orig. (ppm)	Mean dup. (ppm)	Bias
LABDUP	SGS CH	Au	686	14	10	20%	10%	1.31	1.31	0%
LABDUP	ALS BO	Au	936	22	21	20%	10%	0.58	0.59	1%
LABDUP	ALS RO	Au	862	24	20	20%	10%	1.28	1.29	1%
LABDUP	SGS BOR	Au	1,001	29	33	20%	10%	0.85	0.84	0%

Lab replicate and lab split precision for gold pairs is acceptable at both SGS_BO and SGS_CH with no significant bias (Table 11-14 and Table 11-15).

Table 11-14: Gold lab replicate data (including acceptable and best practice limits)

Duplicate type	Lab_Orig	Element	Pairs (total)	Count of pairs (>10x DL)	CV(AVR) %	Acceptable	Best	Mean orig. (ppm)	Mean dup. (ppm)	Bias
LABREP	SGS CH	Au	1,337	25	9	20%	10%	0.43	0.43	0%
LABREP	ALS BO	Au	971	40	20	20%	10%	1.85	1.86	1%
LABREP	ALS RO	Au	1,100	52	17	20%	10%	1.92	1.92	0%
LABREP	SGS BOR	Au	480	12	18	20%	10%	0.43	0.43	0%

Table 11-15: Gold lab split data (including acceptable and best practice limits)

Duplicate type	Lab_Orig	Element	Pairs (total)	Count of pairs (>10x DL)	CV(AVR) %	Acceptable	Best	Mean orig. (ppm)	Mean dup. (ppm)	Bias
LABSPLIT	SGS CH	Au	272	2	9	20%	10%	0.29	0.29	0%
LABSPLIT	SGS BOR	Au	362	5	19	20%	10%	0.30	0.30	0%

Overall, acceptable levels of precision have been exhibited for gold duplicate pairs with SGS_BO having the poorest precision for field duplicates and laboratory duplicates. Silver pairs were mostly low grade.

11.5.3 Author's Opinion on Sample Preparation, Security and Analytical Procedures

Quality control results indicate that the GC assay results are accurate and repeatable with no material contamination apparent. No significant issues of bias or fatal flaws were noted in the overall QAQC review and therefore the author believes these results can be used with confidence in downstream work.

12 Data Verification

The Qualified Persons are confident that the data used to underpin Mineral Resources and Mineral Reserves are of a high quality and fit for purpose. CSA Global has completed the following data verification, as regards Mineral Resource evaluation, in 2022:

- An audit of the DPMKr acQuire relational database was completed by CSA Global on 6 July 2022 and the overall conclusions were that the database was well maintained, good practices appeared to have been followed, and data in the database should be fit for purpose for downstream work.
- Site visit activities during a visit to the property in 2022, which included:
  - Inspection of drill core
  - Review of core logging procedures
  - Review of sampling procedures
  - Audit of the assay laboratory, SGS Chelopech, on site
  - Discussion and interrogation of data flow procedures
  - Review of data and system security protocols on sites
- CSA Global independently produced and reviewed QAQC reports to verify the accuracy and precision of the assayed QAQC material and samples.
- CSA Global considers the drillhole collars, trench and channel sample locations at Ada Tepe to be accurately located in three dimensions for the purposes of Mineral Resource estimation.
- CSA Global has taken receipt of (and reviewed) the original topographic surface and the trench/collar points used in its construction and believes it to be valid for use in constraining the Mineral Resource block model, outside of the active mining area.
- In relation to ongoing data review and verification over time, CSA Global has been involved in operational improvement activities relating to mine geology, periodically since production commenced in 2019 and is ongoing in 2023 and as such, orebody knowledge has built up over time. Areas of focus, which have been reviewed as appropriate as part of the 2022 MRE update include:
  - Summary report assessing "at risk material" within the GC model (2020)
  - Close out report – Mine Geology Support (2020)
  - Summary Report – 2021 GC Drilling Plan (2020)
  - Close out report – Mine Geology Support (2021)
  - Summary Report – GC sample contamination review (2021)
  - Summary Report – Review of updated GC model for push-back 3 (2021)
  - Summary Report – Review of updated GC model for push-back 4 (2022)
  - Interpretative Report – Geometallurgical Assessment for Ada Tepe (2022)
  - Summary Report – Review of Ada Tepe production reconciliation for 2022 calendar year (2023).

12.1 Historical validations completed by CSA Global

12.1.1 Twin Drilling

Substantial secondary verification sampling of the primary trench/channel sampling and drilling at the Ada Tepe deposit was completed, including the following:

- Twinning of four 2001 DDH drillholes in 2002 with 366 m of triple tube coring
- Twinning of 194 m of the initial 2000 and 2001 channel sampling in 2002 using the RSG channel sampling procedures
- Successful twinning of 24 RC drillholes from the second and third drilling programs with triple tube coring (1,865 m).

12.1.2 Analysis of Twin Trench Sampling Data

The 194 m of twin trench sampling was completed along various segments of 13 trenches, with the twin samples collected over the same intervals as the original samples. The average gold grade of the original and twinned segments of continuous trench sampling was calculated, both uncut and with a 10 g/t Au upper cut applied, as presented in Table 12-1. The compared intersection grades are generally similar with no systematic bias evident in favour of the original or twin intersection grades. On this basis, it is considered the trench sampling data collected during the initial exploration program to be suitable for use in Mineral Resource estimation.

Table 12-1: Uncut and cut mean gold grade data for twin trench sampling intersections

Trench ID	From	To	Metres	Uncut mean Au grade (g/t)		Cut mean Au grade (10 g/t Au)	
				Original	Twin	Original	Twin
AT102-6	57.8	65.4	7.6	1.0	1.9	1.0	1.8
AT108	23.2	50.8	27.6	10.2	9.7	5.3	4.6
AT110-1	17	27	10	0.3	0.5	0.3	0.5
AT110-2	6	36.1	30.1	11.3	12.9	5.1	4.8
AT121-1	72.7	79.4	6.7	2.5	3.4	2.5	2.9
AT133	34.9	42	7.1	13.9	17.1	5.1	5.5
AT149	0	23.7	23.7	0.2	0.2	0.2	0.2
AT149-1	0	5	5	0.1	0.2	0.1	0.2
AT156	79.7	84	4.3	55.3	132.1	6.7	10.0
AT182	6	15.2	9.2	3.5	2.1	3.5	2.1
AT187	0	11.4	11.4	5.9	2.4	1.9	1.7
AT187	28.6	45.8	17.2	13.4	9.6	2.4	2.9
AT194-2	82.8	104.7	21.9	1.7	1.1	0.9	1.0
AT196	0	3.6	3.6	0.9	0.7	0.9	0.7
AT196	11.1	19.9	8.8	5.5	3.4	2.6	2.5
Total			**194.2**	**7.3**	**8.6**	**2.8**	**2.8**

12.1.3 Analysis of Twin Core Hole Data

CSA Global reviewed the results of twin core sampling and agrees with the conclusions reached by RSG. This is summarised below.

Comparison of the original and twin DDH drillhole intersections (Table 12-2), both uncut and using a 10 g/t Au upper cut, indicates the original core hole intersections are higher grade than the twin hole intersections, but with much reduced differences evident between the intersections based on the cut grade data. Plots of the sample gold assay grades vs downhole depth for each of the four twin pairs indicate that the high-grade mineralised intersections are of similar length in the original and twin holes. Furthermore, not all the mineralised intersections are dominated by higher sample grades in the initial drillholes. RSG also noted that the separation between the surveyed downhole traces of the twin pairs AT1045 and ATDD014, and AT1079 and ATDD015 range from approximately 2 m at the top of the holes to greater than 9 m at depth, and as such, differences in the sample and mineralised intersection grades at depth are not unexpected.

Table 12-2: Uncut and cut mean gold grade data for twin core holes

Original hole	Twin hole	From	To	Metres	Uncut Au (g/t)		Cut (10 g/t Au)	
					Original	Twin	Original	Twin
ATI 012	ATDD011	3	59	54	18.5	10.7	4.8	4.8
ATI 059	ATDD012	0	66	65	1.8	0.7	1.5	0.7
AT1045	ATDD014	1	107	106	4.6	2.3	1.5	1.2
AT1079	ATDD015	0	130	130	1.7	1.6	1.2	1.1
Total				**355**	**5.1**	**3.0**	**1.9**	**1.6**

In summary, when the effects of a relatively small number of very high grade samples are removed by cutting, and the significant separation between some of the original and twin drillhole traces are considered, the length and tenor of the mineralised intersections in the original core holes is generally confirmed by triple tube twin holes.

12.1.4 Analysis of Reverse Circulation and Diamond Twin Hole Data

The 24 successful RC and DDH twin drillhole pairs have been compared on the basis of 3 m composites of the gold assay data over the twinned downhole segments of each twin hole pair. Similar to the DDH twin holes and the duplicate channel samples, a high level of short-scale variability is noted, as is typical for epithermal gold systems. The important findings of the RC vs DDH twin drilling review are summarised as follows:

- The mineralised intersection lengths, their relative downhole positions and the associated sample recoveries show reasonable correlation for majority of twin hole pairs, as illustrated in the example plot displayed in Figure 12-1.
- A high degree of grade variation is noted between the mineralised intercepts
- Although a larger percentage of RC holes are relatively higher tenor (consistent with that described above for the DDH vs DDH twin dataset), a significant number of diamond intercepts are also noted to be higher grade than the corresponding RC twin. This would support the finding of high short-scale variability and not bias.
- Small intercepts (<= 3 m) identified in the RC or the DDH twin are often not repeated in the adjacent drillhole.
- It is considered that the twin drilling adequately replicates the original drillhole intercepts in terms of magnitude and location when consideration is given to the mineralisation style.

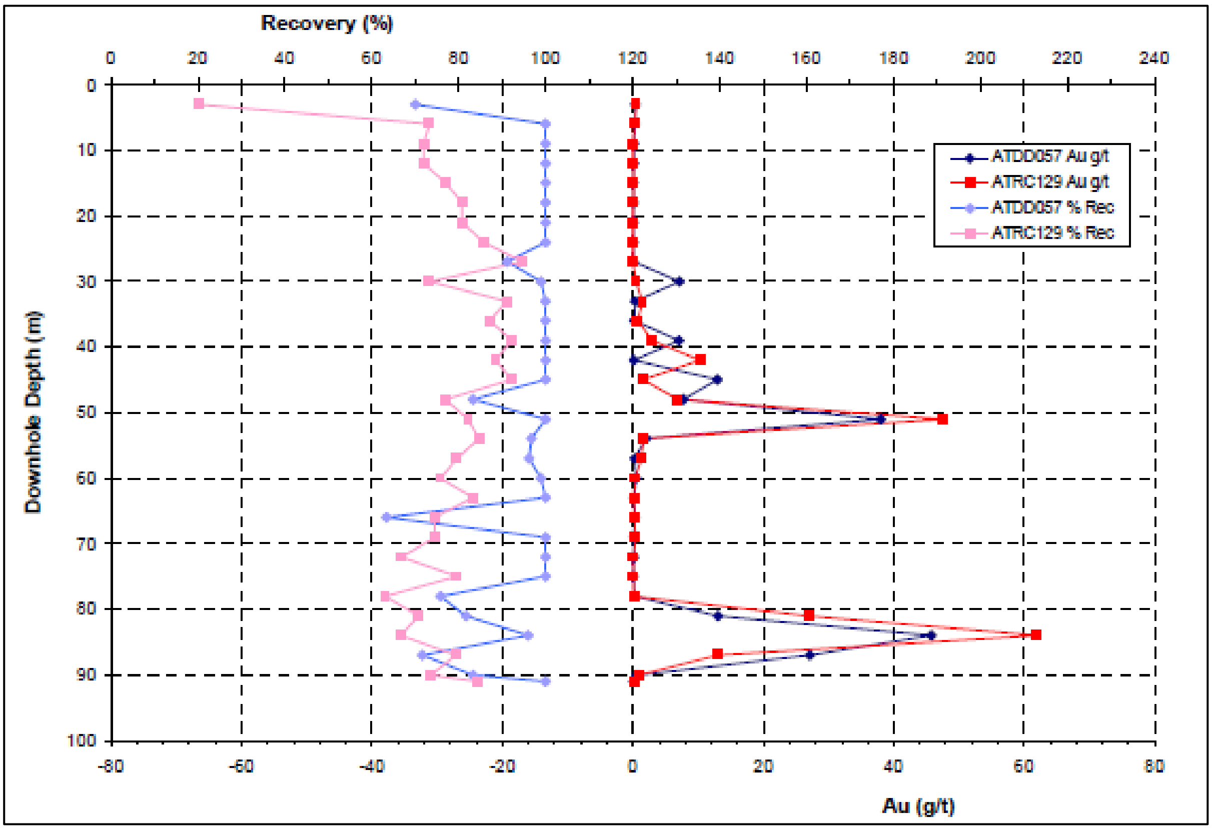


Figure 12-1: Grade and recovery vs depth plot for DDH and RC twin drillholes ATDD057 and ATRC129

Source: CSA Global, 2018

Table 12-3: Comparison of uncut and cut gold 3 m composites RC vs DDH drillhole twins

DDH hole	RC hole	From	To	Length (m)	Uncut Au (g/t)		Cut (10 g/t Au)	
					DDH	RC	DDH	RC
ATDD026	ATRC013	3	54	51	2.83	7.38	2.83	7.03
		75	80.3	5.3	17.11	3.68	16.64	3.68
ATDD030	ATRC003	0	36	36	3.68	2.03	3.68	2.03
		123	137	14	1.69	1.17	1.69	1.17
ATDD032	ATRC002	0	9	9	2.02	2.41	2.02	2.41
		105	111	6	1.14	4.68	1.14	4.68
		120	131.6	11.6	3.87	2.74	3.87	2.74
ATDD034	ATRC007	60	93	33	7.89	6.63	7.76	6.63
ATDD057	ATRC129	27	60	33	6.99	6.85	6.26	5.26
		78	90	12	21.72	25.81	17.76	17.80
ATDD058	ATRC062	15	20	5	0.40	31.85	0.40	29.67
ATDD059	ATRC059	0	21	21	7.48	6.74	7.48	6.74
ATTDD060	ATRC132	15	24	9	0.47	0.61	0.47	0.61
ATTDD061	ATRC074	0	12	12	9.06	13.80	8.43	10.11
		45	66	21	0.48	0.42	0.48	0.42
ATDD073	ATRC117	0	33	33	15.16	18.32	8.01	6.53
		45	51	6	0.13	1.46	0.13	1.46
		63	108	45	5.07	5.63	4.75	5.33
ATDD074	ATRC118	12	66	54	30.12	60.07	11.21	15.55
		81	109.7	28.7	4.04	11.40	4.04	5.71
ATDD077	ATRC273	66	70	4	0.21	15.95	0.21	15.95

ATDD078	ATRC339	0	18	18	0.97	20.51	0.97	5.64
ATDD081	ATRC143	9	15	6	0.73	0.31	0.73	0.31
		33	81	48	8.37	11.57	5.67	8.90
ATDD083	ATRC081	0	18	18	0.84	0.87	0.84	0.87
		24	39	15	5.37	6.65	5.37	6.65
ATDD085	ATRC111	0	15	15	6.25	7.94	6.25	7.94
		27	68.2	41.2	6.17	17.24	6.17	10.76
ATDD087	ATRC097	15	27	12	27.80	5.10	7.77	5.10
		54	87	33	1.96	2.81	1.96	2.81
ATDD088	ATRC135	6	18	12	1.93	5.26	1.93	5.26
		27	45	18	6.00	3.75	6.00	3.75
ATDD089	ATRC357	0	54	54	0.55	12.57	0.55	4.37
		69	85.5	16.5	25.51	11.37	10.79	9.42
ATDD091	ATRC270	42	66	24	1.66	1.65	1.66	1.65
ATDD092	ATRC016	0	18	18	1.61	1.63	1.61	1.63
		27	78	51	5.98	11.20	4.40	3.79
ATDD101	ATRC335	0	12	12	0.78	2.34	0.78	2.34
		18	24	6	0.98	0.03	0.98	0.03
ATDD105	ATRC140	15	30	15	1.47	1.14	1.47	1.14
		57	63	6	5.02	0.24	5.02	0.24
		90	112	22	21.86	11.28	14.38	11.28

Note: Selection completed on the basis of >2 composites and a minimum grade of 0.5 g/t Au for either/or original and twin hole.

13 Mineral Processing and Metallurgical Testing

13.1 Introduction

Three distinct phases of ore characterisation and metallurgical testing were undertaken in the evaluation of the mineralisation present in the deposit at Ade Tepe. These are summarised in Sections 13.1.1, 13.1.2 and 13.1.3 below.

13.1.1 Definitive Feasibility Study (2005)

The main objective of this testwork program was to develop the optimal flowsheet for processing the Ada Tepe ore types using best available technology. ALS AMMTEC Laboratory, Perth, Australia carried out the physical characterisation, comminution, leaching and cyanide detoxification testwork programs.

Samples were also sent to MinnovEX Technologies (now SGS) in Toronto, Canada for comminution characterisation, variability testing and for mineralogical examination; Outotec for thickening, and Larox Pty Ltd for filtration; and to Coffey for tailings characterisation. Results from the phase of testing confirmed that all the samples tested were considered "free-milling" and amenable to gold production by conventional cyanidation leaching.

13.1.2 Definitive Feasibility Study (2012)

Testing carried out as part of the DFS essentially re-invented the project following the rejection of the original investment proposal by the local community and government authorities. At the expense of a reduction (8–10%) in recovery compared with the original conventional carbon-in-leach ("CIL") circuit, the project was "re-engineered" using a more conventional flotation process, combined with the introduction of a combined mine waste and flotation tailings facility ("IMWF").

The flowsheet evolved from the 2005 flotation scoping testing which demonstrated that at the CIL circuit grind size (P_{80} of 75 µm) between 60% and 80% of the gold could be recovered to a flotation concentrate, at a saleable gold grade. The 2009–2011 testing program was developed to confirm the potential of both: (a) physical recovery processes (flotation and gravity) as the primary method of precious metal concentration; and (b) the ultimate integration of high-density (or "paste") settled tailings from the process into an overall waste deposition strategy which incorporates the mine waste.

13.1.3 2012 to 2013

Testing carried out was predominantly to be used for plant design purposes. Representative samples were dispatched to recognised testing institutions for mechanical design tests, including materials handling flow characteristics, slurry rheology determinations, additional confirmatory settling and paste thickening testing. Several confirmatory flotation programs continued at SGS.

13.2 Ore Characterisation (2009 to 2013)

The SGS laboratory in Lakefield, Ontario was selected as the testing facility for the supplementary comminution, and the flotation development programs. A comprehensive test program was undertaken for this program, samples for which were taken from the extensive store of HQ, NQ and PQ drill core. The locations were selected to cover the range of mineralisation present across the zones, to include composites and sufficient samples to determine the extent of any variability in performance.

The test program focused on the two main ore zones: the "softest" – the Oxidised Upper Zone; and the "hardest", the Fresh Wall Zone. Composites of each were examined, and in addition, individual samples for variability testing, were also tested. The samples were selected in consultation with the exploration team from the remainder of the HQ, NQ and PQ drill core available. Most of the samples were split from the existing half core H- and NQ material, into quarter core.

13.3 Gold Occurrence

Testing carried out as part of the 2005 study concluded that gold was predominantly present in the ore as fine, and sometimes, liberated particles of electrum (a naturally occurring alloy of gold and silver). The concentration of sulphides and base metals were very low; two dominant ore lithologies were present – the “brecciated” Upper Zone and the “siliceous” Wall Zone. Subdivisions of these (oxidised or fresh) indicating the degree of weathering that had occurred were examined and the subsequent metallurgical and comminution test work programs confirmed only minor variations in the physical characteristics within each subdivision. However, substantial differences in overall hardness between the two main ore zone classifications were noted.

The overall geology, mineralisation zones, and lithologies remained unchanged for the 2009–2010 study, and these were considered in the selection of the remaining samples. As part of the characterisation process, a gold deportment study (SGS Canada, Project 12251-002) was carried out on selected concentrates from the two main composite samples ground to a P_{80} of approximately 35 µm. The bulk of the gold was found to be present as electrum, with average equivalent diameters of 7 µm and 5 µm for the Oxidised Upper Zone and Wall Zone particles, respectively. The Wall Zone samples are slightly finer overall (maximum size 14 µm), compared to a maximum of 25 µm for the Oxidised Upper Zone. Approximately two-thirds of the gold particles for the two composites were recorded as liberated (>95% free mineral), and attached (80–95%), with the remaining being locked (<80% free).

This confirmed the relatively fine grind size requirement in order to achieve sufficient liberation and subsequent recovery by floatation.

13.4 Comminution Testwork

To confirm the extent of any variations in the hardness characteristics, additional tests were carried out to supplement the original (2005) comminution testwork program. These were conducted on the Oxidised Upper Zone and Fresh Wall Zone composites and variability samples which showed the widest range of characteristics.

A full suite of comminution tests was completed, which confirmed the original findings that the Oxidised Upper Zone samples were moderately competent and abrasive, while those of the Wall Zone were relatively much harder and more abrasive.

Together with the standard tests for grindability determinations undertaken in the 2005 program, 32 individual samples in total have been tested for SAG Power Index (“SPI”) and Bond Ball Mill Work Index (“BWi”) measurements. SPI is a measure of the hardness of the ore from the perspective of semi-autogenous milling. The Bond Work Index characterises the ore hardness with respect to ball milling, with the Modified Bond (“ModBond”) method being used on all the 32 samples. Four full Bond Index measurements were made in 2005 to calibrate the ModBond results on the first 14 samples at a P_{100} of 106 µm. A further six full Bond Index measurements were made in late 2009 to calibrate the 18 additional samples at a P_{100} of 75 µm.

As the testwork program evolved, it became clearer that a significantly finer grind than the original 2005 DFS circuit design was required. Additional testing was completed to determine the relative parameters to properly size the grinding equipment capable of producing the target grind size required. A single composite was subjected to a full Bond test at both P_{100} of 75 µm and 38 µm to account for the significantly finer mill product size required for the modified comminution circuit. Further samples were sent to Metso (York, Pennsylvania) for supplementary fine grinding tests, which confirmed the appropriate specific energy requirements to be used for sizing of the fine grinding mill. The additional grinding test results obtained confirmed the range of hardness previously measured, reflected in the primary and secondary mill specific power requirements, which remained unchanged from the 2005 design.

13.5 Flotation Testwork

The flotation testwork program was also conducted on the samples from the same zones, representing the two main ore types.

The 2009–2010 program concentrated on developing the grind size/recovery relationships for flotation, together with the development of the optimum circuit configuration. Following the initial 2005 scoping work and several "proof of concept" phases, a significant sampling program on drill core covering the extent of mineralisation was designed to cover the range of mineralisation zones covered in the earlier characterisation program. An additional 20 individual intervals of the oxidised Upper Zone material, and 12 individual samples of the Wall Zone were selected and prepared at SGS. A number of these were combined into composites for the development program, and also individually tested to determine the effects of variability.

The test programs took place in several phases over the period between September 2009 and May 2010. The bulk of the development work took place on main composites (oxidised Upper Zone and Wall Zone) of individual samples from each of the two ore types (20 for the oxidised Upper Zone and 11 for the Wall Zone). A wide range of flotation parameters, including grind size, reagent optimisation, rougher, rougher/cleaner (both in open circuit and locked cycle), and kinetic tests were undertaken through the program, with the main conclusion being that overall performance was very similar for each ore type, and both were completely dependent on grind size. The overall results showing the clear trends of improving performance with increasing fineness of grind is summarised in Figure 13-1 and Figure 13-2. This also includes the results of the two main locked cycle tests carried out on the main composites.

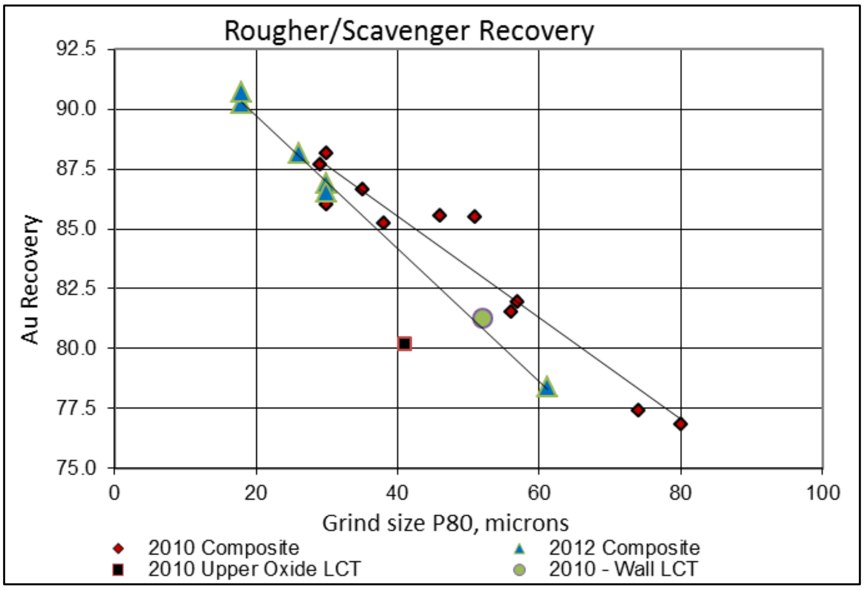


Figure 13-1: Summary grind size – rougher/scavenger flotation recovery of the main composites
Source: DPM, 2014

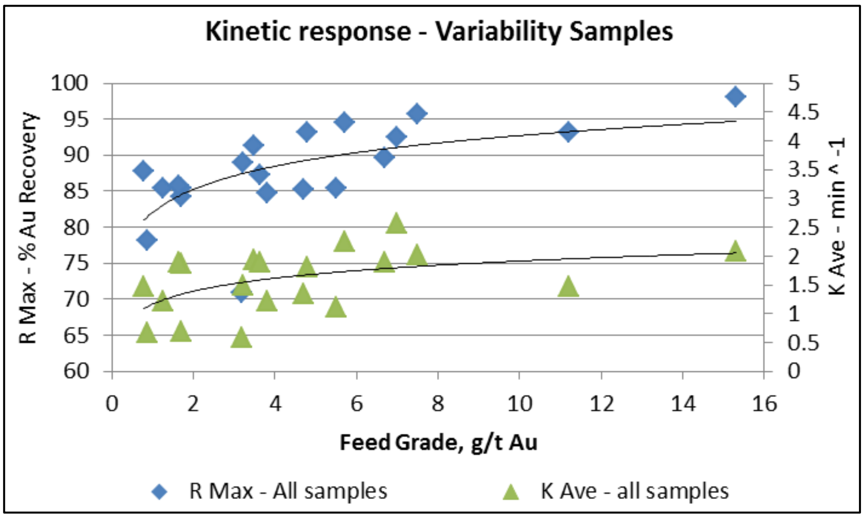


Figure 13-2: Kinetic response of the variability samples tested in 2010
Source: DPM, 2014

13.6 Tailings Testwork

The tailings thickening work was performed on a number of samples from each composite at a variety of grind sizes. The bulk work was completed on the worst-case sample (most oxidised) to ensure the dewatering design parameters would be adequate under all operating conditions. Drill core samples representing the various lithological mineralisation zones were prepared in batches to the various grind sizes required for testing for thickening and "high density" tailings ("paste") production. This was performed by Golder Pastec in Sudbury, Ontario, and Burnaby, British Columbia, and the work undertaken included material characterisation (sizing and mineralogy), dewatering characteristics (achievable) solids concentrations, yield stress and viscosity, and rheological properties. Specific products from these programs were also sent to several thickener and filter suppliers for "pilot" plant characterisation as the basis of design and subsequent quotations for the various unit process selections.

13.7 Comminution and Flotation Circuit Design (2012)

To complement the physical testing programs, additional engineering studies were completed by SGS Canada, which confirmed the original grinding circuit characteristics, and developed the flotation circuit requirements.

These studies utilised the basic testwork characteristics, which for comminution were: individual sample rock hardness from primary, secondary and tertiary grinding mill perspectives – completed with the proprietary Comminution Economic Evaluation Program (CEET2®) (SGS Canada, November 2010); and for flotation were individual kinetic parameters, to design the appropriate flowsheets, with the Flotation Economic Evaluation Program – FLEET2® (SGS Canada, February 2011).

Both the studies involved the geostatistical estimation of the relative parameters distributed to the total blocks of the mine block model. On the basis of the annual mine plan, the circuit production estimates were then produced on a year-by-year basis to confirm the capabilities of the selected equipment to process the variations in parameters on an annual basis. The geostatistical approach allows for the estimation of the precision (statistical error) in the block values, thereby improving the reliability of the production forecasts.

Using the design requirements of required throughput and final grind size, the required specific energy for each of the comminution circuit stages were predicted, which are then used as the minimum requirements for the engineering design. SGS adds appropriate safety factors for drive losses and a margin for the orebody uncertainty and completes a power requirement for the particular circuit studied. Similarly, the flotation circuit performance predictions indicated that, on average, a concentrate grade of 250 g/t Au could be produced at 86% recovery over the LOM from ore grade of 3.36 g/t Au. Monte Carlo simulations were used to determine the risk of error in the forecast results arising from lack of precision in the estimation of head grade and related kinetic parameters for different periods of operation.

13.8 Current Mineral Processing

Since commissioning in April 2019, the processing plant has achieved nameplate capacity and design metallurgical performance. The actual plant operating data (presented in Section 17) supersedes any earlier metallurgical testwork. DPM is not aware of any processing factors or deleterious elements that could have a significant effect on processing Ada Tepe ore.

14 Mineral Resource Estimates

14.1 Drillhole Database

14.1.1 Data Summary

Data files containing collar, downhole survey, assay, geology (lithology and oxidation), geotechnical (DDH recovery), structural and BD data and QAQC data were supplied to CSA Global in comma-separated values (CSV) format from the acQuire ™ database hosted at Chelopech. The database close-off date was 31 March 2022 and a summary of received data is shown in Table 14-1. The drill data was imported into structured query language (SQL) and Datamine StudioRM™ software for validation.

Table 14-1: Summary of data imported – Ade Tepe

Collars	Assays	Surveys	Geology	Recovery (DDH)	BD
7,455	445,823	22,181	446,760	18,263	5,891

The Ade Tepe MRE area was restricted by the licence string provided by DPM (the Commercial Discovery licence), and data was selected within this boundary. A summary of the drilling data as used for the Ade Tepe MRE is shown in Table 14-2.

*Table 14-2: Summary of drilling as used for estimation – Ada Tepe**

	DDH	DDH-T	RC	TR	Total
Number of holes	171	26	6,608	253	**7,058**
Metres	16,231	3,192	409,782	10,710	**439,915**
Number of assays	15,171	787	391,628	9,140	**416,726**
Number of BD measurements	4,153	230	-	477	**4,860**

**Data restricted within the boundary string as presented in Figure 14-1.*

The database contains 9,140 trench samples for 10,710 m within the MRE area. These were used in the estimation of the Mineral Resource. Section 12.1.2 outlines the work completed for the 2020 MRE to validate the use of trenches in the MRE.

A location plan for drillholes used in the MRE (within the licence boundary), coloured by drillhole type (“HTYPE”) is presented in Figure 14-1.

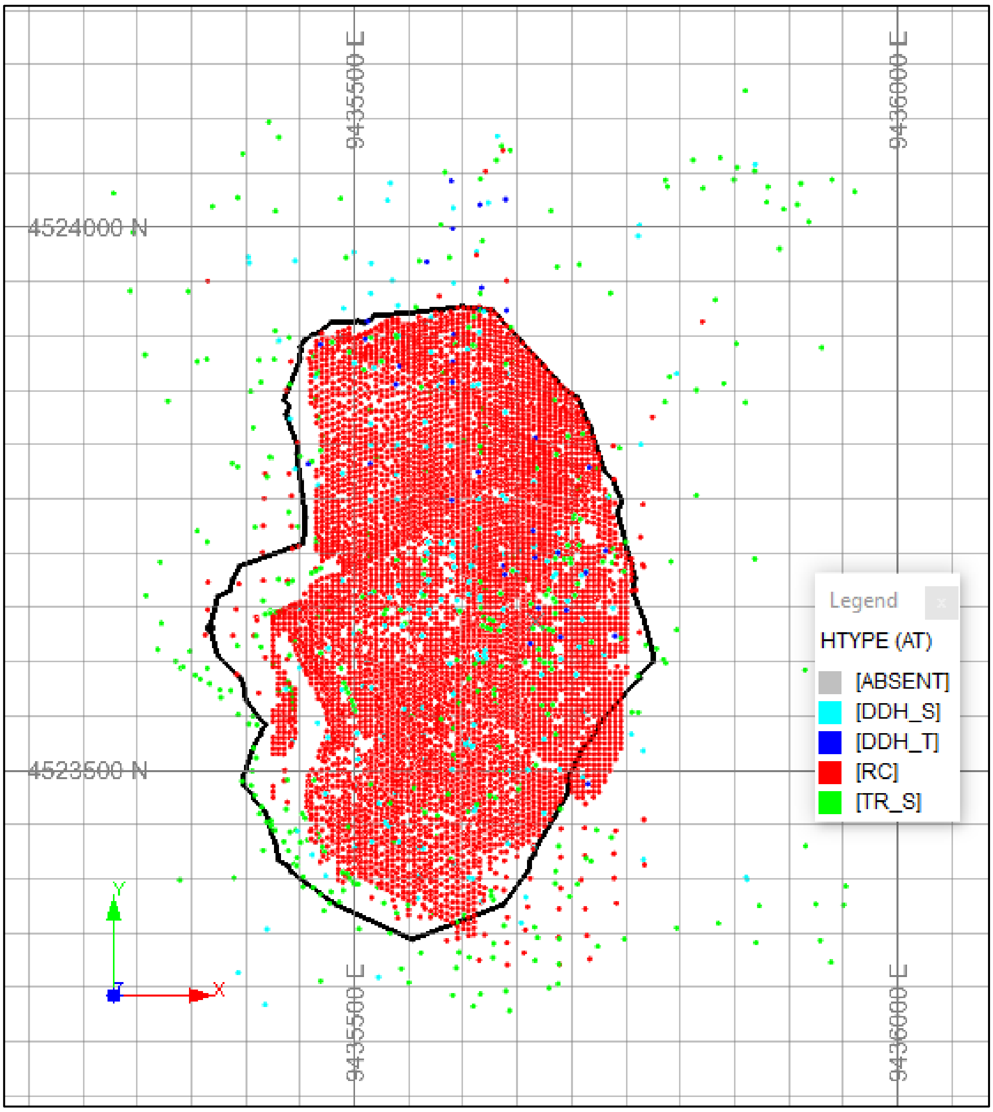


Figure 14-1: Plan map of hole types in the database for Ada Tepe

Note: Data used in the MRE was restricted to data within the licence boundary denoted here by string.
Source: CSA Global, 2022

14.1.2 Data Spacing and Orientation in relation to Geological Structure

Diamond drilling within the Mineral Resource area has been completed on sections which are generally between 20–40 m x 40 m apart, whereas RC drilling (for GC) has generally been drilled out on a 5 m x 5 m grid.

The drilling was targeted normal to the plane of the principal mineralised orientation (Wall Zone) ensuring the optimum angle of intersection for the largest, most coherent domain at Ada Tepe. The Wall Zone mineralisation is associated with a shallow detachment structure dipping to the north. The Upper Zone mineralisation shows a complex geometry, predominantly east/west trending, steeply dipping to the north.

There are, however, instances where the mineralisation is steeply dipping to the south, and there are a number of flat lying branching structures. This mineralisation is believed to be based on secondary brecciation structures associated with the detachment surface. Most exploration drilling at Ada Tepe has been pushed through to target both the Upper Zone and Wall Zone mineralisation. GC drilling has been completed over all pushback phases within the mine plan.

Despite not being at the optimal angle of intersection for the Upper Zone mineralisation in all instances, the drilling is appropriate for determination of the structural controls and geological characteristics of the deposit and allows for well-informed mineralisation envelopes to be generated in Leapfrog™ for estimation.

14.1.3 Data Load and Data Excluded

Data was loaded into a structured query language (SQL) database which has constraints and triggers, ensuring that only validated data was included in the database. CSA Global performed additional validation checks of the exported data as detailed below. During the validation process issues were highlighted and corrected where possible. Exports of the clean, verified data were provided to the resource geologists in CSV format for the MRE.

The list below summarises the validation and checks completed:

- Collar table: Incorrect coordinates (not within known range), duplicate holes.
- Survey table: Duplicate entries, survey intervals past the specified maximum depth in the collar table, overlapping intervals, abnormal dips, and azimuths.
- Geotechnical table: Overlapping intervals, missing collar data, negative widths, geotechnical results past the specified maximum depth in the collar table.
- Geology, sample and assay tables: Duplicate entries, lithological intervals past the specified maximum depth in the collar table, overlapping intervals, negative widths, missing collar data, missing intervals, correct logging codes, duplicated sample IDs, missing samples (assay results received, but no samples in database), missing analyses (incomplete or missing assay results).
- QAQC material: A QAQC report is generated in which results of the standards (CRMs), blanks and duplicates are reviewed (includes client QAQC material and lab checks where applicable).

Some missing samples (with low or no recovery) had been assigned a waste grade of 0.001 g/t Au (and associated waste grades for silver and sulphur) in the DPMKr database. In discussions with DPMKr, it was established that these should not be treated as waste. CSA Global treated these samples as missing rather than waste samples and the adjustment was recommended to be carried through into the DPMKr database.

Following de-surveying, 676 missing intervals were identified in the assays, with a total length of 8,735 m. These gaps were discussed with DPMKr, and reviewed by CSA Global, and some were identified as waste zones (set to half the detection limit), and some as potentially mineralised (left absent) based on review of the lithology codes.

The CSV files were then loaded into Datamine StudioRM™ and the following was observed:

- 13 DDH collars with no assays
- 30 DDH collars with no BD data (no BD measurements for RC samples)
- 381 TR collars with no BD data.

The appropriateness of data to be used in the MRE were reviewed. A summary of drill data removed prior to estimation is shown in Table 14-3 below. Most were excluded since they are outside the licence boundary. Several others were excluded because they had no assays (geotechnical drillholes, metallurgical drillholes). All subsequent data analysis, statistics and estimation are limited to the validated and selected dataset as used in the MRE.

Table 14-3: Excluded drillholes

BHID (excluded)	Reason for exclusion
• ATDDEX003–ATDDEX005, ATDDEX028, ATDDEX029, ATDDEX031 • ATDDGT042 • ATDD010, ATDD035, ATDD036, ATDD048, ATDD049, ATDD056, ATDD062–ATDD068, ATDD070, ATDD075, ATDD103 • ATDT035, ATDT197, ATDT278, ATDT279, ATDT301, ATDT351–ATDT355 • ATRC019, ATRC035, ATRC044–ATRC048, ATRC051, ATRC052, ATRC055, ATRC072, ATRC086, ATRC1531–ATRC1532, ATRC1532A, ATRC1533, ATRC1543–ATRC1545, ATRC1550, ATRC1551, ATRC1558–ATRC1560, ATRC163–ATRC168, ATRC182, ATRC187–ATRC197, ATRC205, ATRC233–ATRC235, ATRC238, ATRC239, ATRC242–ATRC247, ATRC251–ATRC257, ATRC278, ATRC279, ATRC300–ATRC304, ATRC318, ATRC351–ATRC356, ATRC363, ATRC364, ATRC371, ATRC380, ATRC422 • ATTR347, ATTR348 • AT040, AT041, AT042, AT043, AT044, AT049, AT056, AT057, AT058, AT102-1, AT102-2, AT1035, AT1040, AT1042, AT105, AT1050, AT1051, AT1053, AT108, AT109-1, AT11, AT110, AT111, AT112, AT113-1, AT115, AT116, AT117, AT117-1, AT117-2, AT118, AT119-1, AT119-2, AT119-3, AT11-3E, AT120, AT121, AT121-1, AT122, AT123, AT123-1, AT124, AT124-1, AT125, AT126, AT126-1, AT127, AT130, AT131, AT134, AT135, AT145, AT15E, AT151, AT154, AT15-1E, AT16E, AT162, AT163-1, AT163-2, AT163-3, AT164-1, AT164-2, AT164-3, AT165, AT166-1, AT166-2, AT167, AT168, AT169-1, AT169-2, AT170-1, AT170-2, AT171-1, AT171-2, AT171-3, AT171-4, AT174, AT175–AT178, AT183, AT188–AT191, AT193, AT194, AT1-1, AT1-1C, AT1-2, AT1-3W, AT1-4E, AT201, AT204, AT206–AT219, AT221–AT225, AT225-1, AT226, AT230, AT235–AT238, AT246, AT250, AT253, AT254, AT258–AT262, AT271, AT280, AT280-1, AT281–AT283, AT283-1, AT284–AT289, AT291, AT291-1, AT292, AT292-1, AT293–AT296, AT299, AT305, AT305-1, AT306, AT307–AT310, AT3-5, AT4E, AT5E, AT6, AT7W, AT8W, AT8-1E, AT8-3W, AT8-4W, AT8-6W, AT9W, AT9-1W, AT9-2W • BH-MWF-J, BH-OP-1, BH-OP-2, BH-OP-3, BH-RPWR-B, BH-RPWR-D • RC_PB2_430_1371, RC_PB2_430_1586-RC_PB2_430_1597, RC_PB2_430_1616-RC_PB2_430_1626, RC_PB2_430_1644-RC_PB2_430_1653, RC_PB2_430_1692-RC_PB2_430_1701, RC_PB2_430_1719-RC_PB2_430_1731, RC_PB2_430_1751-RC_PB2_430_1762, RC_PB2_430_1780-RC_PB2_430_1786, RC_PB2_430_1805-RC_PB2_430_1811, RC_PB2_430_1833-RC_PB2_430_1839, RC_PB2_430_1857-RC_PB2_430_1861, RC_PB3_430_0443 • RC_PB4_0023, RC_PB4_0408, RC_PB4_0409, RC_PB4_0662, RC_PB4_0742	Outside licence area
• ATDDGT001, ATDDGT042 • ATMET006, ATMET007, ATMET008 • AT1012A, AT1022, AT1022A • BH-MWF-J, BH-RPWR-B, BH-RPWR-D	No assays (including geotechnical and metallurgical drillholes)

14.2 Preparation of Wireframes

14.2.1 Mineralisation

Mineralisation for the Wall Zone, Basement Zone and Overburden was modelled using geological logging, geochemical assays, surface mapping and interpreted geological and structural controls by DPM, in collaboration with CSA Global. The wireframes are considered robust for use in Mineral Resource estimation.

The Upper Zone was modelled numerically using Categorical kriging using a grade indicator. The interpretation reflects the following principal styles of mineralisation recognised at Ada Tepe:

- Upper Zone mineralisation predominantly occurring within east-west striking, steep dipping veins, transitional downwards into the Wall Zone. This mineralisation volume has been modelled using Categorical Kriging.
- Wall Zone mineralisation occurring within a shallow north dipping zone of brecciated vein material and variably silicified sedimentary breccia immediately above the basement-sediment contact. This mineralisation volume has been modelled using Leapfrog.
- Minor mineralisation in the basement zone and overburden has been modelled in Leapfrog.

Wall Zone

Wall Zone mineralisation occurs within a shallow north dipping zone of brecciated vein material and variably silicified sedimentary breccia immediately above the basement-sediment contact. Generally thicker, more intensely brecciated regions of the Wall Zone, through which well-developed Upper Zone vein mineralisation passes, contain epithermal vein and hydraulic breccia infill textures and associated high gold grades. These are not present in regions where Upper Zone vein mineralisation is absent. These thick, strongly continuous regions of high-grade Wall Zone mineralisation generally thin and diminish in grade away from, and in between regions of well-developed Upper Zone vein mineralisation.

A wireframe solid model of the Wall Zone mineralisation was generated by intersecting the wireframe surfaces of the basement-sediment contact and upper confining boundary. The lateral limits of the resultant wireframe solid reflect an interpreted tapering of the Wall Zone mineralisation converging towards the basement-sediment contact.

The bounding wireframe surfaces were constructed based on digitised cross-sectional lines defined using the following generalised parameters:

- Interpretations of intervals of Wall Zone mineralisation on an individual hole basis
- Intersections of massive, silicified breccia-conglomerate and re-brecciated early phase vein mineralisation
- Shallow-dipping structural orientation data for vein mineralisation near the basement-sediment contact
- Use of geological logging (massive quartz, less stockwork visible, higher vein density and breccia matrix) and grade
- Avoiding large changes in the interpreted thickness of the Wall Zone mineralisation amongst adjacent drillholes.

The resultant wireframe surface of the interpreted upper boundary of the Wall Zone mineralisation reflects the selection of a best fit boundary, often through mineralisation that is difficult to differentiate between Wall Zone and Upper Zone.

Upper Zone

Upper Zone mineralisation has a complex morphology. Previous attempts to model this zone have included:

- Wireframing broad domains, and estimating grade and tonnes above cut-off using Multiple Indicator Kriging ("MIK")
- Using Leapfrog wireframes to model grades in more tightly constrained volumes.

Both methods have their advantages and their limitations. For example, for MIK (which was used for a previously reported MRE in 2014), the estimation of metal is reliable, but tonnes are too high, and grade is too low (when compared to the GC model), and the exact location of the mineralisation is unknown within the large panel.

For grade shell wireframes, which was tested prior to the 2020 MRE update, they proved too constrained and resulted in a large amount of unmodelled mineralisation when compared to the GC model.

With the availability of close spaced production data (5 m x 5 m), a good quality GC model and reconciliation data from the start of mining to date, CSA Global developed an alternative way to model mineralisation volumes in the Upper Zone using Categorical Kriging.

The workflow is summarised as follows:

- Broad structural orientations were identified in the drillhole assay data, and were informed by the following data:
  - Structural orientation data for veining and faulting based on trench mapping and oriented core
  - Surface mapping of vein and fault traces
  - Presence of silicification and veining

  - A nominal 0.4 g/t Au lower cut-off grade for defining trends in the dataset.
- The domains represent a spectrum from steeply dipping east-west structures to shallower dipping north-south structures, with sub-domains defined along this spectrum in various orientations.
- Wireframe solids were created in Leapfrog software and used to constrain mineralisation orientation trends identified using 5 m x 5 m GC drilling and in-pit observations to inform geometry.
- 34 wireframes were created for the Upper Zone. These represented the dominant mineralised trends and sub-domains. A wireframe was also used to further constrain mineralisation in the basement using the same Categorical Kriging approach.
- To define the indicator used in Categorical Kriging, grade compositing was used to define intercepts (exploration and grade control dataset combined) that exceed a given grade (0.45 g/t Au) and minimum true thickness (2.5 m) using CompSE in Datamine™. The grade of 0.45 g/t Au was chosen as it represents one of the natural cut-offs between mineralisation and waste and it aligns more readily with the reporting cut-offs used in the MRE, allowing for some dilution. The 0.45g/t Au cut-off value was reviewed as part of the 2022 update and CSA Global found it appropriate to use the same value as defined in the previous 2020 MRE. Intercepts that met the criteria were coded 1 and those that did not were coded 0.
- Variograms on the indicator field were modelled per domain, to inform the continuity model used in Ordinary Kriging. Nuggets were very low (in some instances, a nominal value of 0.05 was chosen where this could not be fitted above zero) and two structures were modelled, with a short-scale structure between 5.5 m and 12 m depending on domain and approximately 30 m in the longer-scale structure. These structures were broadly the same as those determined for the 2020 MRE.
- Where a variogram could not be defined for a domain, the nearest large-scale domain with similar orientations was used to inform the variogram parameters.
- The indicator variable was estimated into 1.25 m x 1.25 m x 1.25 m blocks using Ordinary Kriging, using search ellipses informed by Dynamic Anisotropy based on the surfaces digitised in the broad domains, representing the structural trends. Small blocks were chosen to provide required resolution for both estimation of the indicator and back-flagging of data for use in grade estimation but were not used for subsequent grade estimation. This block size was increased slightly from 1 m, based on refinement of the parent cell used in the subsequent grade estimations (5 m in the 2020 MRE to 2.5 m in the 2022 update).
- The volume was defined through iteratively checking volumes derived from application of probability and slope of regression thresholds against the mineralisation volume of the GC model within a common volume wireframe (GCAREA=1), Figure 14-2.
- Previously, this benchmarking exercise was constrained to material above the 430 mRL. For the 2022 MRE update, the GCAREA common volume wireframe has been expanded to include material at depth (down to the 365 mRL). This required balancing the threshold to ensure close alignment in the areas above the 430 mRL, but validating the variances below this level where the MRE reported increased volume:
  - Total variance (2.7%) – GC model 957,629 m^3 vs MRE model 983,973 m^3
  - Variance below 430mRL (8.4%) – GC model 448,695 m^3 vs MRE model 489,673 m^3.
- Figure 14-3 and Figure 14-4 show an example of the comparisons reviewed, where volumes by 5 m bench were compared between the GC model and the MRE model. The objective was to choose a probability and slope of regression threshold where the volumes most closely aligned with the GC model in that area.
- For the 2022 MRE update, a significantly higher amount of the un-depleted material has been infilled with 5 m x 5 m spaced RC drilling. Given the ongoing robust performance of the existing GC model to the mill, it was still warranted to carry out a benchmarking exercise (against the GC model). However, the focus was to ensure close alignment in areas where both models have been informed by the closer spaced dataset.

- The benchmarking exercise was supported by visual review of the volumes at various thresholds and slope values for all benches using the existing 2020 MRE values as a starting point. These reviews considered the 2022 MRE volumes both within and outside of the GCAREA common volume wireframe against the latest infill drilling. Examples of benches that performed well against the GC model (445mRL) and those at depth (405mRL) where there was variance are shown in Figure 14-5 and Figure 14-6. The 2022 MRE model showed an improved modelling of continuity at depth due to increased infill resolution. Both models were comparable in areas where drill density had not change significantly.
- For the 2022 MRE update, given that most areas have now been infilled to 5 m x 5 m spacing, the probability threshold and slope of regression values were refined around the GC area values from the previous estimate. The probability threshold chosen was 0.47 and the slope of regression chosen was 0.34.
- An example cross-section of the 2022 MRE model compared to the GC model is shown in Figure 14-7. This cross section also shows the updated estimation composites with values above cut-off (0.45 g/t) in pink.

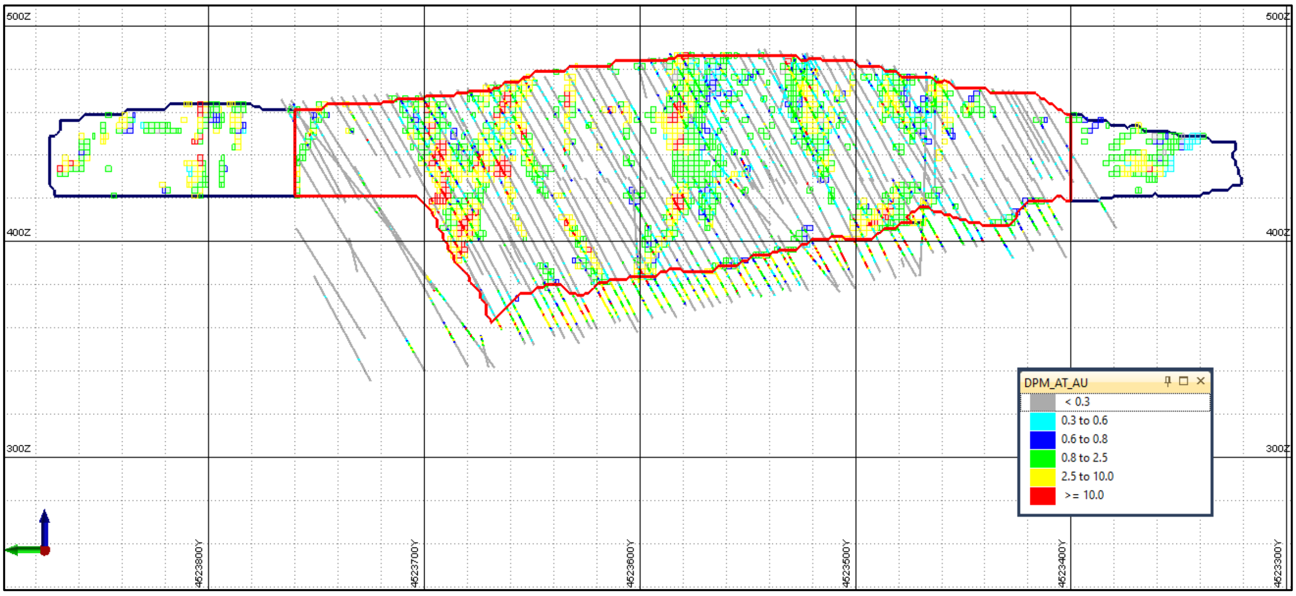


Figure 14-2: Common volume wireframe in red (GCAREA=1), which was restricted to the most recent GC model update and estimation composite file
Source: CSA Global, 2022

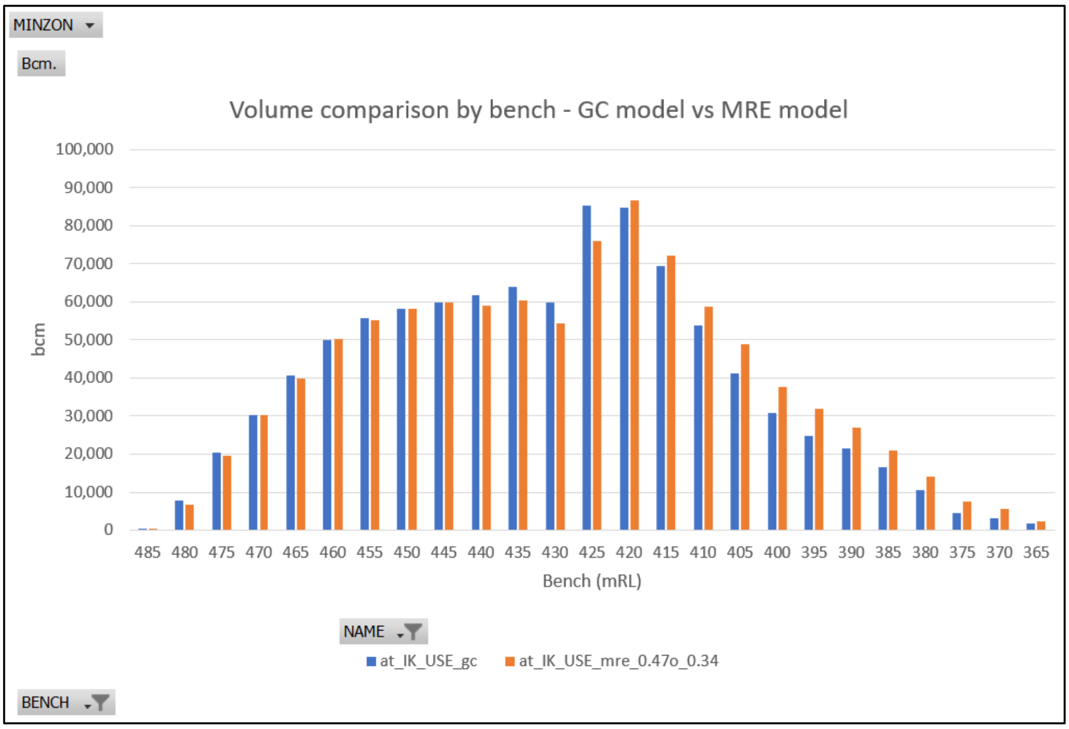


Figure 14-3: Volume comparison by bench – GC model vs MRE model (GCAREA=1)
Source: CSA Global, 2022

Bcm. BENCH	NAME at_IK_USE_gc	at_IK_USE_mre_0.47o_0.34
485	551	480
480	7,848	6,654
475	20,293	19,720
470	30,180	30,396
465	40,559	39,792
460	50,055	50,308
455	55,715	55,150
450	58,324	58,086
445	59,902	59,799
440	61,699	59,118
435	64,074	60,438
430	59,734	54,358
425	85,449	76,056
420	84,816	86,572
415	69,469	72,189
410	53,840	58,878
405	41,281	48,776
400	30,809	37,718
395	24,730	31,785
390	21,543	26,948
385	16,711	20,923
380	10,445	14,192
375	4,500	7,560
370	3,219	5,700
365	1,883	2,375
Grand Total	**957,629**	**983,973**
Volume Difference MRE w.r.t. GC		2.68%

Figure 14-4: Volume comparison by bench – GC model (LHS) vs MRE model(RHS)
Source: CSA Global, 2022

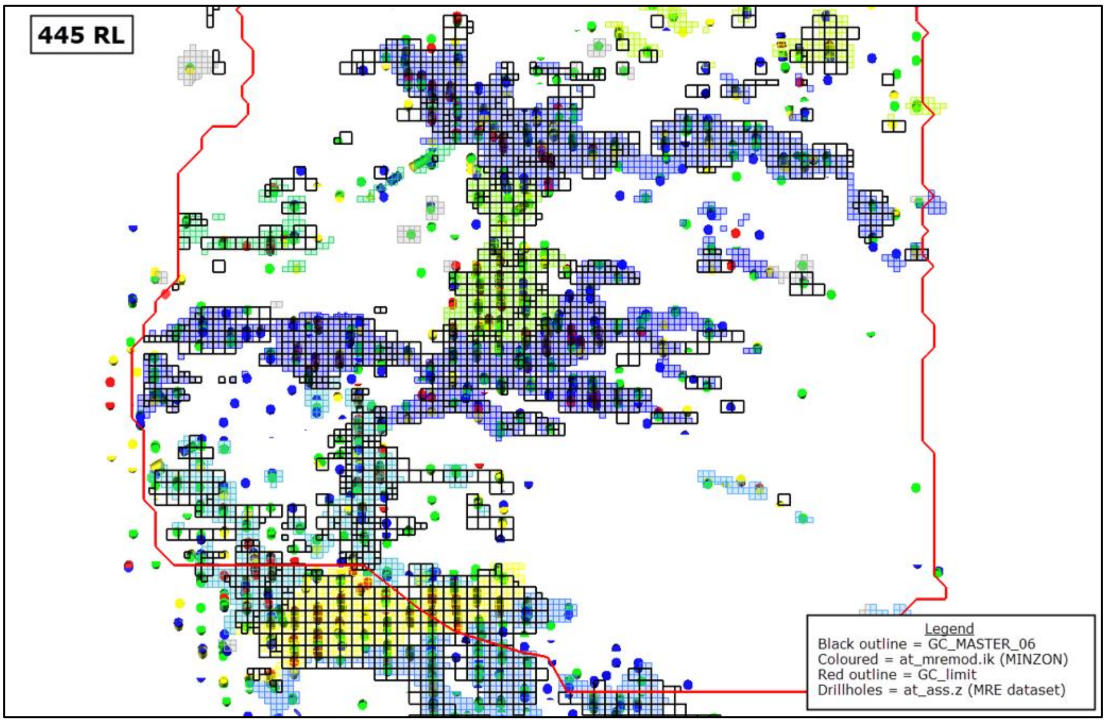


Figure 14-5: Volume comparison 445mRL bench – GC model (black outline) vs MRE model showing strong alignment on trends

Source: CSA Global, 2022

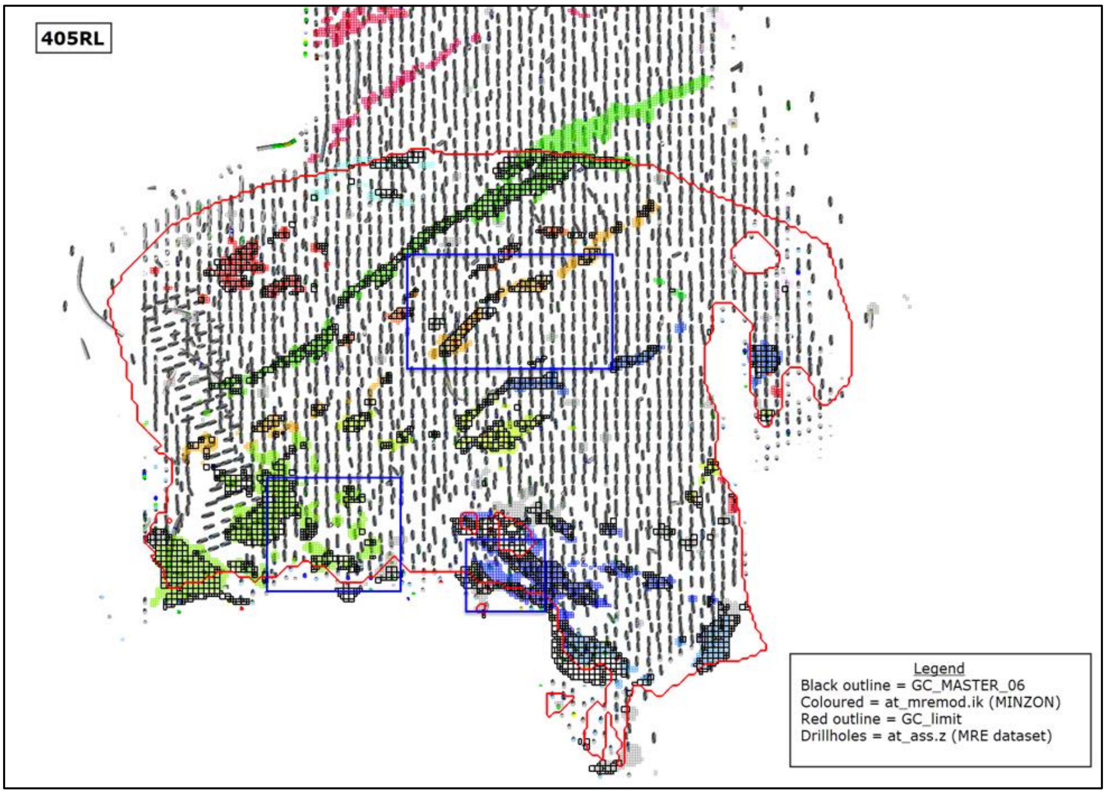


Figure 14-6: Volume comparison 405mRL bench – GC model (black outline) vs MRE model; MRE domains show improved modelling of continuity at depth

Source: CSA Global, 2022

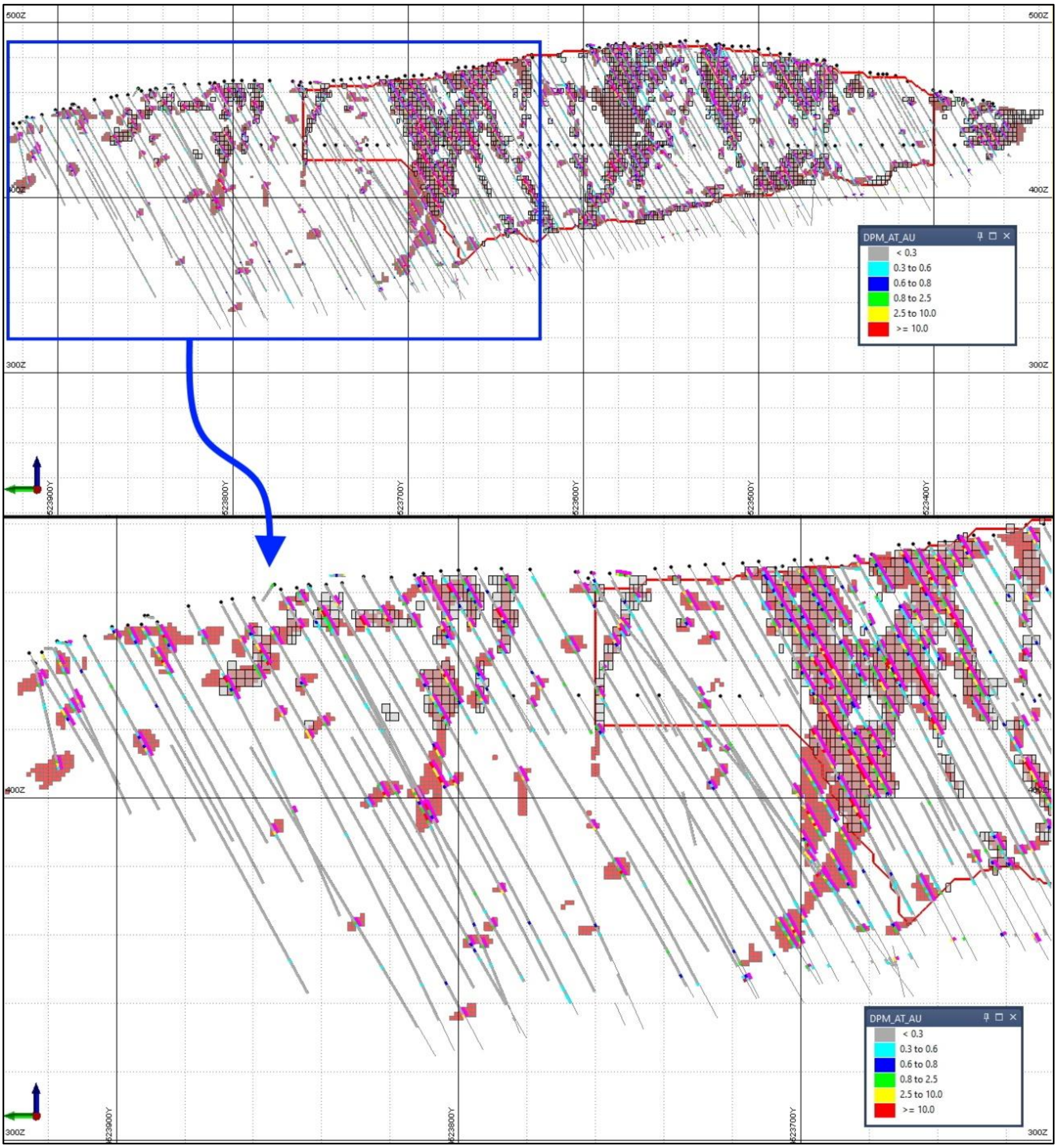


Figure 14-7: Cross section (9435610 mN) showing drilling (CompSE intercepts in pink), GC model (black) and MRE mineralisation defined through Indicator Kriging (red)
Source: CSA Global, 2022

Views of the mineralisation domains in the Upper Zone and the Wall Zone domain are presented in Figure 14-8.

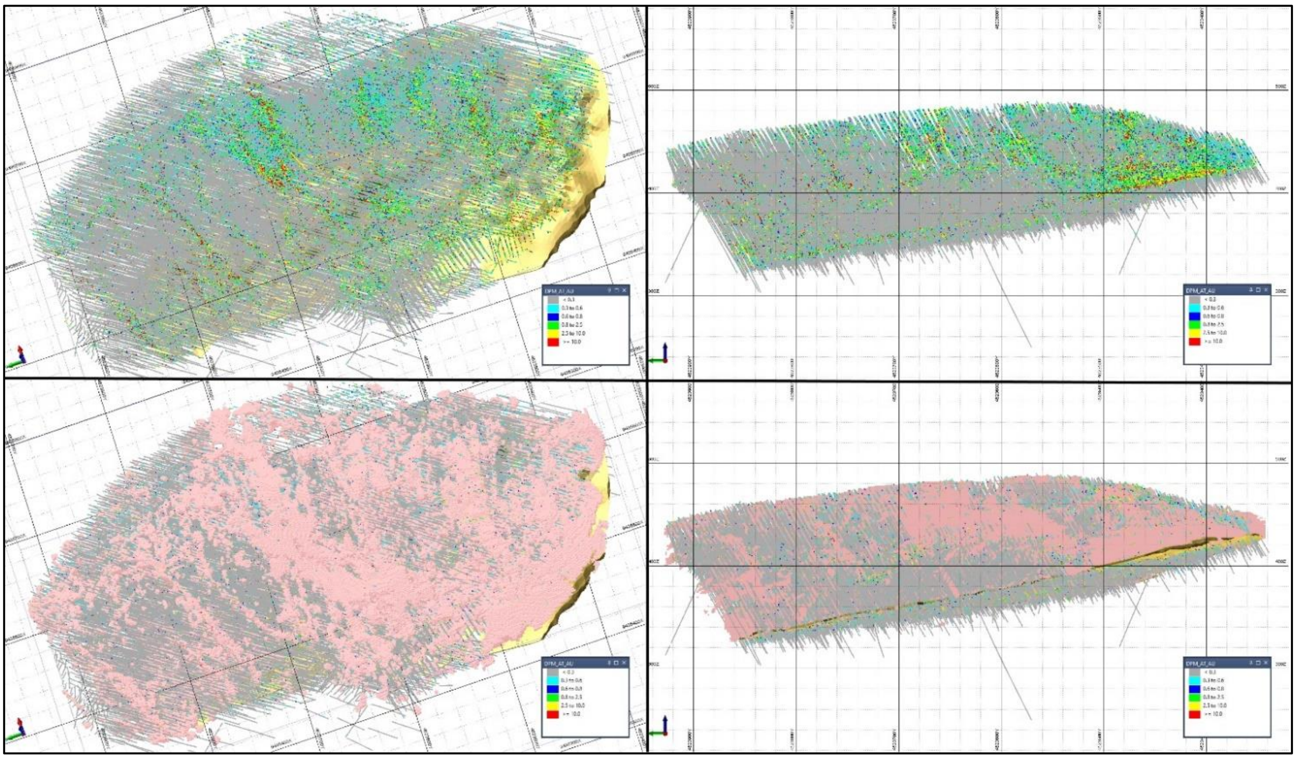


Figure 14-8: View of Upper Zone and Wall Zone domains Ore volume used to back flag samples for Upper Zone (IK_USE=1) in pink; Wall Zone (brown); left image in plan facing east, right image looking east
Source: CSA Global, 2022

Basement Zone

The interpretation of the basement mineralisation was completed in Leapfrog (Figure 14-9) using the interval selection function and structural trends.

The basement hosted mineralisation is interpreted as being parallel to the contact surface of the metamorphic basement and overlying wall zone domain. Mineralisation is irregular in form and shows low levels of grade and geologic continuity.

The following criteria was used to interpret, and wireframe model the spatial limits of the mineralisation:

- Lithology belonging to the detachment fault material
- Lithology belonging to the metamorphic basement material
- A nominal 0.3 g/t Au lower cut-off grade.

These volumes were then used to inform a further refinement of the mineralisation interpretation using a more restrictive extrapolation modelling technique, ensuring a reduction in the inclusion of waste material.

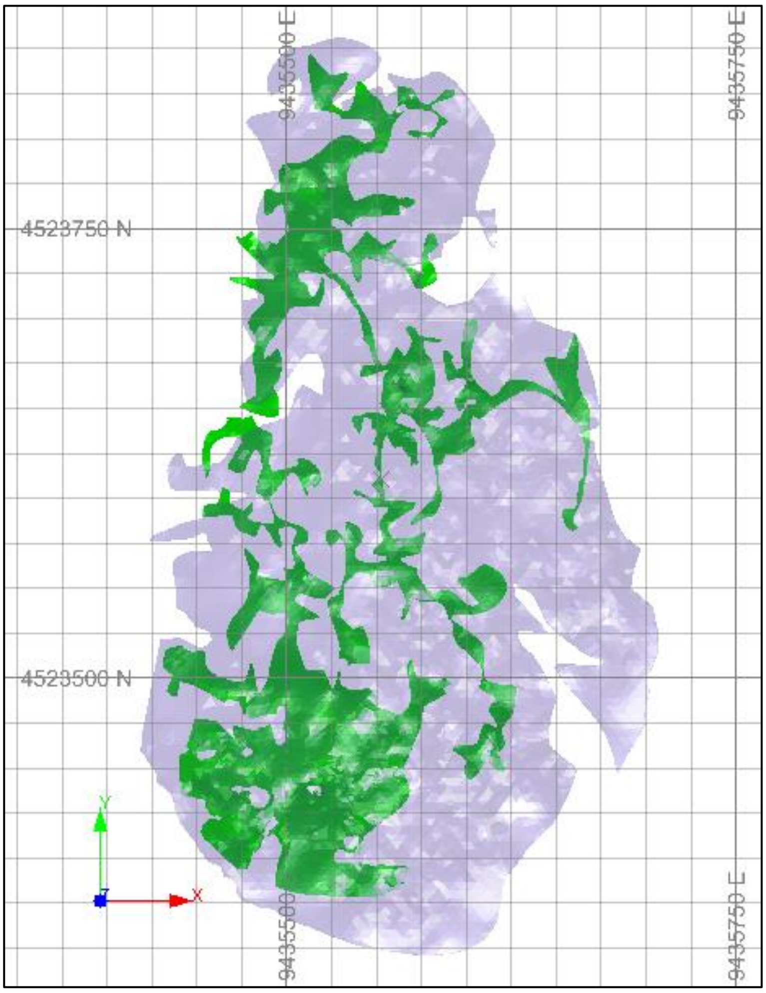


Figure 14-9: Plan view – Basement Mineralisation (green), beneath and relative to the Wall Zone mineralisation (purple)

Source: CSA Global, 2022

Overburden

Wireframes of the historically mined spoils (mineralised overburden) were generated by DPM in Leapfrog based on drilling and surface mapping and were provided to CSA Global for review. There were seven areas above the Upper Zone domains and they used a combination of drillhole logging and surface mapping (Figure 14-10).

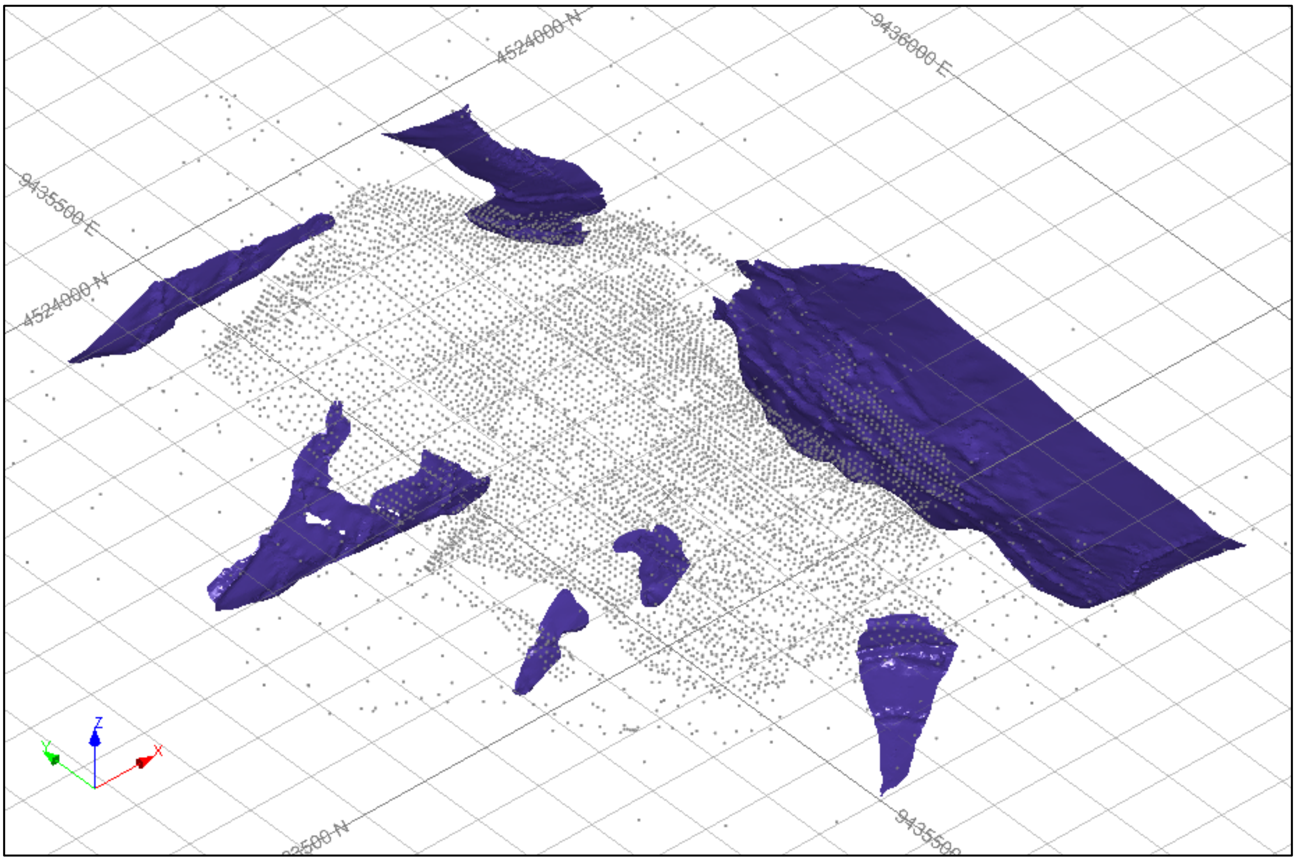


Figure 14-10: Oblique view – looking northeast; spoils/mineralised overburden domains (purple) and drill collars (grey)
Source: CSA Global, 2022

14.2.2 Lithology

Two principal lithologies occur at Ada Tepe, predominantly unmineralised basement metamorphic rocks mostly comprised of gneiss and amphibolite, and the variably mineralised overlying sedimentary rocks of the Shavar Formation, comprised of irregular lenses of sedimentary breccia and sandstone. The shallow northerly dipping boundary between the basement and overlying sedimentary rocks is often represented by a thin clay zone with mylonitic textures, which can contain mineralised vein fragments.

When the clay mylonitic zone is absent, the basement-sediment contact has been interpreted and wireframe modelled at the logged position of the contact above unmineralised clay zone intersections but below some of the mineralised clay zone intersections were considered appropriate on the basis of the intersections in the adjacent drillholes.

The main lithologies are presented in the north-south section in Figure 14-11 below.

While generally little to no surface talus or overburden occurs over most of the Ada Tepe deposit, some overburden, mostly associated with ancient surface mine workings, termed “The Quarry”, occurs along the eastern side of the Ada Tepe hill and various other areas of the deposit. Solids representing this overburden was interpreted and modelled based on the drillhole and trench logging for the area.

Figure 14-11: North-south section through the Ada Tepe deposit displaying the main lithology units, and mineralised Upper Zone broad mineralisation domains (purple) within the variably mineralised overlying sedimentary rocks of the Shavar Formation (green)

Source: CSA Global, 2022

14.2.3 Void Model

Voids were modelled in Leapfrog on the basis of recovery data in diamond and RC drillholes. Where recovery was 0 m (diamond) or 0 kg (RC), a VD_OID model was created representing confirmed voids. Where there was low recovery (e.g. <10 kg or 30% recovery), a VD_OIS model was created to guide geologists during mining (Figure 14-12).

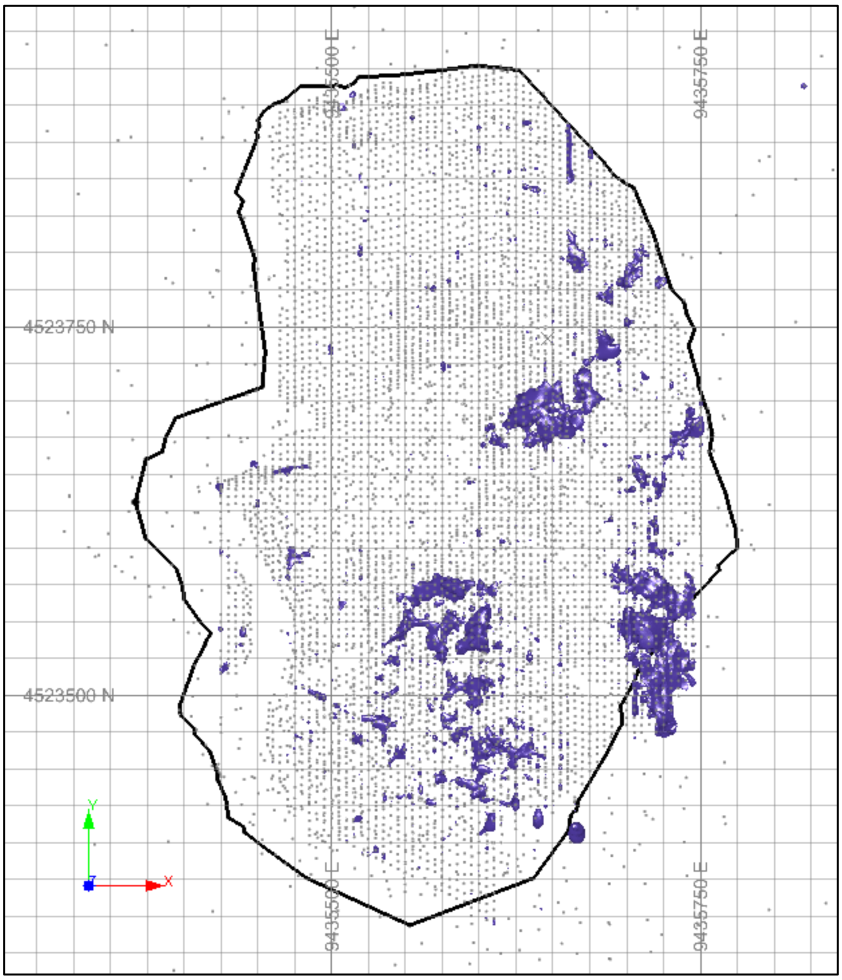


Figure 14-12: VD_OID – high confidence voids (purple)
Source: CSA Global, 2022

It should be noted that voids are characterised by poor recovery in drillholes but during mining, in-pit observations show that this material is a mixture of voids, clay and fractured material. For this reason, the void wireframes represent areas where density should be discounted to reflect voids.

14.2.4 Weathering

Weathering and oxidation at Ada Tepe have been logged with strong, moderate, or weak oxidation/weathering or fresh rock recorded for each logging interval. Based on a detailed review of the spatial distribution of the logging, DPM interpreted and modelled wireframe boundaries subdividing the weathering profile into a combined strongly and moderately oxidised zone, weakly oxidised zone and fresh (un-oxidised) rock zone (Table 14-4).

Table 14-4: Logged oxidation codes

Oxidation code [OXID]	Description
1	Strongly oxidised
2	Weakly oxidised
3	Fresh

Strong to moderate oxidation in the sedimentary breccia is typically associated with the partial weathering of variably altered clasts of basement and near complete oxidation of sulphides. This is generally associated only with minor reductions in bulk density compared to the fresh sedimentary breccia due to the substantial degree of silicification and veining throughout the deposit. The depth of strong to moderate oxidation at Ada Tepe typically ranges from 25 m to 75 m depth, with the deepest weathering present beneath the top of the

Ada Tepe hill, decreasing towards the north and down the east and west flanks of the hill. Weak oxidation and weathering typically extend an additional 10–25 m below the base of strong to moderate weathering.

14.3 Statistical Analyses

14.3.1 Contact Analysis

Contact analysis for Au g/t between the modelled mineralisation and waste were carried out to assess the nature of the domain boundaries by graphing the average grade with increasing distance from the domain boundary.

The contact between the upper boundary of the Wall Zone and lower boundary of the Upper Zone was identified as being gradational. This is supported by observations in the core, where the lithology contact and mineralisation are strongly transitional where the vertical Upper Zone structures intersect the Wall Zone. Figure 14-13 shows the contact analysis results. A one-way semi-hard boundary was set up whereby 3 m of composites from the steeply dipping Upper Zone were included in the Wall Zone domain composites. No composites from the Wall Zone were used in the estimation of the Upper Zone since it would result in high grade smearing.

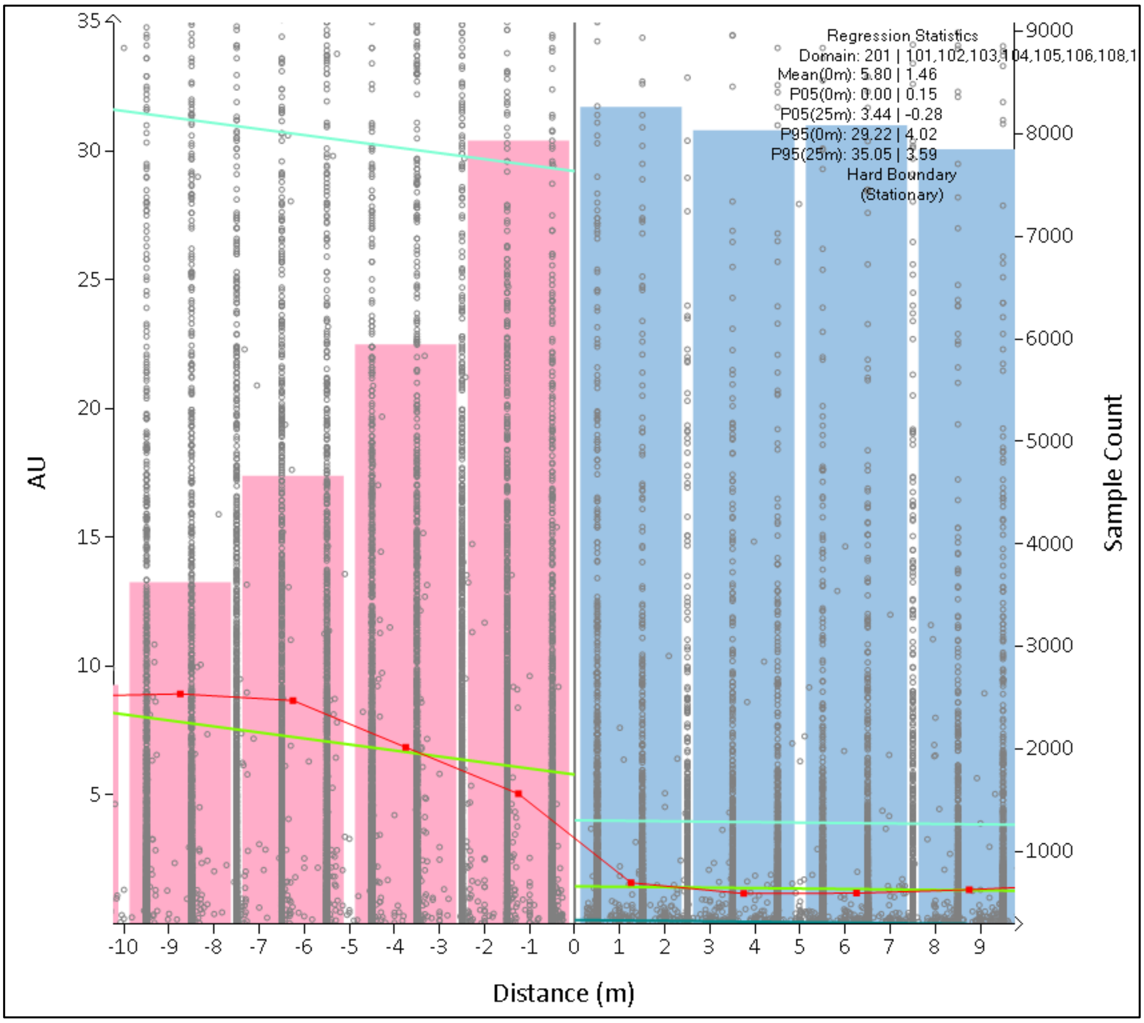


Figure 14-13: Wall Zone – contact analysis between upper Wall Zone contact and the Upper Zone
Source: CSA Global, 2022

Additional contact analysis was carried out to assess the nature of the domain boundaries within the mineralised volumes across weathering profiles. Based on the results of the boundary analysis for these profiles, the boundaries were interpreted to be soft. A noticeable increase in grades within close proximity (0–5 m) to the transitional/fresh boundary was noted. However, the boundary appears as a gradational contact overall. The boundary analysis between oxidation zones within the Upper Zone is shown in Figure 14-14.

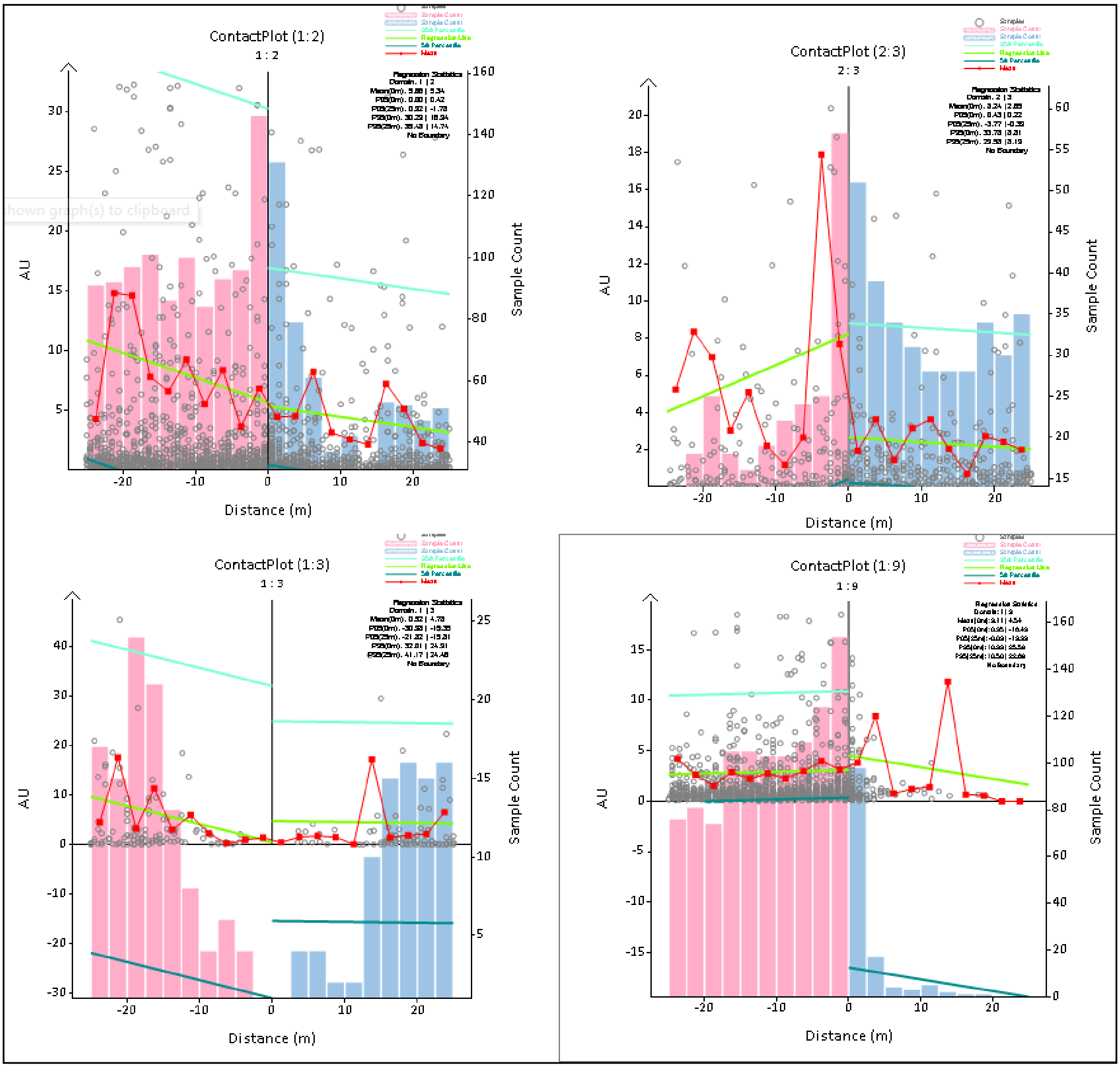


Figure 14-14: Upper Zone – contact analysis between oxidation units
Source: CSA Global, 2022

14.4 Data Flagging and Naïve Statistics

Samples were coded by geological and mineralisation domains, voids and oxidation. A summary of the domain codes during geostatistical analysis and estimation is shown in Table 14-5.

Table 14-5: Data field flagging and description

Field	Code	Description
OXID	1	Strongly oxidised
	2	Weakly oxidised
	3	Fresh/Sulphide
MINZON	101–106, 108–115, 131–134, 136–147, 150–153 and 198	Mineralisation in Upper Zone
	201	Mineralisation in Wall Zone
	301 to 307	Overburden (ancient)
	401	Basement Mineralisation
	501	Fault Gauge
	9999	Waste
NZONE	1	Mineralised Upper Zone
	2	Mineralised Wall Zone
	3	Overburden
	4	Basement Zone
	5	Fault Gauge/Sediments
	6	Embankment
	7	Voids
	99	Undefined waste
LITH	100	Basement
	200	Sedimentary breccia and sandstone package
	300	Embankment
	400	Wall Zone
VOID	1	OID – High Confidence
	2	OIS – Low Confidence

The naïve statistics for the MRE data, per domain (MINZON), are given in Table 14-6. Based on visual review statistical and geostatistical analysis, each individual domain within the Upper Zone shows different grade populations and was estimated using hard boundaries.

Table 14-6: MRE dataset – naïve statistics per domain

Zone	Domain (MINZON)	Variable	No. of samples	Minimum	Maximum	Mean	Variance	CV
Upper Zone	101	Au	5,527	0.005	922.50	6.38	969.25	4.88
		Ag	5,460	0.1	895.00	3.29	286.69	5.15
	102	Au	3,637	0.005	474.30	4.62	290.64	3.69
		Ag	3,618	0.1	245.00	3.01	77.57	2.92
	103	Au	3,516	0.02	224.89	3.77	151.39	3.27
		Ag	3,494	0.1	964.00	3.55	383.88	5.52
	104	Au	2,972	0.05	120.00	1.65	24.08	2.97
		Ag	2,889	0.1	59.00	1.21	4.99	1.85
	105	Au	710	0.04	86.70	3.08	45.09	2.18
		Ag	707	0.2	37.40	2.01	10.39	1.61
	106	Au	1,522	0.02	431.00	4.88	364.62	3.92
		Ag	1,501	0.1	156.00	2.43	54.96	3.05
	108	Au	1,198	0.04	513.69	5.32	731.58	5.09
		Ag	1,195	0.3	177.00	2.65	109.47	3.95
	109	Au	357	0.005	572.00	5.58	1,388.27	6.68
		Ag	338	0.1	145.00	2.52	108.17	4.13
	110	Au	874	0.02	660.50	3.40	585.82	7.12
		Ag	859	0.1	207.00	1.98	66.08	4.11

Zone	Domain (MINZON)	Variable	No. of samples	Minimum	Maximum	Mean	Variance	CV
	111	Au	683	0.005	776.50	8.08	1,752.63	5.18
		Ag	668	0.2	306.00	4.59	425.16	4.50
	112	Au	9,226	0.005	920.00	6.65	800.38	4.25
		Ag	9,144	0.1	393.00	3.25	121.65	3.40
	113	Au	4,644	0.005	1,740.00	4.93	915.54	6.13
		Ag	4,604	0.1	500.00	2.55	91.72	3.76
	114	Au	3,208	0.005	1050.00	3.17	533.18	7.28
		Ag	3,190	0.1	451.00	2.72	188.68	5.05
	115	Au	1,105	0.02	247.21	6.31	252.40	2.52
		Ag	1,087	0.1	110.00	3.30	50.77	2.16
	131	Au	2,365	0.01	136.00	3.37	71.32	2.51
		Ag	2,313	0.1	38.10	1.71	7.97	1.66
	132	Au	566	0.005	390.00	5.42	652.58	4.71
		Ag	565	0.1	144.00	2.61	88.56	3.61
	133	Au	1,463	0.005	1,210.00	5.58	1,600.25	7.17
		Ag	1,463	0.025	376.00	2.98	183.14	4.54
	134	Au	403	0.02	19.70	1.10	3.11	1.61
		Ag	400	0.1	6.50	1.11	0.57	0.68
	136	Au	1,485	0.02	603.00	13.53	1,930.78	3.25
		Ag	1,479	0.1	206.00	6.14	259.17	2.62
	137	Au	769	0.01	135.00	3.67	81.91	2.47
		Ag	767	0.1	64.00	2.02	15.48	1.95
	138	Au	3,701	0.005	211.00	3.32	91.59	2.89
		Ag	3,684	0.1	82.30	2.88	18.68	1.50
	139	Au	384	0.02	82.60	3.17	48.57	2.20
		Ag	384	0.1	168.00	2.36	81.51	3.82
	140	Au	1,079	0.005	816.00	11.80	1,686.46	3.48
		Ag	1,079	0.1	297.00	5.94	227.73	2.54
	141	Au	138	0.01	75.90	5.91	135.34	1.97
		Ag	138	0.1	25.10	2.63	18.18	1.62
	142	Au	241	0.005	99.70	4.42	148.49	2.76
		Ag	240	0.1	45.00	2.53	25.79	2.00
	143	Au	172	0.005	39.70	2.15	18.29	1.99
		Ag	172	0.1	12.00	1.19	2.58	1.36
	144	Au	765	0.005	639.00	10.85	1,314.72	3.34
		Ag	756	0.1	209.00	4.47	157.64	2.81
	145	Au	126	0.005	95.70	4.48	108.06	2.32
		Ag	123	0.1	43.00	2.35	21.01	1.95
	146	Au	671	0.005	283.00	5.53	385.36	3.55
		Ag	671	0.1	136.00	3.32	67.75	2.48
	147	Au	50	0.02	84.00	5.52	242.42	2.82
		Ag	50	0.1	31.80	2.59	32.85	2.21
	150	Au	2,761	0.005	159.50	2.52	57.34	3.00
		Ag	2,724	0.1	53.30	1.59	9.01	1.89
	151	Au	691	0.005	193.50	4.29	199.22	3.29
		Ag	683	0.1	78.90	2.20	30.78	2.53
	152	Au	79	0.01	282.20	16.65	2,361.30	2.92
		Ag	79	0.1	115.00	8.30	354.29	2.27
	153	Au	557	0.03	73.00	1.83	19.28	2.40
		Ag	556	0.1	21.00	1.14	1.77	1.17

Zone	Domain (MINZON)	Variable	No. of samples	Minimum	Maximum	Mean	Variance	CV
	198	Au	11,186	0.005	1,857.60	2.38	391.16	8.31
		Ag	11,013	0.1	670.00	1.64	55.28	4.53
Wall Zone	201	Au	29,415	0.005	2,090.80	7.46	534.93	3.09
		Ag	29,345	0.025	4,010.00	4.43	621.94	5.62
Overburden	301	Au	5,565	0.005	101.70	1.28	15.28	3.03
		Ag	5,548	0.1	30.30	0.86	2.02	1.65
	302	Au	120	0.06	6.85	0.49	0.51	1.44
		Ag	118	0.2	3.70	0.70	0.28	0.76
	303	Au	1,048	0.005	10.40	0.17	0.18	2.43
		Ag	1,044	0.025	10.50	0.50	0.19	0.86
	304	Au	80	0.06	23.00	1.71	12.12	2.03
		Ag	81	0.2	17.00	1.18	4.15	1.71
	305	Au	555	0.005	12.90	0.49	1.47	2.44
		Ag	550	0.1	5.40	1.00	0.72	0.84
	306	Au	74	0.02	3.75	0.32	0.36	1.82
		Ag	73	0.1	3.00	0.64	0.30	0.84
	307	Au	5	0.5	0.30	0.15	0.02	0.78
		Ag	5	0.05	1.00	0.70	0.07	0.39
Basement Mineralisation	401	Au	2,072	0.005	421.60	1.95	129.14	5.82
		Ag	2,065	0.025	120.00	1.63	15.27	2.38
Fault gouge	501	Au	824	0.01	189.00	3.36	121.90	3.28
		Ag	823	0.1	75.00	3.48	26.88	1.49

14.5 Compositing

Sampling was undertaken at variable sampling lengths within the deposit, but the majority was 1 m or less in mineralisation; 1 m was chosen as the composite length since it was the dominant mean sampling length.

Residuals were retained for the Wall Zone and in the smaller overburden and basement mineralisation domains. There were no residuals for the Upper Zone domains because the compositing method used adjusted the composite length, while keeping it as close as possible to 1 m.

Composite statistics for the Wall Zone, Upper Zone, Basement Mineralisation and Overburden are presented in Table 14-7. The Wall Zone statistics includes the one-way soft boundary imposed between the upper boundary of the Wall Zone domains and the lower boundary of the Upper Zone (3 m).

Table 14-7: MRE data – composite statistics per domain

Zone	Domain (MINZON)	Variable	No. of samples	Minimum	Maximum	Mean	Variance	CV
Upper Zone	101	Au	5,724	0.005	922.50	6.30	938.72	4.86
		Ag	5,628	0.1	895.00	3.24	278.37	5.14
	102	Au	3,795	0.005	474.30	4.57	292.51	3.74
		Ag	3,761	0.1	245.00	3.00	76.86	2.93
	103	Au	3,622	0.02	526.00	3.86	222.78	3.86
		Ag	3,588	0.1	964.00	3.56	383.18	5.51
	104	Au	3,114	0.05	120.00	1.64	23.12	2.93
		Ag	2,981	0.1	59.00	1.21	4.87	1.82
	105	Au	729	0.04	86.70	3.04	44.02	2.18
		Ag	726	0.2	37.40	2.00	10.14	1.60
	106	Au	1,625	0.02	431.00	4.79	348.20	3.89
		Ag	1,591	0.1	156.00	2.42	53.00	3.01

Zone	Domain (MINZON)	Variable	No. of samples	Minimum	Maximum	Mean	Variance	CV
	108	Au	1,239	0.04	513.69	5.21	707.96	5.11
		Ag	1,234	0.3	177.00	2.62	106.27	3.93
	109	Au	390	0.005	572.00	5.23	1,271.95	6.81
		Ag	355	0.1	145.00	2.46	103.11	4.14
	110	Au	925	0.02	660.50	3.29	552.84	7.14
		Ag	899	0.1	207.00	1.94	63.22	4.09
	111	Au	716	0.005	776.50	7.68	1,654.87	5.30
		Ag	692	0.2	306.00	4.48	410.85	4.53
	112	Au	9,593	0.005	920.00	6.62	768.33	4.19
		Ag	9,482	0.1	393.00	3.24	117.74	3.35
	113	Au	4,814	0.005	1,740.00	4.90	884.88	6.08
		Ag	4,768	0.1	500.00	2.54	88.85	3.72
	114	Au	3,340	0.005	1,050.00	3.17	514.01	7.16
		Ag	3,310	0.1	451.00	2.70	182.13	5.00
	115	Au	1,133	0.02	237.80	6.33	250.87	2.50
		Ag	1,108	0.1	107.10	3.31	51.16	2.16
	131	Au	2,483	0.01	136.00	3.36	68.67	2.46
		Ag	2,409	0.1	38.10	1.70	7.70	1.64
	132	Au	613	0.005	390.00	5.60	638.50	4.52
		Ag	611	0.1	144.00	2.66	86.07	3.48
	133	Au	1,523	0.005	1,210.00	5.47	1,537.73	7.17
		Ag	1,523	0.025	376.00	2.95	176.03	4.50
	134	Au	430	0.02	24.20	1.21	4.90	1.83
		Ag	427	0.1	8.40	1.14	0.76	0.76
	136	Au	1,617	0.02	691.00	13.68	2,114.84	3.36
		Ag	1,601	0.1	206.00	6.16	267.52	2.66
	137	Au	866	0.01	187.00	3.82	115.31	2.81
		Ag	863	0.1	97.90	2.11	25.45	2.39
	138	Au	3,901	0.005	211.00	3.28	87.83	2.86
		Ag	3,871	0.1	82.30	2.88	18.16	1.48
	139	Au	417	0.02	190.30	3.94	168.57	3.30
		Ag	417	0.1	168.00	2.61	88.52	3.61
	140	Au	1,156	0.005	816.00	11.49	1,585.95	3.47
		Ag	1,156	0.1	297.00	5.84	214.82	2.51
	141	Au	146	0.01	75.90	5.74	128.67	1.98
		Ag	146	0.1	25.10	2.57	17.30	1.62
	142	Au	266	0.005	99.70	4.64	148.53	2.63
		Ag	264	0.1	45.00	2.58	24.63	1.92
	143	Au	180	0.005	39.70	2.15	17.55	1.95
		Ag	180	0.1	12.00	1.21	2.66	1.35
	144	Au	812	0.005	639.00	10.58	1,242.05	3.33
		Ag	797	0.1	209.00	4.40	150.19	2.78
	145	Au	145	0.005	95.70	4.40	102.49	2.30
		Ag	140	0.1	43.00	2.43	21.97	1.93
	146	Au	717	0.005	283.00	5.44	363.76	3.50
		Ag	717	0.1	136.00	3.27	63.98	2.45

Zone	Domain (MINZON)	Variable	No. of samples	Minimum	Maximum	Mean	Variance	CV
	147	Au	60	0.02	84.00	4.97	204.62	2.88
		Ag	60	0.1	31.80	2.44	28.00	2.17
	150	Au	3,026	0.005	159.50	2.56	55.57	2.92
		Ag	2,956	0.1	84.00	1.63	11.09	2.04
	151	Au	774	0.005	193.50	4.59	221.32	3.24
		Ag	762	0.1	78.90	2.35	35.38	2.53
	152	Au	90	0.01	282.20	15.18	2,092.48	3.01
		Ag	90	0.1	115.00	7.65	316.17	2.32
	153	Au	586	0.03	73.00	1.81	18.45	2.37
		Ag	585	0.1	21.00	1.13	1.70	1.15
	198	Au	12,150	0.005	1,857.60	2.47	369.50	7.78
		Ag	11,847	0.1	670.00	1.68	52.76	4.34
Wall Zone	201	Au	33,042	0.005	487.00	6.94	348.06	2.68
		Ag	32,967	0.025	163.00	4.04	59.69	1.83
Overburden	301	Au	5,612	0.005	101.70	1.29	0.57	1.47
		Ag	5,591	0.1	30.30	0.86	2.02	1.64
	302	Au	124	0.06	6.85	0.51	0.57	1.47
		Ag	119	0.2	3.70	0.71	0.31	0.78
	303	Au	1,050	0.005	10.40	0.17	0.18	2.43
		Ag	1,044	0.025	10.50	0.50	0.19	0.86
	304	Au	83	0.06	23.00	1.67	11.67	2.04
		Ag	84	0.2	17.00	1.16	4.01	1.72
	305	Au	589	0.005	12.90	0.51	1.42	2.33
		Ag	581	0.1	5.40	1.00	0.69	0.83
	306	Au	75	0.02	3.75	0.33	0.35	1.79
		Ag	74	0.1	3.00	0.68	0.37	0.89
	307	Au	5	0.05	0.30	0.15	0.01	0.78
		Ag	5	0.5	1.00	0.70	0.07	0.39
Basement Mineralisation	401	Au	2,079	0.005	421.60	1.95	125.95	5.75
		Ag	2,071	0.025	120.00	1.63	14.90	2.36
Fault gauge	501	Au	956	0.01	183.59	3.66	155.02	3.40
		Ag	954	0.1	86.00	3.68	34.75	1.60

14.6 Treatment of Outliers (Top Cuts)

Grade capping (top cutting) was applied to reduce the local high grading effect of anomalous high-grade samples in the grade estimate. In cases where individual samples would unduly influence the values of surrounding model cells, without the support of other high-grade samples, top cuts are applied. These top cuts are quantified according to the statistical distribution of the sample population.

Cutting strategy was applied based on the following:

- Skewness of the data
- Probability plots
- Spatial position of extreme grades.

Histograms, probability plots and the locations of outliers were reviewed for gold, silver and sulphur within each individual estimation domain to determine the top cut. The uncut and top cut statistics for gold and silver in the MRE dataset per estimation domain where top cuts were imposed are shown in Table 14-8 and Table 14-9.

Table 14-8: MRE data – top cut statistics per domain – gold

Zone	MINZON	No. of samples	Top cut	No. of samples cut	Uncut mean	Cut mean	% Grade cut
Upper Zone	101	5,724	350	7	6.30	5.93	-6%
	102	3,795	125	12	4.57	4.22	-8%
	103	3,622	150	7	3.86	3.70	-4%
	104	3,114	50	7	1.64	1.58	-4%
	105	729	70	1	3.04	3.02	-1%
	106	1,625	200	2	4.79	4.65	-3%
	108	1,239	110	8	5.21	4.07	-22%
	109	390	55	6	5.23	2.76	-
	110	925	75	3	3.29	2.52	-23%
	111	716	250	3	7.68	6.57	-
	112	9,593	350	8	6.62	6.36	-4%
	113	4,814	185	9	4.90	4.47	-
	114	3,340	120	9	3.17	2.67	-16%
	115	1,133	100	8	6.33	5.97	-6%
	131	2,483	90	2	3.36	3.34	-1%
	132	613	100	4	5.60	4.53	-19%
	133	1,523	200	5	5.47	4.28	-22%
	134	430	12	4	1.21	1.15	-5%
	136	1,617	325	8	13.68	12.89	-6%
	137	866	60	5	3.82	3.49	-9%
	138	3,901	110	4	3.28	3.22	-2%
	139	417	65	3	3.94	3.44	-13%
	140	1,156	300	4	11.49	10.90	-5%
	141	146	55	1	5.74	5.60	-3%
	142	266	55	3	4.64	4.22	-9%
	143	180	20	1	2.15	2.04	-5%
	144	812	200	3	10.58	9.83	-7%
	145	145	40	1	4.40	4.02	-9%
	146	717	90	5	5.44	4.73	-13%
	147	60	12	3	4.97	2.39	-52%
	150	3,026	55	10	2.56	2.42	-5%
	151	774	110	4	4.59	4.28	-7%
	152	90	90	5	15.18	9.67	-36%
	153	586	30	2	1.81	1.73	-4%
	198	12,150	150	6	2.47	2.29	-7%
Wall Zone	201	29,473	487	2	7.45	7.38	-1%
Overburden	302	124	3.48	1	0.51	0.48	-6%
	303	1,050	4.57	1	0.18	0.17	-6%
	304	83	12.55	1	1.67	1.55	-7%
	305	589	5.53	4	0.51	0.47	-8%
	306	75	0.92	4	0.33	0.25	-24%
Basement Mineralisation	401	2,079	104.5	1	1.95	1.80	-8%

Fault gouge	501	954	100	5	3.66	3.44	-6%

Table 14-9: MRE data – top cut statistics per domain – silver

Zone	MINZON	No. of samples	Top cut	No. of samples cut	Uncut mean	Cut mean	% grade cut
Upper Zone	101	5,628	100	19	3.24	2.89	-11%
	102	3,761	100	6	3.00	2.90	-3%
	103	3,588	75	15	3.56	3.05	-14%
	104	2,981	40	2	1.21	1.21	-1%
	105	726	30	1	2.00	1.99	-1%
	106	1,591	75	3	2.42	2.35	-3%
	108	1,234	30	11	2.62	2.06	-22%
	109	355	12	7	2.46	1.56	-
	110	899	60	1	1.94	1.78	-8%
	111	692	100	5	4.48	3.68	-
	112	9,482	75	26	3.24	3.04	-6%
	113	4,768	75	8	2.54	2.41	-
	114	3,310	50	19	2.70	2.21	-
	115	1,108	40	10	3.31	3.10	-6%
	131	2,409	30	3	1.70	1.69	0%
	132	611	40	4	2.66	2.29	-14%
	133	1,523	50	8	2.95	2.44	-17%
	134	427	-	0	1.14	1.14	0%
	136	1,601	100	13	6.16	5.82	-6%
	137	863	20	6	2.11	1.90	-10%
	138	3,871	40	5	2.88	2.85	-1%
	139	417	20	7	2.61	2.04	-22%
	140	1,156	100	5	5.84	5.58	-5%
	141	146	20	2	2.57	2.50	-3%
	142	264	20	3	2.58	2.38	-8%
	143	180	-	0	1.21	1.21	0%
	144	797	90	2	4.40	4.20	-5%
	145	140	20	1	2.43	2.27	-7%
	146	717	50	4	3.27	3.06	-6%
	147	60	10	3	2.44	1.75	-28%
	150	2,956	40	4	1.63	1.61	-1%
	151	762	20	10	2.35	2.02	-14%
	152	90	40	5	7.65	5.78	-25%
	153	585	10	1	1.13	1.11	-2%
	198	11,847	35	27	1.68	1.57	-6%
Wall Zone	201	29,403	163	3	4.43	4.28	-3%
Overburden	303	1,044	4	1	0.50	0.50	0%
	304	84	5.4	1	1.16	1.03	-11%
Basement Mineralisation	401	2,071	39	1	1.64	1.60	-2%
Fault gouge	501	952	35	5	3.68	3.55	-4%

14.7 Variography

While there is good correlation between gold and silver, separate variograms were modelled for gold and silver. Variograms were modelled in Supervisor™ software. The composite data was transformed to a normal score distribution to facilitate model fitting and back transformed for use in grade estimation. Nuggets were modelled from the downhole variograms, where the lag was set equal to the composite length of 1 m.

Variogram models were fitted to each of the dominant mineralisation trends in the Upper Zone where these could be modelled for gold and silver. Where insufficient data existed to determine a robust variogram model the parameters from the nearest UZ domain with similar orientation and structural geometry was used during estimation instead.

Of the 35 domains within the Upper Zone, 25 were modelled with the remaining 10 using variograms from nearby domains:

- MINZON 109 informed by MINZON 102
- MINZON 134 informed by MINZON 133
- MINZONs 137 and 139 informed by MINZON 131
- MINZONs 141–143, 145 and 152 informed by MINZON 140
- MINZON 147 informed by MINZON 146.

The Upper Zone mineralisation is less continuous than the Wall Zone which is reflected in shorter ranges. Both the gold and the silver variograms show a higher nugget within the shallower dipping structures.

Example variograms from main domains are presented in Figure 14-15 to Figure 14-26. The variogram parameters are detailed in Table 14-10.

The nugget modelled for the Upper Zone domains was high, reflecting high grade variability in these complex domains, with the vast majority of the variability within the first 15 m. Maximum ranges were in the region of 35–40 m.

The zone coded as fault gouge (MINZON 501) was also estimated by Categorical Kriging. The variogram for this MINZON was fitted as part of the Upper Zone workflow. This material had a much lower nugget but showed similar short ranges to the Upper Zone domains (30 m).

The nugget modelled for the Wall Zone was lower, reflecting the more continuous nature of mineralisation in that domain. Longer structure ranges were up to 50 m to 100 m.

The variogram model fitted the basement mineralisation has a direction of maximum continuity which dips shallowly to the north corresponding to the geometry of mineralisation. The mineralisation is less continuous than the Wall Zone above which is reflected in shorter ranges for gold and silver.

Variogram models for gold were calculated from the overburden domains (301–303 and 305). The remaining domains 304, 306 and 307 used the variogram from the largest domain 301. Variogram models for silver were calculated from the overburden domains (301, 303 and 305). The remaining domains 302, 304, 306 and 307 used the variogram from the largest domain 301. Variogram models for sulphur were calculated from the largest overburden domain 301 and applied across all overburden domains.

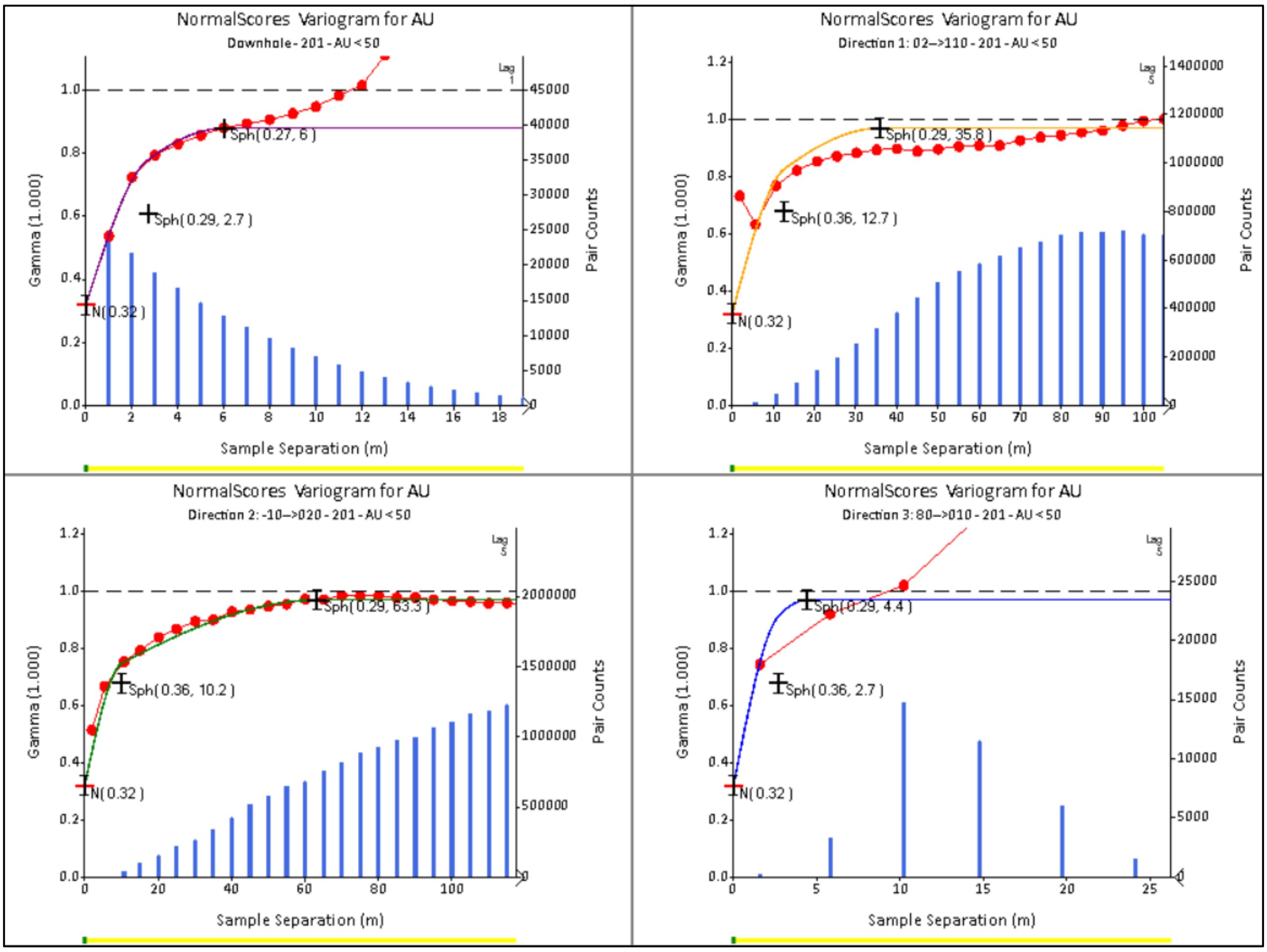


Figure 14-15: Wall Zone gold variogram (VREFNUM = 2011)
Source: CSA Global, 2022

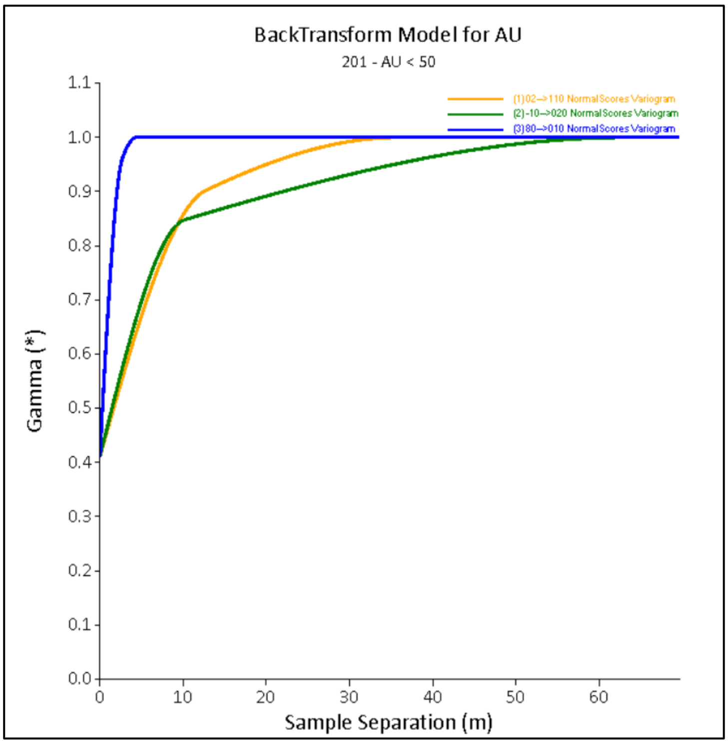


Figure 14-16: Back transformed gold variogram model for Wall Zone (VREFNUM = 2011)

Source: CSA Global, 2022

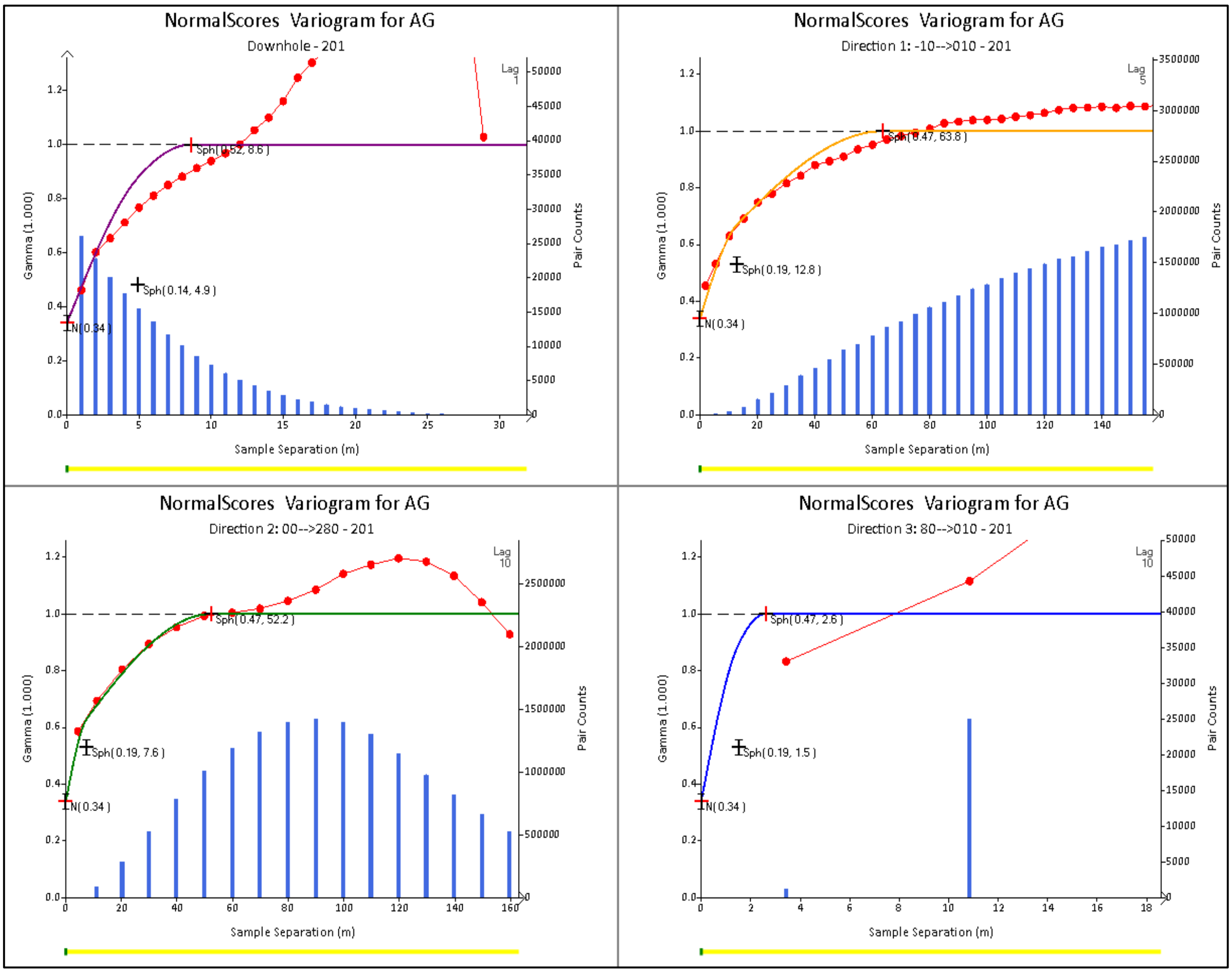


Figure 14-17: Wall Zone silver variogram (VREFNUM = 2012)
Source: CSA Global, 2022

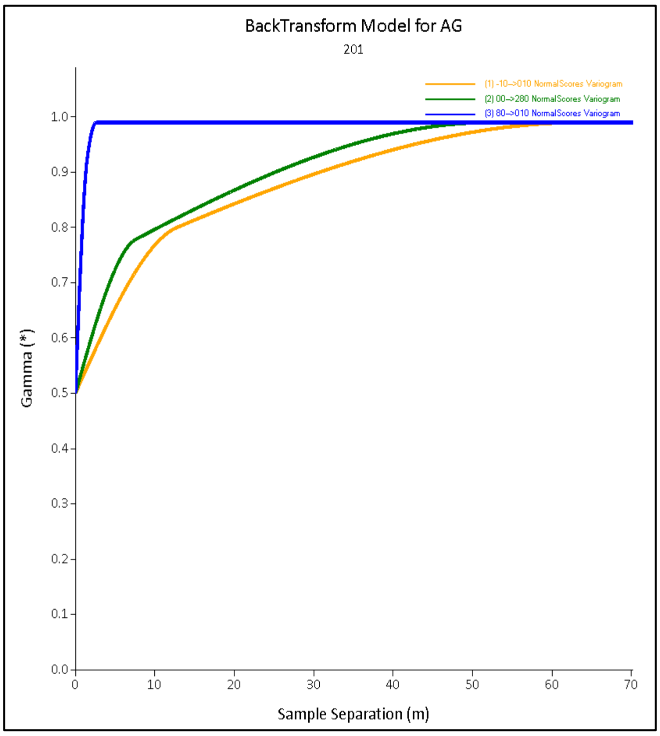


Figure 14-18: Back transformed silver variogram model for Wall Zone (VREFNUM = 2012)

Source: CSA Global, 2022

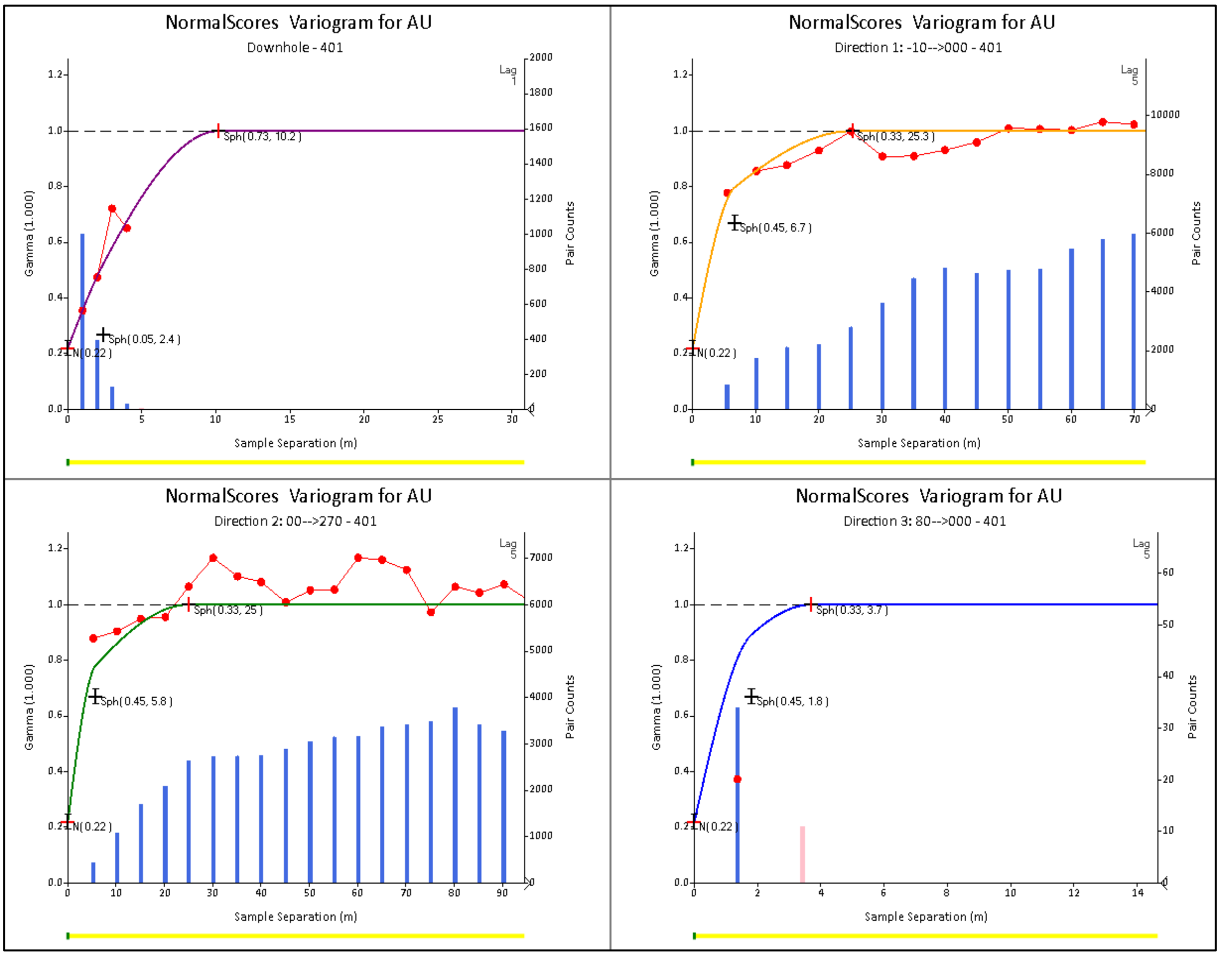


Figure 14-19: Basement mineralisation gold variogram (VREFNUM = 4011)

Source: CSA Global, 2022

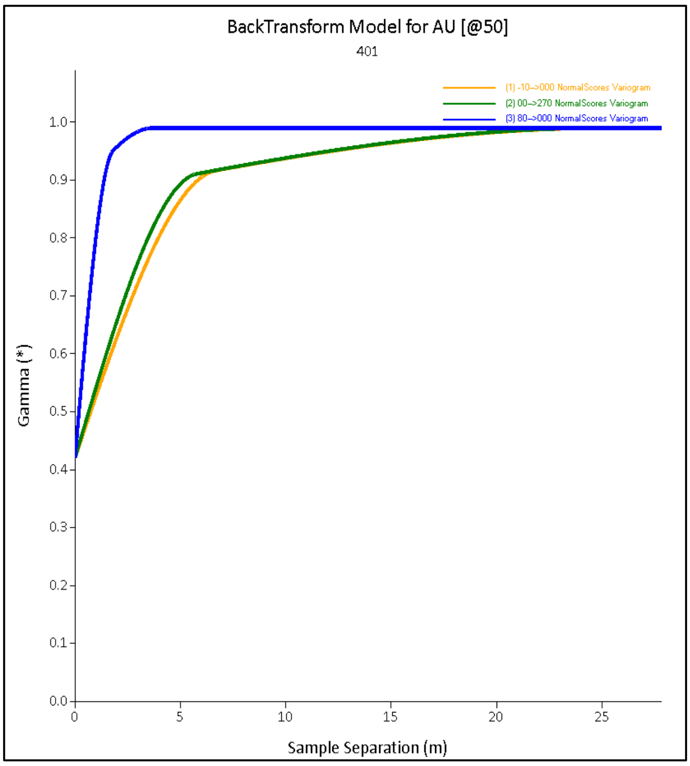


Figure 14-20: Back transformed gold variogram model for Basement mineralisation (VREFNUM = 4011)
Source: CSA Global, 2022

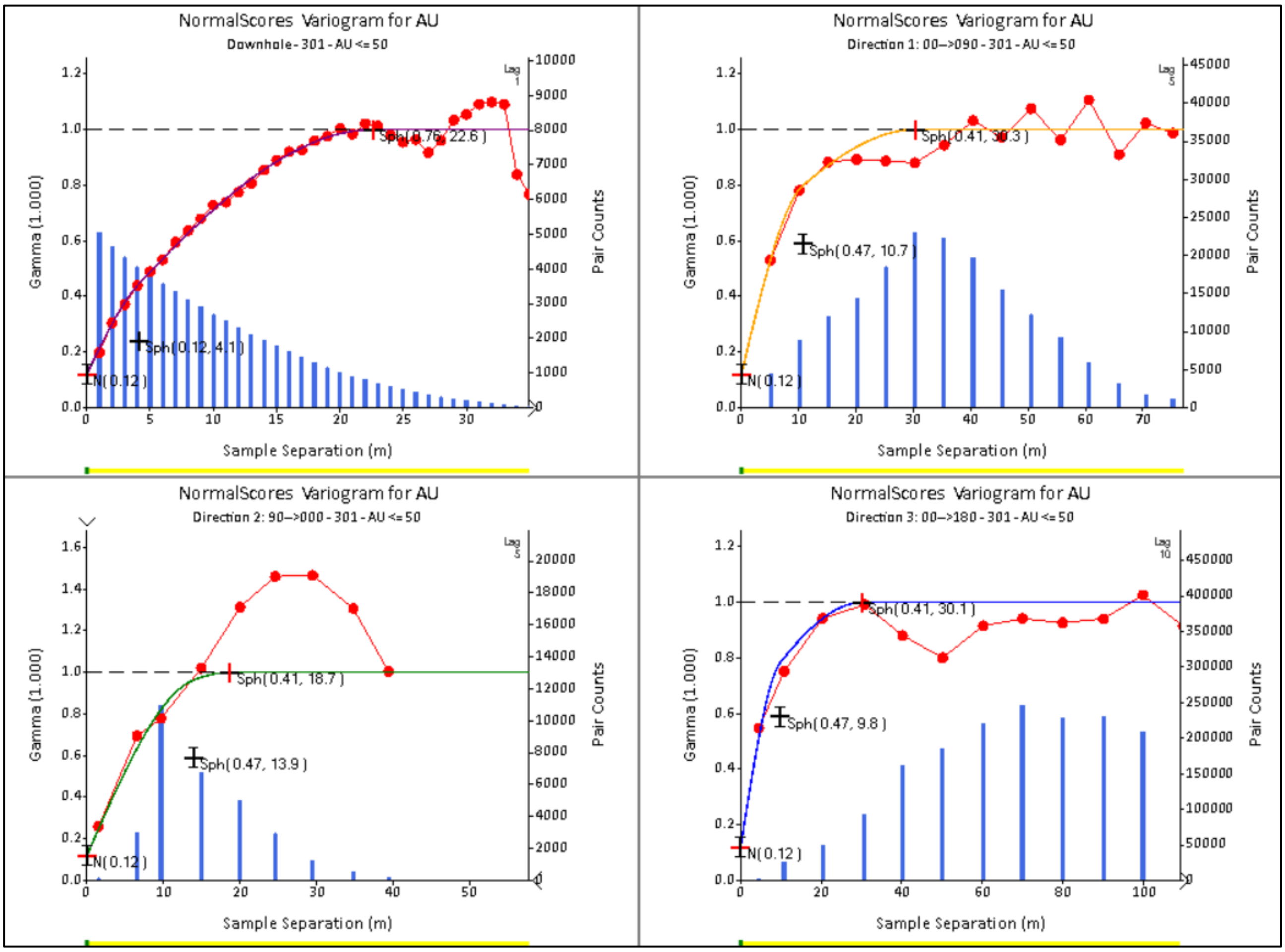


Figure 14-21: Overburden mineralisation gold variogram (VREFNUM = 3011)

Source: CSA Global, 2022

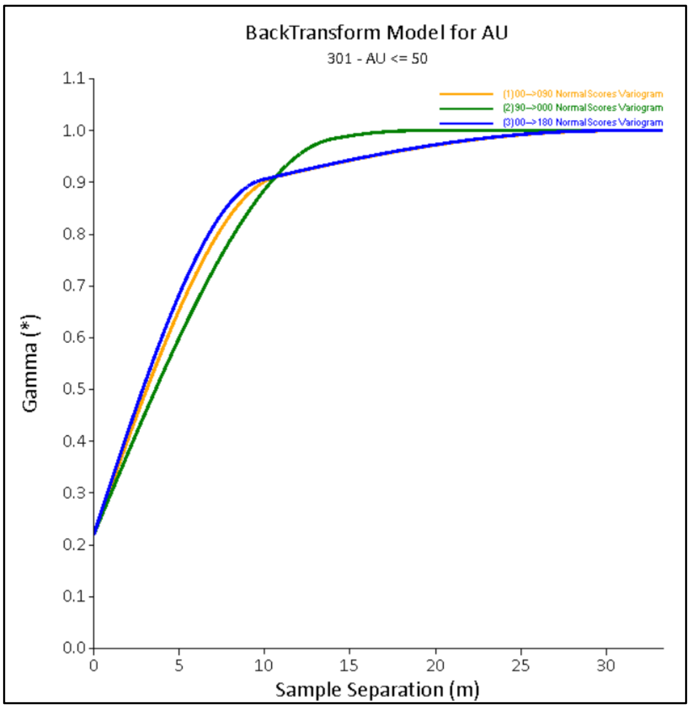


Figure 14-22: Back transformed gold variogram model for Overburden mineralisation (VREFNUM = 3011)
Source: CSA Global, 2022

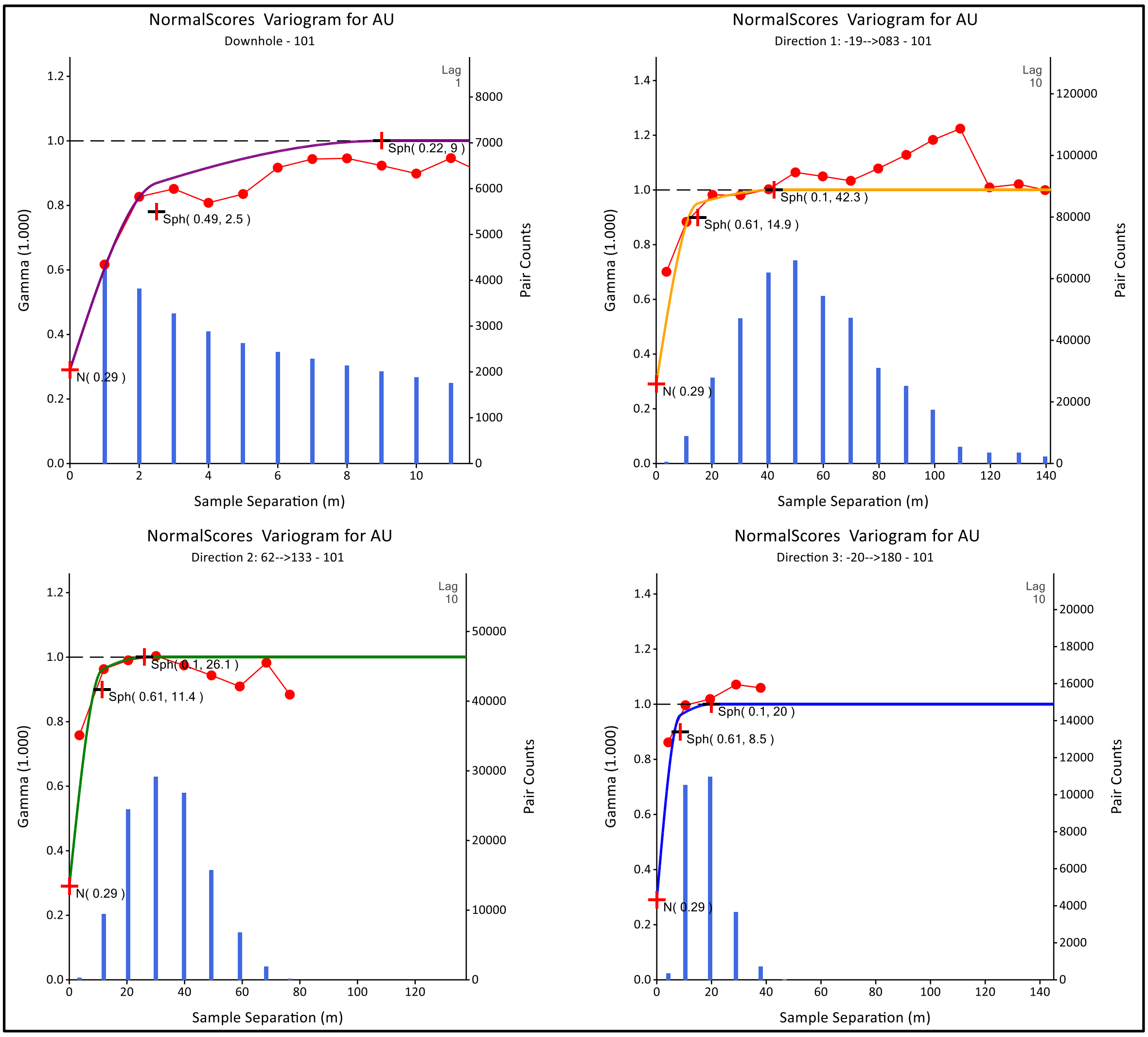


Figure 14-23: Upper Zone ESTZON 101 experimental normal score variogram
Source: CSA Global, 2022

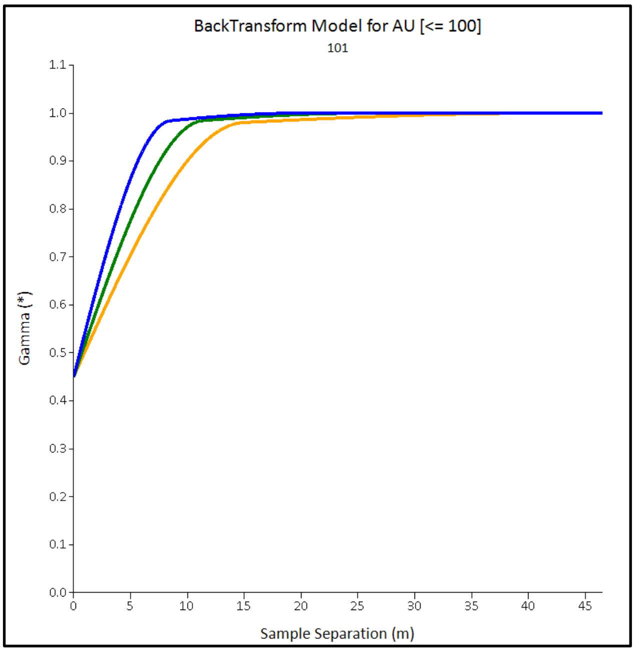


Figure 14-24: Upper Zone ESTZON 101 back-transformed variogram

Source: CSA Global, 2022

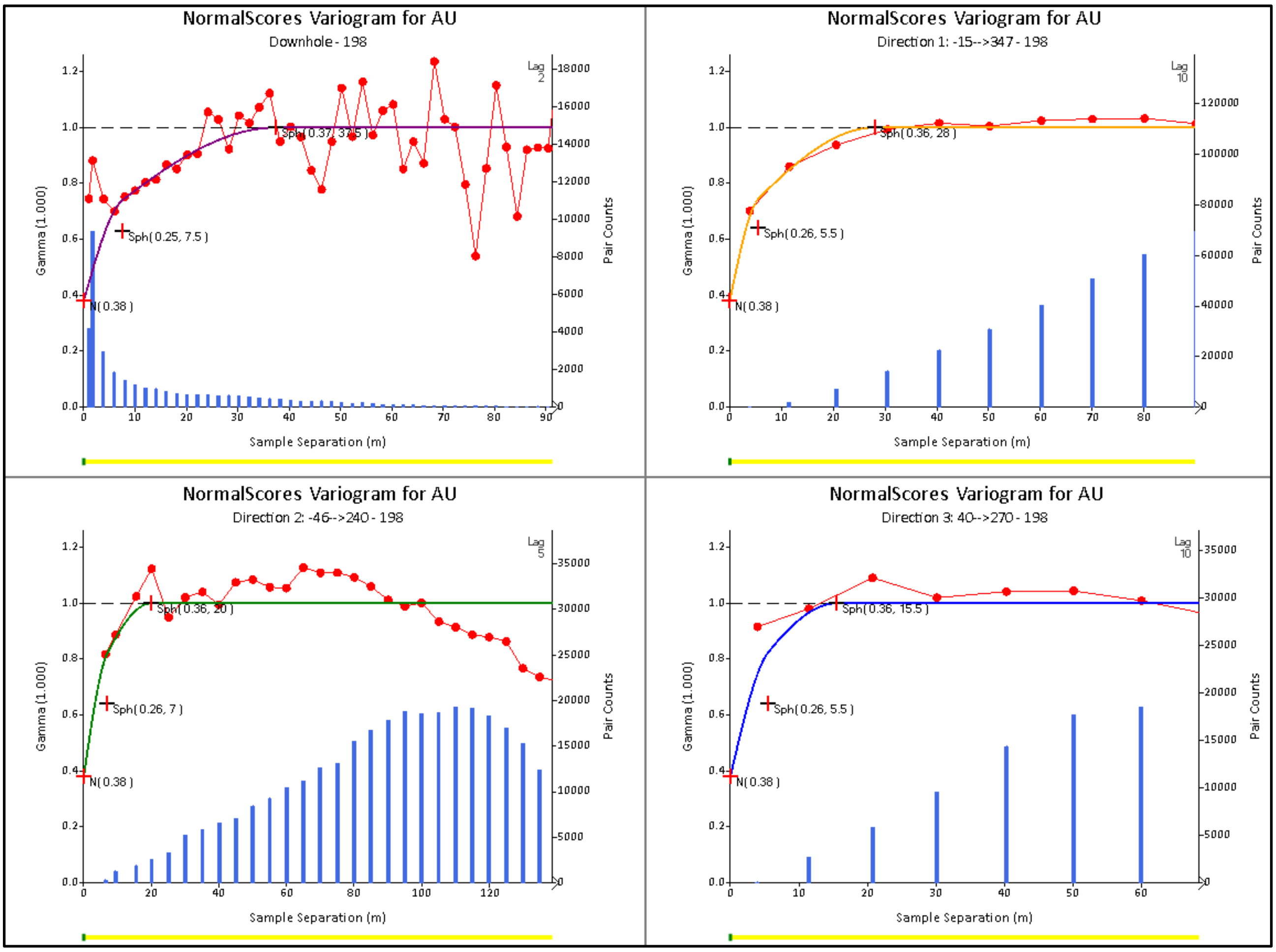


Figure 14-25: Upper Zone ESTZON 198 experimental normal score variogram
Source: CSA Global, 2022

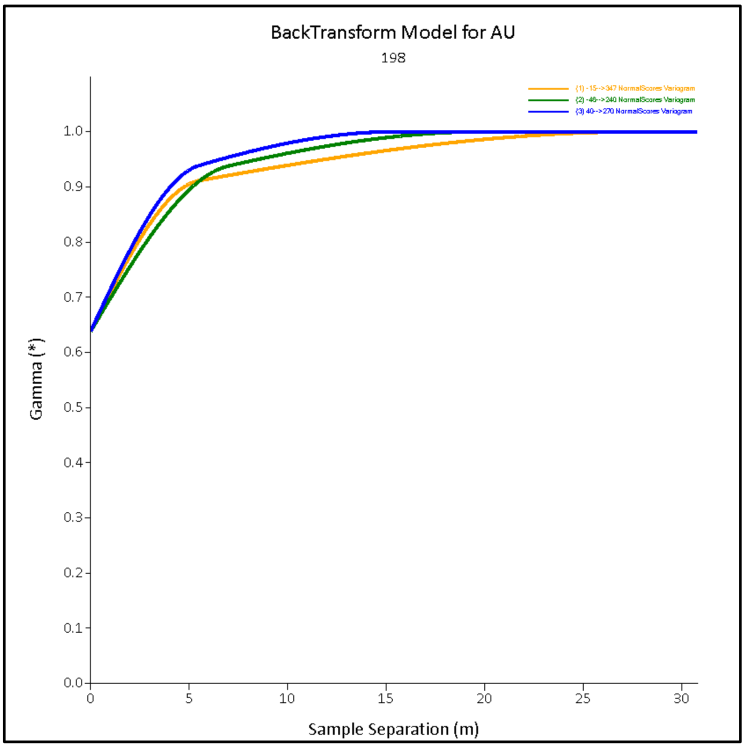


Figure 14-26: Upper Zone ESTZON 198 back-transformed variogram
Source: CSA Global, 2022

Table 14-10: Variogram parameters

Zone	Variable	MINZON	Datamine rotation	Datamine axis	Nugget	Structure 1		Structure 2	
						Sill	Range	Sill	Range
Upper Zone	Au	101	0	3	0.53	0.373	5.5	0.096	21
			90	1			5.5		16.5
			-30	3			5.5		9.5
		102 and 109	10	3	0.491	0.379	9	0.13	25
			60	1			6.5		17.5
			170	3			5.5		10.5
		103	-10	3	0.571	0.323	7.5	0.107	27.5
			70	1			5.5		28.5
			10	3			3.5		11
		104	10	3	0.674	0.186	5.5	0.14	24.5
			10	1			7.5		17
			40	3			3.5		7.5
		105	10	3	0.486	0.313	5.5	0.2	32
			60	1			7		17.5
			70	3			3.5		7
		106	-10	3	0.603	0.309	9	0.089	23.5
			30	1			5		16
			20	3			3		9.5
		108	10	3	0.694	0.206	5.5	0.1	16
			40	1			5.5		14
			-20	3			2.5		5.5
		110	0	3	0.538	0.329	10.5	0.134	31
			70	1			10.5		21

Zone	Variable	MINZON	Datamine rotation	Datamine axis	Nugget	Structure 1		Structure 2	
						Sill	Range	Sill	Range
			0	3			6		11.5
		111	0	3	0.596	0.298	9.5	0.107	21
			70	1			7.5		17.5
			0	3			5.5		10
		112	-30	3	0.554	0.33	6	0.117	25
			70	1			6.5		22
			0	3			3.5		12
		113	60	3	0.753	0.174	5.5	0.073	21.5
			10	1			5.5		22
			0	3			3.5		11
		114	0	3	0.735	0.145	7.5	0.12	31.5
			70	1			7.5		21.5
			30	3			3.5		8.5
		115	-20	3	0.545	0.267	8	0.187	20.5
			60	1			5.5		11
			170	3			5.5		10.5
		131, 137 and 139	150	3	0.574	0.26	10.5	0.166	23
			100	1			4.5		13
			180	3			3		8.5
		132	150	3	0.532	0.323	16	0.145	27.5
			60	1			13		25
			-130	3			2.5		6
		133 and 134	-20	3	0.771	0.148	11.5	0.08	22.5
			20	1			5.5		15.5
			160	3			5		11.5
		136	160	3	0.399	0.441	7.5	0.159	20.5
			60	1			9.5		18.5
			170	3			5.5		8.5
		138	100	3	0.695	0.187	5.5	0.118	20.5
			30	1			6.5		21
			-90	3			3		7.5
		140–143, 145 and 152	140	3	0.579	0.291	11.5	0.13	30.5
			110	1			11.5		20.5
			-170	3			3		5.5
		144	160	3	0.605	0.269	10.5	0.126	20.5
			110	1			5.5		15.5
			180	3			3		5.5
		146 and 147	180	3	0.629	0.218	7.5	0.153	20.5
			90	1			5.5		16.5
			180	3			3.5		7.5
		150	40	3	0.515	0.342	5.5	0.143	21.5
			10	1			7.5		21
			0	3			3		10
		151	10	3	0.664	0.168	12	0.167	30.5
			70	1			6.5		22
			30	3			4		10.5

Zone	Variable	MINZON	Datamine rotation	Datamine axis	Nugget	Structure 1		Structure 2	
						Sill	Range	Sill	Range
		153	30	3	0.468	0.347	8	0.185	20
			50	1			5.5		12.5
			-10	3			3.5		7.5
		198	-90	3	0.638	0.237	5.5	0.125	28
			50	1			7		20
			-20	3			5.5		15.5
	Ag	101	0	3	0.467	0.425	5.5	0.108	20.5
			90	1			15.5		20.5
			-10	3			5.5		9.5
		102 and 109	10	3	0.512	0.368	8.5	0.12	25
			60	1			5.5		17.5
			170	3			5.5		10.5
		103	-10	3	0.54	0.324	8	0.136	31
			70	1			8		22.5
			10	3			3.5		10
		104	10	3	0.608	0.268	12	0.124	26
			10	1			7.5		17
			40	3			3.5		7.5
		105	10	3	0.486	0.285	14.5	0.229	30.5
			60	1			7		26
			70	3			3.5		7
		106	-10	3	0.546	0.357	9	0.097	25
			30	1			5		16.5
			20	3			3		9.5
		108	25	3	0.433	0.4	8	0.167	19.5
			60	1			5.5		12.5
			-20	3			2.5		5.5
		110	0	3	0.612	0.251	8.5	0.137	32.5
			70	1			7.5		23.5
			10	3			6		11.5
		111	0	3	0.544	0.353	14	0.103	21
			70	1			7.5		17.5
			-10	3			5.5		10
		112	-30	3	0.484	0.333	6.5	0.183	21.5
			70	1			5.5		27.5
			0	3			4.5		13.5
		113	60	3	0.7	0.193	5	0.107	21.5
			20	1			5.5		14
			50	3			3.5		11
		114	0	3	0.626	0.224	9.5	0.15	22.5
			60	1			5.5		21.5
			80	3			3.5		8.5
		115	-20	3	0.416	0.385	6.5	0.199	19.5
			60	1			5.5		11
			170	3			5.5		10.5
			160	3	0.523	0.279	9	0.198	20.5

Zone	Variable	MINZON	Datamine rotation	Datamine axis	Nugget	Structure 1		Structure 2	
						Sill	Range	Sill	Range
		131, 137 and 139	100	1			6.5		16
			-160	3			3		8.5
		132	170	3	0.514	0.228	7.5	0.258	24
			60	1			7.5		19.5
			180	3			2.5		6
		133 and 134	-20	3	0.631	0.24	8.5	0.129	20.5
			20	1			5.5		15.5
			160	3			5		11.5
		136	160	3	0.329	0.436	4.5	0.235	25
			60	1			9.5		20
			170	3			5.5		8.5
		138	100	3	0.617	0.228	5.5	0.155	24.5
			30	1			5.5		21
			-10	3			3		7.5
		140–143, 145–147 and 152	140	3	0.418	0.325	5.5	0.257	27.5
			110	1			6.5		17.5
			-170	3			3		5.5
		144	160	3	0.45	0.388	10	0.162	20.5
			110	1			5.5		15.5
			180	3			3		5.5
		150	40	3	0.537	0.327	5.5	0.136	19.5
			10	1			7.5		21
			0	3			3		10
		151	10	3	0.616	0.154	17.5	0.23	36.5
			70	1			6.5		22
			70	3			4		10.5
		153	30	3	0.419	0.345	8	0.236	20
			50	1			5.5		12.5
			-10	3			3.5		7.5
		198	-90	3	0.598	0.194	5	0.208	28
			50	1			7		20
			-20	3			5.5		15.5
Wall Zone	Au	201	10*	3	0.41	0.39	12.7	0.2	35.8
			10*	1			10.2		63.3
			10*	3			2.7		4.4
	Ag	201	10*	3	0.5	0.23	12.3	0.27	65.9
			10*	1			7.6		52.5
			-90*	3			1.5		2.6
Overburden	Au	301	180	3	0.22	0.6	10.7	0.18	30.3
			90	1			13.9		18.7
			180	3			9.8		30.1
	Ag	301	0	3	0.3	0.35	9.5	0.35	15.3
			0	1			11.5		25.1
			180	3			13.8		28.1
Basement Mineralisation	Au	401	0	3	0.42	0.46	5.8	0.12	25.3
			10	1			5.6		20.6

Zone	Variable	MINZON	Datamine rotation	Datamine axis	Nugget	Structure 1		Structure 2	
						Sill	Range	Sill	Range
			90	3			1.7		3.7
	Ag	401	0	3	0.13	0.73	5.7	0.14	45.6
			10	1			4.1		30.2
			90	3			3.1		4.8
Fault gauge	Au	501	-20	3	0.271	0.428	6	0.301	29.5
			10	1			5.5		23.5
			-80	3			3.5		7.5
	Ag	501	-20	3	0.189	0.356	6	0.454	29.5
			10	1			5.5		23.5
			-80	3			3.5		7.5

**Variograms locally rotated to honour dynamic anisotropy rotations for Upper Zone, Wall Zone and Basement Mineralisation.*

14.8 Bulk Density Assignment

Statistical analysis of the BD data for the Ada Tepe deposit was undertaken to determine appropriate density assignments for Mineral Resource grade-tonnage reporting. Initial investigations based on the geological logging codes concluded that the modelled geological constraints allowed for appropriate grouping of the BD data.

CSA Global reviewed these assumptions in the December 2018 MRE update by further subdividing these geological zones based on mineralised vs waste material. Minor differences observed between the mean density values for the waste and mineralised material in the Upper Zone conclude that the previous grouping of BD values is appropriate. No material differences were identified for the Wall Zone in the updated dataset. CSA Global has therefore used the values determined in the previous study, with the inclusion of values for the basement waste rock.

Table 14-11 displays summary statistics of the BD values grouped by the modelled mineralisation and waste zones within primary lithological boundaries and subdivisions of the weathering profile. The statistics for these data groupings can be summarised as follows:

- Very few data are available to determined robust mean density values for oxidised basement rocks or overburden, but this is not considered a material issue given the small amount of mineralisation in the basement.
- The histogram plots indicate the BD data for each of the data groupings (with sufficient data) are normally distributed with most of the BD values being within 5% to 10% of the mean density reported for each data group.
- There is little to no difference between the mean and median BD values reported for each data group (with sufficient data).
- It is considered that the mean BD value reported for the overburden material of 2.24 t/m^3 (based on 43 data values) is too high for unconsolidated breccia conglomerate material. A 2.0 t/m^3 BD value was selected as being more appropriate and was applied for reporting overburden Mineral Resources.
- For material within void wireframes, to account for the fact that it is a mixture of voids, clay and fractured material, the given density has been discounted by 40%. This is based on pit observations to date but has not been quantified due to the difficulty of getting representative samples. The volume of material is not significant, representing less than 1,000 ounces mostly in the Upper Zone.

Table 14-11: Summary statistics of BD data grouped by major rock types and oxidation state

Zone	Oxidation	Number	Minimum	Maximum	Mean	Median	Standard deviation	CV
Overburden	Strong	43	1.94	2.50	2.24	2.25	0.13	0.06
	Weak	-	-	-	-	-	-	-
	Fresh	-	-	-	-	-	-	-
Upper Zone	Strong	2,089	1.52	2.93	2.27	2.27	0.17	0.08
	Weak	674	1.90	2.95	2.47	2.50	0.15	0.06
	Fresh	1,053	2.09	2.96	2.52	2.54	0.11	0.04
Wall Zone	Strong	66	2.04	2.63	2.34	2.33	0.13	0.06
	Weak	118	1.91	2.80	2.47	2.50	0.15	0.06
	Fresh	257	2.11	2.98	2.56	2.58	0.09	0.04
Basement	Strong	7	2.16	2.54	2.39	2.37	0.12	0.05
	Weak	20	2.19	2.92	2.48	2.49	0.17	0.07
	Fresh	554	2.04	2.97	2.59	2.61	0.15	0.06

The in-situ BD assigned is presented in Table 14-12.

Table 14-12: Block model BD assignments

Rock type	Oxidation	Density
Overburden	N/A	2.26
Breccia Conglomerate	Oxide	2.26
	Transitional	2.48
	Fresh	2.54
Wall Zone	Oxide	2.32
	Transitional	2.48
	Fresh	2.56
Basement	Oxide	2.16
	Transitional	2.48
	Fresh	2.59

14.9 Block Modelling

Table 14-13 presents the extents of the Ada Tepe block model. The Mineral Resource block model was developed using block dimensions of 2.5 m x 2.5 m x 2.5 m (X x Y x Z) with the smallest sub-cell size of 0.5 m for the purpose of providing appropriate definition of the topographic surface, geological and mineralisation zone boundaries.

Comparisons were made between the block model volumes and wireframe volumes, and the model was viewed visually against the wireframes to ensure they are well represented, and that coding is accurate.

Table 14-13: Block model dimensions

Dimension	Origin	Extent	Number	Block size	
				Parent	Sub-block
East	9,435,300	550	220	2.5	0.5
North	4,523,300	700	280	2.5	0.5
Elevation	280	230	92	2.5	0.5

The block model has been extensively validated against the geological model wireframes and the surface topography. The model has been validated by viewing in multiple orientations using the 3D viewing tools in Datamine StudioRM™.

Mineralisation wireframes were filled with model cells and the block model volume was compared to the mineralisation volume, per domain. The volumes are comparable and visual checks show good resolution on wireframe boundaries.

14.10 Grade Interpolation

14.10.1 Ordinary Kriging

Grades were estimated into 2.5 m x 2.5 m x 2.5 m parent blocks. Block size was supported by close spaced 5 m x 5 m drilling. Grades for Au, Ag and S were estimated using Ordinary Kriging.

Sample search neighbourhood parameters are presented in Table 14-14.

Table 14-14: Search neighbourhood parameters for Au, Ag and S by MINZON

Zone	MINZON	Variable	Search volume 1			Search volume 2			Search volume 3			Maximum per drillhole
			Ranges	Composites		Range	Composites		Range	Composites		
				Min.	Max.		Min.	Max.		Min.	Max.	
Upper Zone	101, 102, 104–106, 108–115, 131–133, 136–147, 150–153, 198 and 501	Au	25 x 20 x 10	9	24	x 2	9	24	x 4	6	15	3
	103		20 x 15 x 7.5	6	20	x 2	6	20	x 4	4	14	2
	133		25 x 20 x 10	8	24	x 2	8	24	x 4	6	15	4
	101, 102, 104–106, 108–115, 131–132, 134, 136–147, 150–153, 198 and 501	Ag	25 x 20 x 10	9	24	x 2	9	24	x 4	6	15	3
	103		20 x 15 x 7.5	6	20	x 2	6	20	x 4	4	14	2
	134		25 x 20 x 10	9	24	x 2	9	24	x 4	6	15	3
	101–103, 109–112, 114–115, 131, 132, 136, 137, 139, 140–142, 144–147, 151, 152	S	25 x 20 x 10	8	22	x 2	8	22	x 4	4	12	2
	104–106, 108, 113, 133, 134, 138, 143, 150, 153, 198, 501		25 x 20 x 10	8	22	x 2	8	22	x 4	4	12	2
Wall Zone	201	Au, Ag, S	15 x 20 x 5	6	20	x 2	6	18	x 4	4	16	2
Basement Mineralisation	401	Au, Ag, S	15 x 15 x 2	8	22	x 2	8	20	x 10	6	16	2
Overburden	All Domains	Au, Ag, S	20 x 15 x 12.5	4	12	x 2	4	10	x 15	3	10	2

14.11 Validation

Validation of the block model was completed through evaluation of the following:

- Visual validation – plan, section, 3D views
- Swath plots – grade trends along eastings, northings and RLs
- Comparison of block grades and composite grades
- Comparison with Grade Control Model

14.11.1 Visual Validation

The block models were visually reviewed section-by-section and in 3D to ensure that grades in composites were reflected in the block models. Generally, the estimates compare well with the input data, with an acceptable level of smoothing. Example cross sections are presented in Figure 14-27 to Figure 14-29.

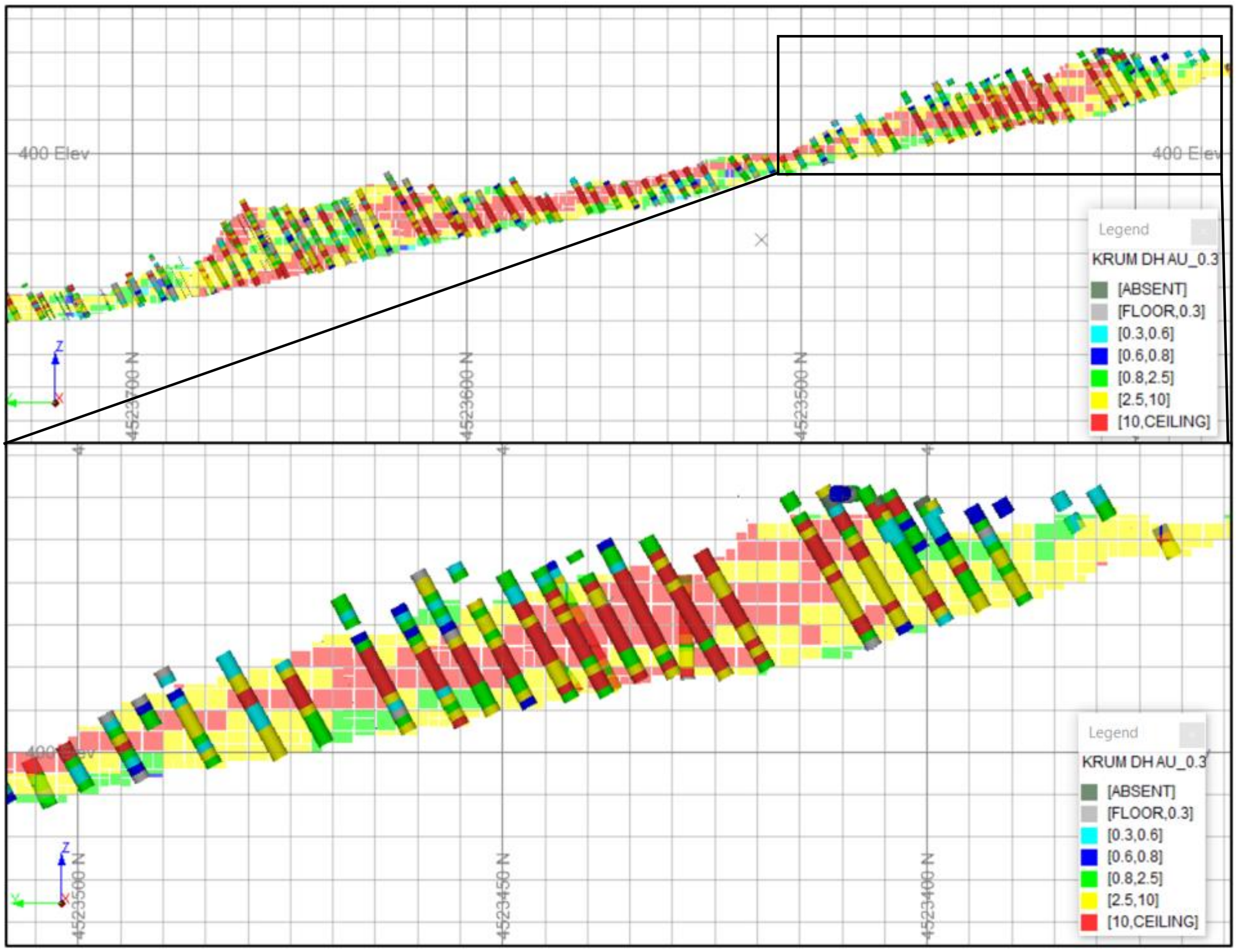


Figure 14-27: Vertical section view (looking east) – Wall Zone Au g/t grade model and composites
Source CSA Global, 2022

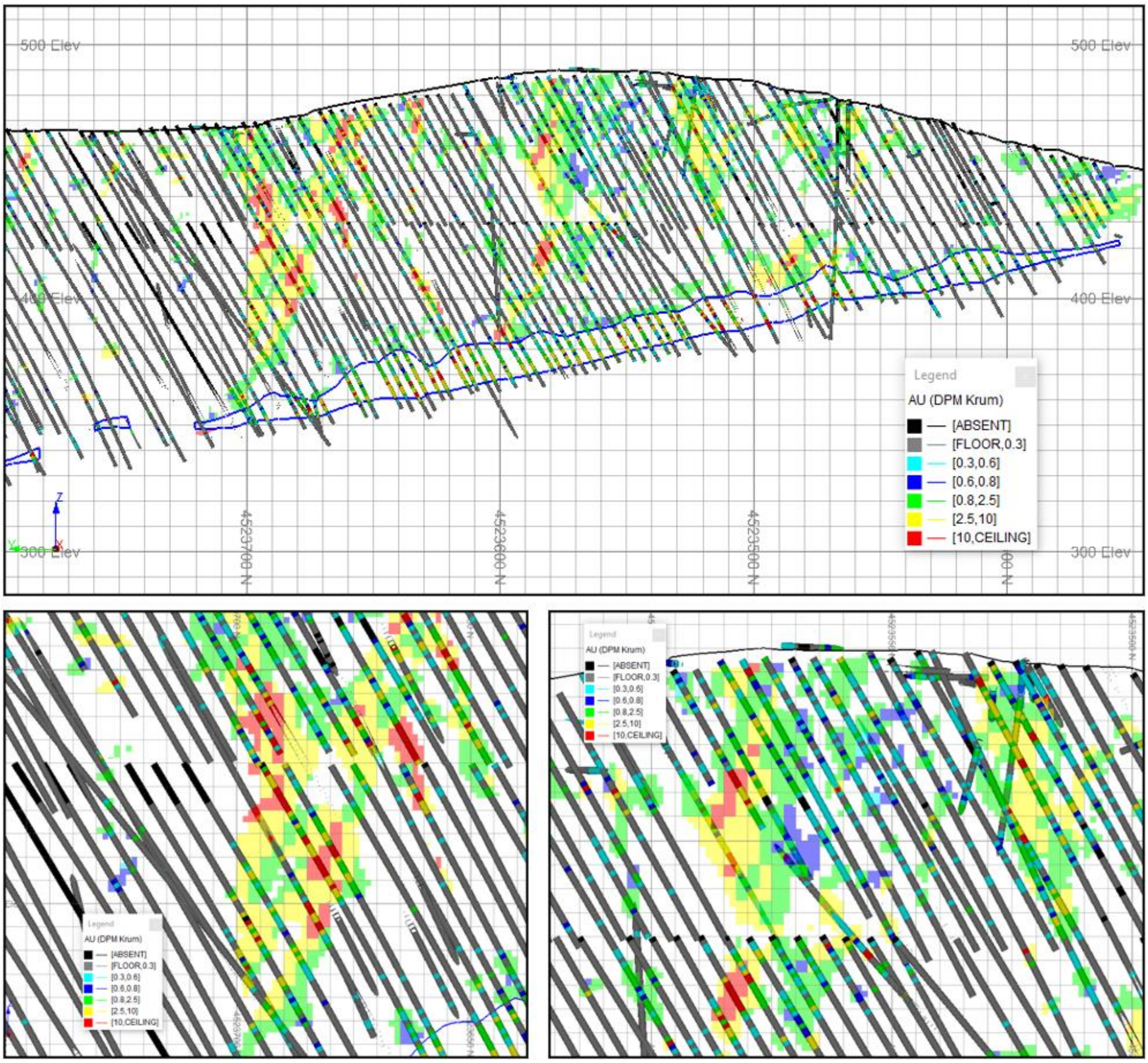


Figure 14-28: Vertical section view (9435610 Easting) looking East – Upper Zone Au g/t grade model and composites
Source CSA Global, 2022

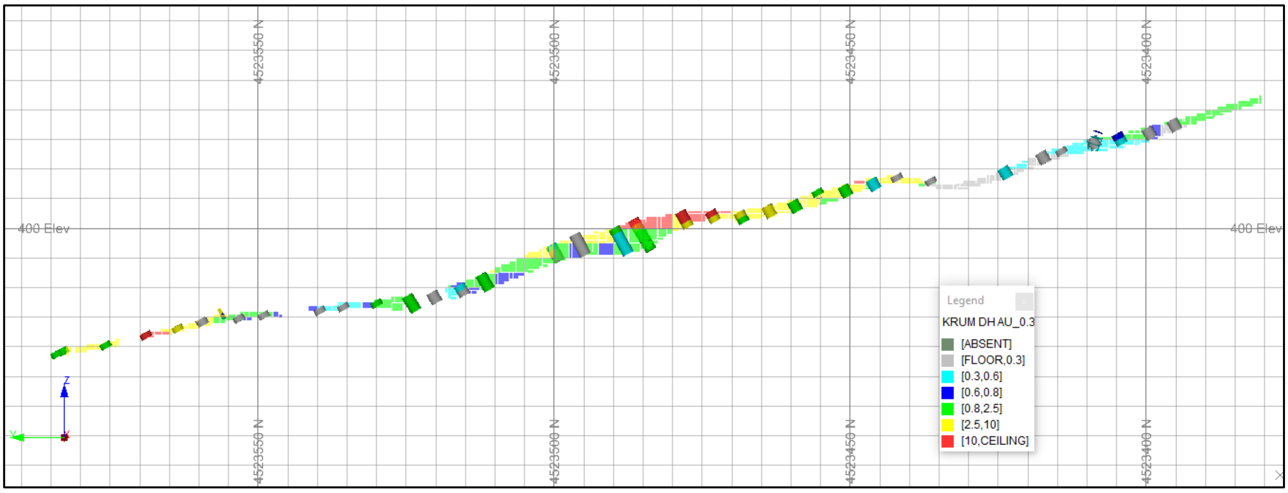


Figure 14-29: Vertical section view (looking east) – Basement Mineralisation Au g/t grade model and composites
Source CSA Global, 2022

14.11.2 Mean Statistics – Block Model vs Composites

Statistical validation was performed on individual domains as well as globally against the composite data. The global validation is presented in Table 14-15.

Table 14-15: Mean grade comparison for gold and silver

Zone	Mean composites		Mean blocks		% Difference	
	Au	Ag	Au	Ag	Au	Ag
Upper Zone	4.29	2.5	4.37	2.58	2%	3%
Wall Zone	7.38	4.28	7.37	4.25	0%	0%
Basement Mineralisation	1.80	1.60	1.71	1.56	5%	3%
301 Overburden	1.29	0.86	1.43	0.91	10%	5%
302 Overburden	0.48	0.72	0.46	0.80	5%	12%
303 Overburden	0.17	0.5	0.17	0.49	0%	1%
304 Overburden	1.55	1.03	1.59	1.03	3%	1%
305 Overburden	0.47	1.00	0.46	1.06	3%	6%
306 Overburden	0.25	0.68	0.25	0.67	3%	1%
307 Overburden	0.15	0.7	0.14	0.86	6%	23%

Within the individual domain validations for the Upper Zone the variance between mean composite and block grades was between -27% and 12%. However, the two domains at the ends of these variances had low sample support (ESTZON 152 with 71 composites and ESTZON 139 with 383 composites, respectively). CSA Global reviewed the variances of the 14 largest domains (domains with more than 1,000 composites) and these were shown to be within -4% to 5%, except for ESTZON 103 (9.5%) which was reviewed in further detail during the final estimation runs. Refinement of the search parameters had an improvement on the validations, but visual review of the model showed that the variance in the swath plots was largely due to a specific area with low sample support. CSA Global carried out a review of the average variance for the largest domains (greater than 1,000 composites) and those below this composite threshold, weighted by sample count:

- Large (14) domains – average variance within 0.7%
- Small (17) domains – average variance within 1.4%.

Variance between mean composite grades and block grades for the Wall Zone for gold and silver were within 1%. Variance between mean composite grades and block grades for the Basement mineralisation for gold and silver were within 5% and 3% respectively.

Overburden validated well globally within 10% for the majority of domains for gold, silver and sulphur. However, the individual domains which validated outside of 10% can be attributed to less data available for use in the estimate. The overall poorer validation of overburden is reflected in the lower confidence applied during classification. The poorer validation is attributed to a number of causes:

- Wireframe volumes of overburden are large relative to the number of data since the wireframes have been created based both on logging and on field mapping. Extrapolation of grades from drilling into unsampled volumes has led to larger differences in mean grades between composites and blocks. However, visual review supports estimated grades where supported by drilling.
- Intervals that have poor recovery, although small in number throughout the deposit, are disproportionately higher in the overburden, which is understandable due to the nature of the material.
- Overall, overburden makes up approximately 2% of the metal so the poorer validation statistics are not considered material.

14.11.3 Swath Plots

Swath plots were generated to compare the model parent block grades and input composites in spatial increments (easting, northing, elevation).

The plots show that the distribution of block grades honours the distribution of input composite grades. There is an acceptable level of smoothing evident, which is to be expected from the estimation method used, with block grades showing lower overall variance.

Figure 14-30 to Figure 14-35 show selected swath plots for the model for gold and silver.

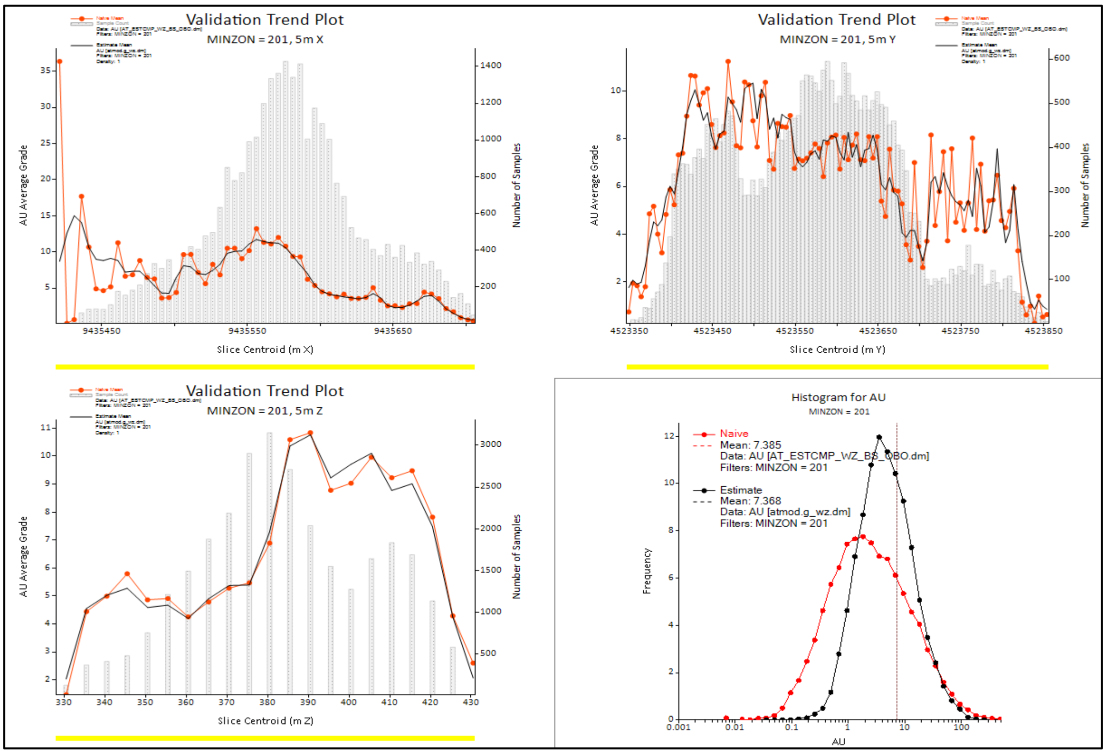


Figure 14-30: Swath plots and histogram for Au g/t in the Wall Zone (block model (black) vs composites (red))
Source: CSA Global, 2022

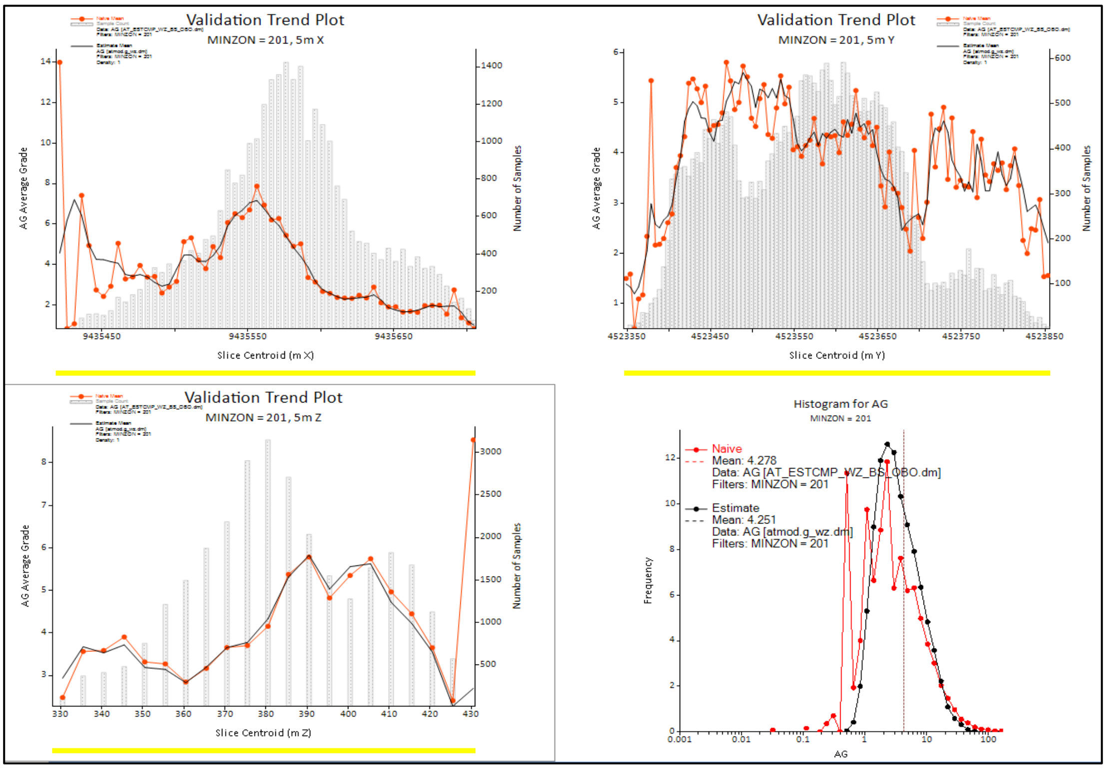


Figure 14-31: Swath plots and histogram for Ag g/t in the Wall Zone (block model (black) vs composites (red))
Source CSA Global, 2022

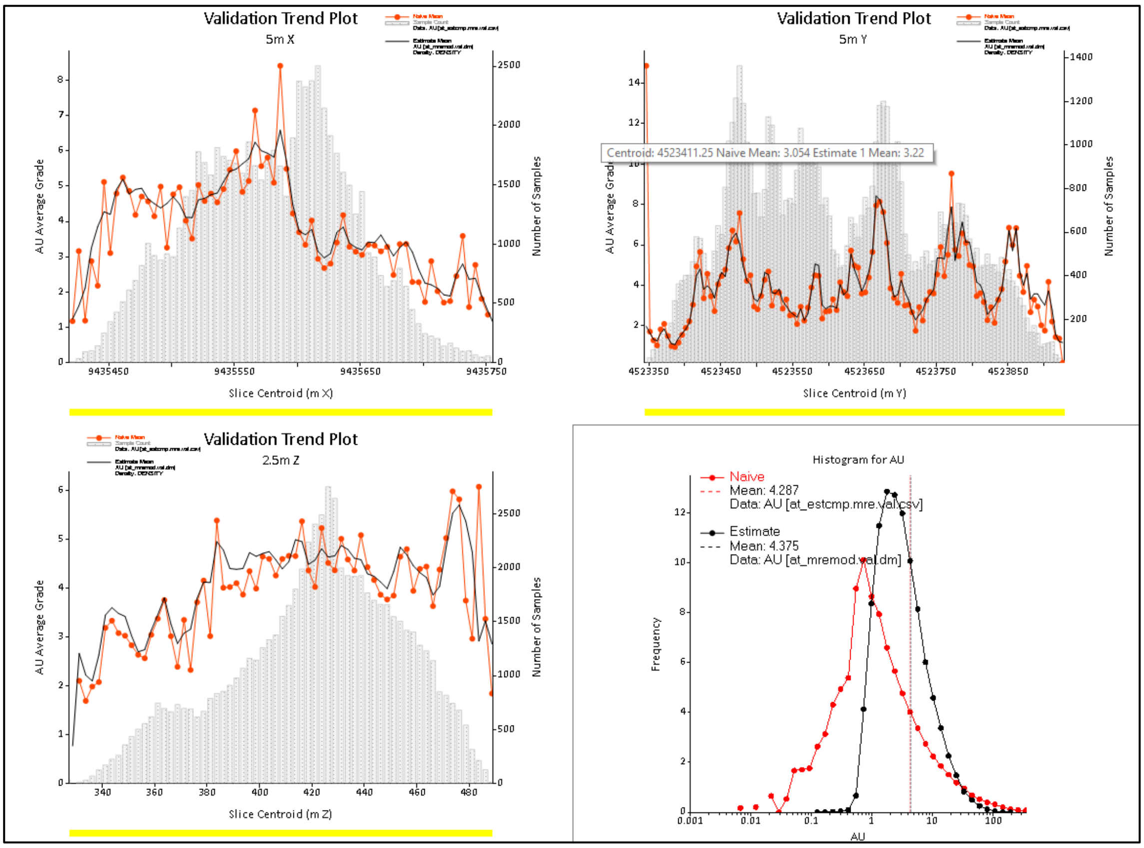


Figure 14-32: Swath plots and histogram for Au g/t in the Upper Zone (block model (black) vs composites (red))
Source CSA Global, 2022

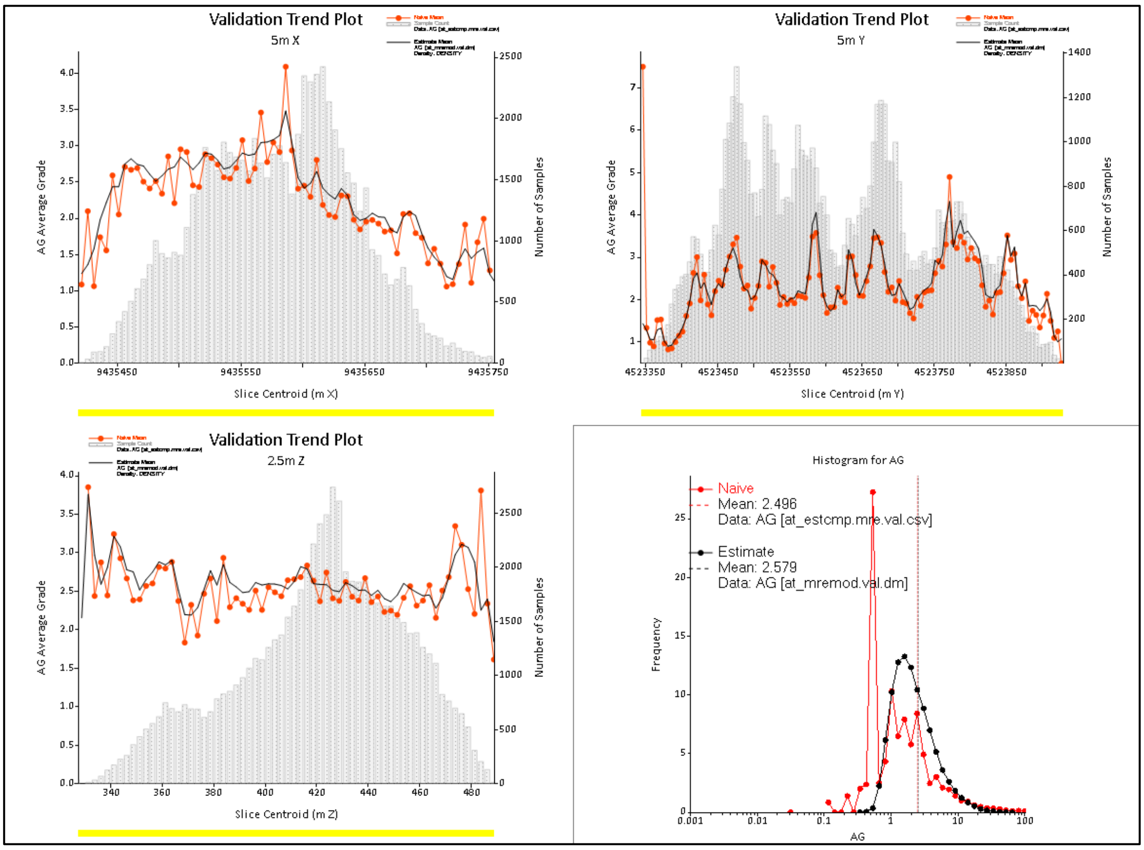


Figure 14-33: Swath plots and histogram for Ag g/t in the Upper Zone (block model (black) vs composites (red))
Source CSA Global, 2022

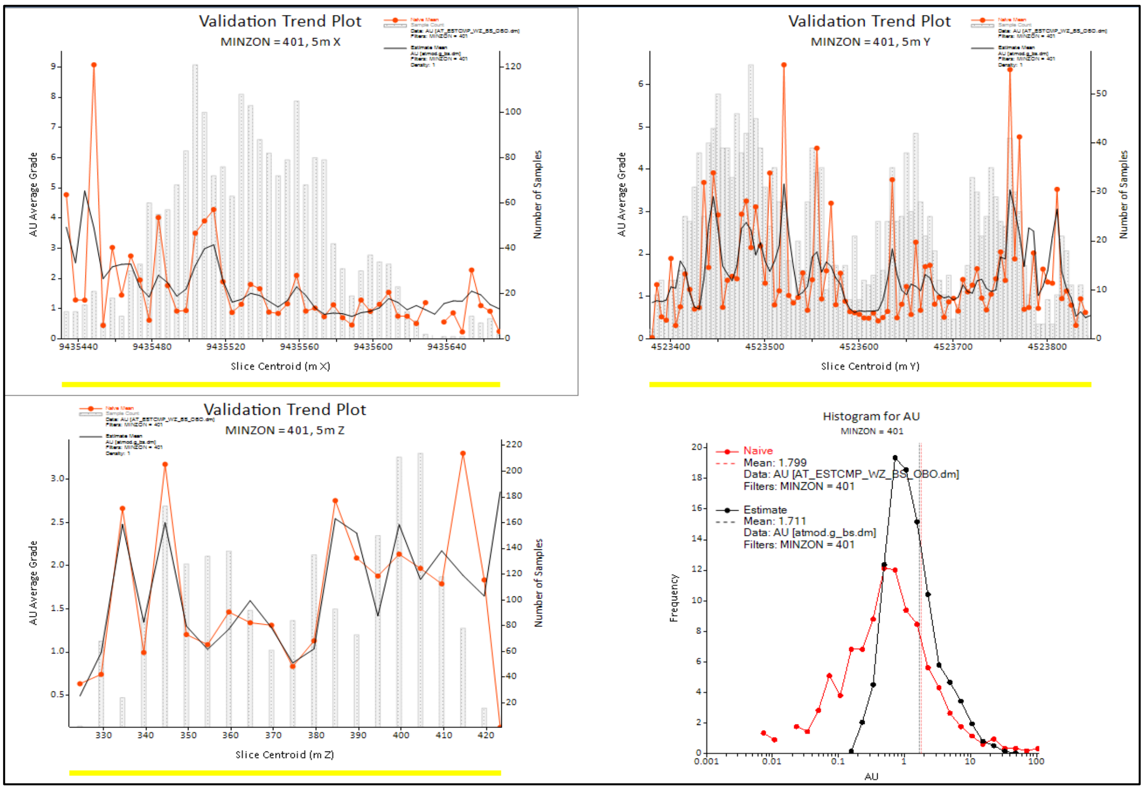


Figure 14-34: Swath plots and histogram for Au g/t in the Basement Mineralisation (block model (black) vs composites (red))

Source: CSA Global, 2022

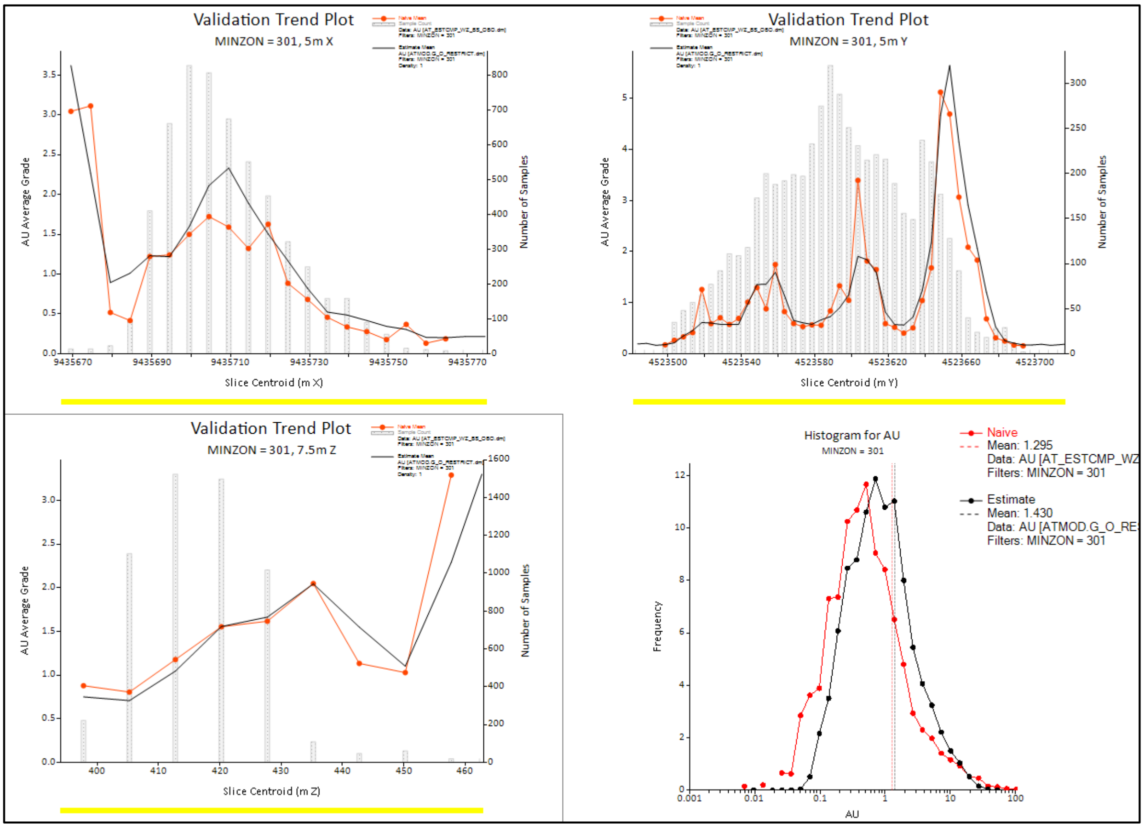


Figure 14-35: Swath plots and histogram for Au g/t in Overburden domain 301 (block model (black) vs composites (red))

Source: CSA Global, 2022

14.11.4 Grade Control Model Comparison

The Mineral Resource model for Ada Tepe used the same database export as was used to update the most recent grade control model (GC_MASTER_07) on site. Metal, tonnes and grade were compared within a common area in both the grade control and resource model (GEOCON=1). This common volume informed areas were close spaced drilling (5m x 5m) was used to estimate grades into both models. The common volume is shown in Figure 14-36.

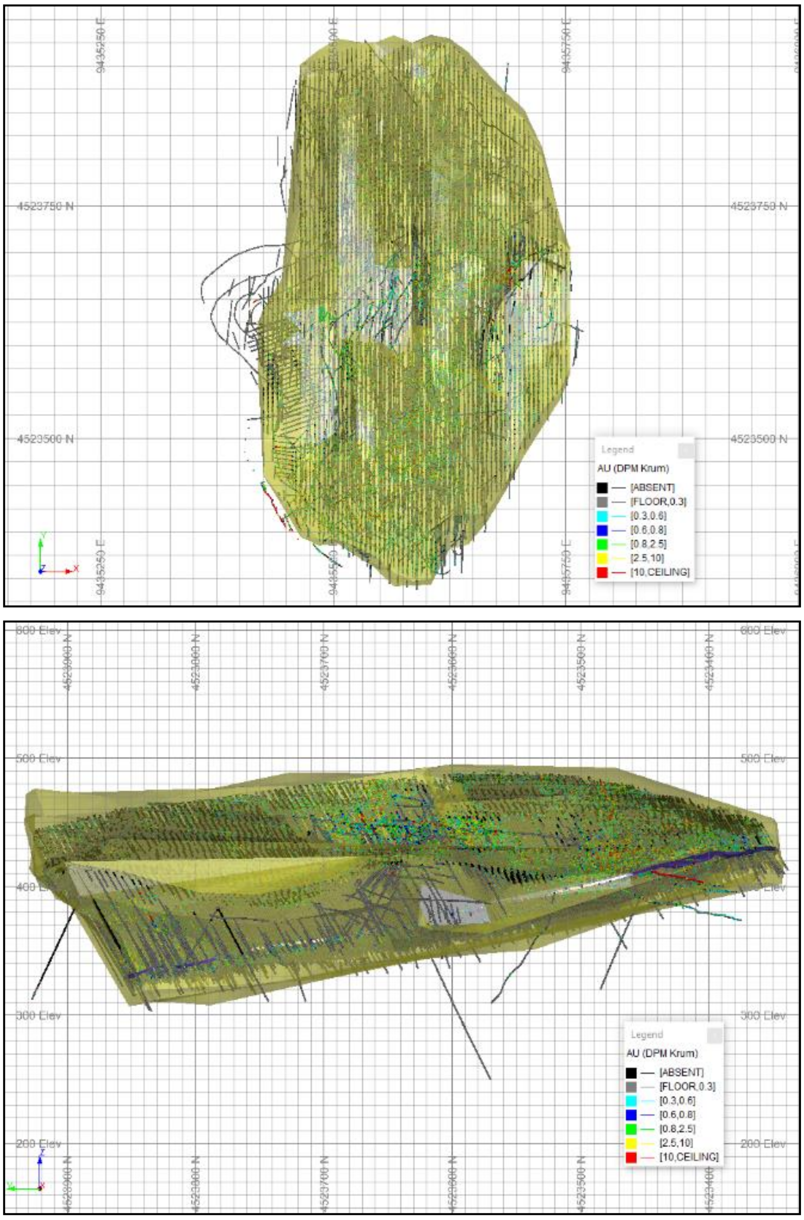
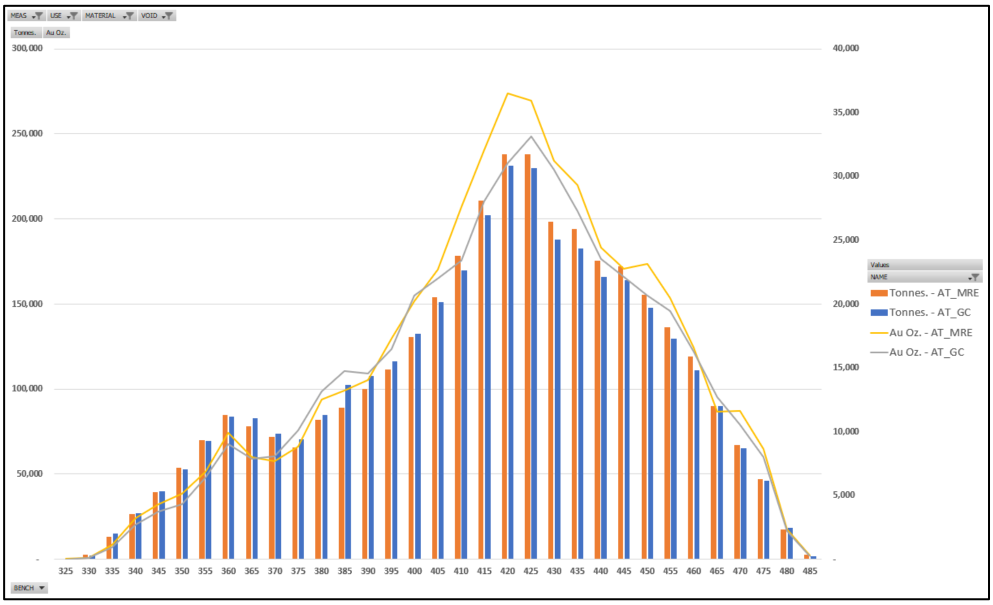


Figure 14-36: Limits of comparison volume (MEAS=1); top – plan view; bottom – looking east; WZ domain in purple for reference

Source: CSA Global, 2022

The results show close reconciliation on tonnes, grade and metal basis. For the Upper Zone, the GC model used in production predicts slightly lower tonnes (-2%) and grade (-4%) compared to the EXP model, with metal reconciling to within -5%. Metal, tonnes and grade comparisons by bench for the Upper Zone are presented in Figure 14-37.

For the Wall Zone, the GC model used in production predicts lower tonnes (-5%) and higher grade (1%) compared to the EXP model, with metal reconciling to within -4%. Metal, tonnes and grade comparisons by bench for the Upper Zone are presented in Figure 14-38.



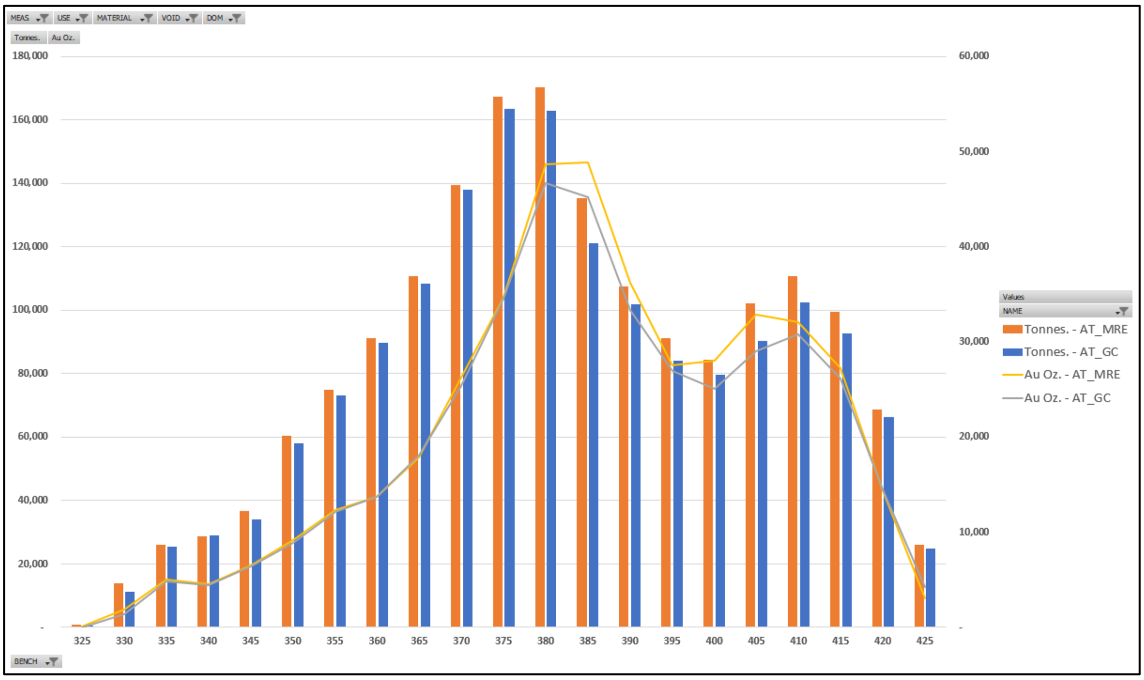
MEAS	(Multiple Items)	1				
USE	(Multiple Items)	(1&2) UZ				
MATERIAL	(Multiple Items)	>=0.6				
VOID	0	0				

BENCH	Values Tonnes. AT_MRE	NAME AT_GC	Au Oz. AT_MRE	AT_GC	Au g/t. AT_MRE	AT_GC
325	154	30	4	1	0.79	0.70
330	2,644	2,323	101	69	1.19	0.93
335	13,363	14,852	1,097	922	2.55	1.93
340	26,668	26,977	3,203	2,682	3.74	3.09
345	39,259	39,868	4,307	3,744	3.41	2.92
350	53,624	52,667	5,109	4,280	2.96	2.53
355	69,975	69,492	6,863	6,391	3.05	2.86
360	84,550	83,951	9,905	9,022	3.64	3.34
365	78,212	82,817	7,982	7,841	3.17	2.94
370	71,783	73,631	7,687	8,050	3.33	3.40
375	65,471	70,405	8,832	10,097	4.20	4.46
380	81,763	84,939	12,510	13,150	4.76	4.82
385	88,864	102,296	13,202	14,720	4.62	4.48
390	99,877	107,690	14,036	14,572	4.37	4.21
395	111,508	116,489	17,280	16,470	4.82	4.40
400	130,538	132,734	20,203	20,633	4.81	4.83
405	154,192	150,919	22,726	21,992	4.58	4.53
410	178,412	169,615	27,586	23,416	4.81	4.29
415	211,043	202,098	32,041	28,028	4.72	4.31
420	238,291	231,384	36,525	31,043	4.77	4.17
425	237,950	230,068	35,972	33,114	4.70	4.48
430	198,562	187,828	31,252	30,552	4.90	5.06
435	193,930	182,876	29,320	27,296	4.70	4.64
440	175,469	165,965	24,429	23,536	4.33	4.41
445	172,071	164,092	22,758	22,112	4.11	4.19
450	155,482	147,770	23,169	20,647	4.63	4.35
455	136,163	129,437	20,475	19,453	4.68	4.67
460	119,111	111,135	16,582	16,257	4.33	4.55
465	89,955	89,962	11,586	12,700	4.01	4.39
470	67,219	65,144	11,600	10,559	5.37	5.04
475	47,211	46,248	8,637	8,005	5.69	5.38
480	17,603	18,451	2,331	2,172	4.12	3.66
485	2,561	1,686	272	225	3.31	4.15
Grand Total	**3,413,478**	**3,355,838**	**489,583**	**463,752**	**4.46**	**4.30**
		-2%		-5%		-4%

Figure 14-37: Upper Zone – comparison of tonnes, metal and grade in GCAREA=1 (0.6 g/t Au cut-off)

Above – tonnes (bars) and metal (line); Below – table showing tonnes, metal, grade by bench. GC model – blue bars, grey lines; Resource model – orange bars, yellow lines.

Source: CSA Global, 2022



MEAS	(Multiple Items)	1
USE	5	5
MATERIAL	(Multiple Items)	>=0.8
VOID	0	0
DOM	(Multiple Items)	WZ only = (DOM 50 for GC and ESTZON 201 for MRE)

	Values	NAME				
	Tonnes.		Au Oz.		Au g/t.	
BENCH	AT_MRE	AT_GC	AT_MRE	AT_GC	AT_MRE	AT_GC
325	1,008	430	47	17	1.45	1.21
330	13,952	11,200	1,825	1,403	4.07	3.90
335	26,044	25,300	4,994	4,843	5.96	5.95
340	28,624	28,950	4,567	4,475	4.96	4.81
345	36,769	34,010	6,554	6,374	5.54	5.83
350	60,314	58,082	9,133	8,882	4.71	4.76
355	74,912	73,035	12,346	12,137	5.13	5.17
360	91,136	89,553	13,728	13,696	4.69	4.76
365	110,839	108,430	17,844	18,055	5.01	5.18
370	139,576	137,903	26,214	25,366	5.84	5.72
375	167,237	163,535	34,636	34,535	6.44	6.57
380	170,135	162,803	48,668	46,687	8.90	8.92
385	135,305	121,117	48,878	45,156	11.24	11.60
390	107,414	101,765	36,244	33,367	10.49	10.20
395	91,123	84,215	27,540	26,897	9.40	9.93
400	84,341	79,545	28,068	25,056	10.35	9.80
405	102,228	90,294	32,819	28,985	9.99	9.98
410	110,590	102,293	32,066	30,763	9.02	9.35
415	99,339	92,720	27,266	26,132	8.54	8.77
420	68,788	66,211	14,422	14,471	6.52	6.80
425	25,966	24,822	3,047	4,224	3.65	5.29
Grand Total	**1,745,639**	**1,656,214**	**430,906**	**411,520**	**7.68**	**7.73**
		-5%		-4%		1%

Figure 14-38: Wall Zone – comparison of tonnes, metal and grade in GCAREA=1 (0.8 g/t Au cut-off)

Above – tonnes (bars) and metal (line); Below – table showing tonnes, metal, grade by bench. GC model – blue bars, grey lines; Resource model – orange bars, yellow lines.

Source: CSA Global, 2022

14.12 Mineral Resource Classification

The Mineral Resource has been classified as Measured, Indicated and Inferred Mineral Resources under the guidelines of the CIM Standards on Mineral Resources and Reserves, Definitions and Guidelines prepared by the CIM Standing Committee on Reserve Definitions and adopted by CIM Council, and procedures for classifying the reported Mineral Resources were undertaken within the context of the Canadian Securities Administrators NI 43-101.

The classification level is based upon an assessment of the understanding of the key mineralisation controls for the deposit, geological and mineralisation continuity, drillhole spacing, confidence in data and QAQC results, estimation quality, and an analysis of available density information. How the model performs against the GC production model and dig strings has also informed resource classification. Only material that have reasonable prospects for eventual economic extraction have been classified as Mineral Resources.

The drill spacing is sufficient to allow the geology and mineralisation zones to be modelled. Reasonable consistency is evident in the orientations, thickness and grades of the mineralised zone.

Confidence in data is high, informed by good drilling and sampling procedures and QAQC results, and close correlation between exploration and GC drilling in terms of grades and thicknesses.

The quality of the estimate has been evaluated through review of slope of regression and kriging efficiency.

The data informing in-situ dry bulk density is considered reliable for the majority of zones. The only exceptions to this are the overburden where the density derived from data of 2.24 t/m^3 was considered too high for this semi-consolidated material, and the density used was 2.00 t/m^3. In addition, the density of "voids" which can be more accurately described as a mixture of clay, fractured zones and voids, was discounted by 40%, which was not measured, but rather based on in-pit observations. "Voids" make up less than 1,000 ounces of Measured and Indicated Mineral Resources. Therefore, the uncertainty in grade and density behaviour in these zones is considered immaterial to the Mineral Resource as currently estimated.

14.12.1 Reasonable Prospects for Economic Extraction

Reasonable prospects for eventual economic extraction ("RPFEE") are supported through a pit optimisation run using a gold price of US$1,600/oz gold. The boundaries of the aforementioned pit shell constrained a very similar volume to the Mineral Reserve constraining pit design. In some instances, the Mineral Reserve shell was deeper than the pit optimisation shell. This therefore resulted in additional Mineral Resources being added to the model to ensure all material within the Mineral Reserve shell was included in the Mineral Resource statement. As such, final reporting was conducted using a combination of the pit optimisation shell and the Mineral Reserve constraining pit design.

14.12.2 Resource Classification Parameters

Measured Mineral Resources:

- The Wall Zone has been classified as Measured Mineral Resources due to the highly continuous nature of the mineralisation and the adequate drill density of 5 m x 5 m across the entire domain.
- The Upper Zone that is covered by GC drilling at 5 m x 5 m density has been classified as Measured Mineral Resources.
- In general, Measured Mineral Resources have Slopes of Regression greater than 0.70.
- Close reconciliation with the GC model used in production.

Indicated Mineral Resources:

- Upper Zone blocks outside of the 5 m x 5 m drilling but informed by drilling at a nominal 15 m x 15 m drill density.

- Basement mineralisation has been drilled in its entirety to 5 m x 5 m spacing but due to its discontinuous nature has been classified as Indicated Mineral Resources.
- Results of the MRE model vs GC model benchmarking in the Upper Zone provided confidence that the model estimated using wider spaced exploration data can reliably predict.

Inferred Mineral Resources:

- Blocks located at the periphery of the Upper Zone where drill hole density drops off and estimated blocks are informed by lower sample numbers.
- Overburden blocks.

Figure 14-39 presents the classified and constrained Mineral Resources at Ade Tepe.

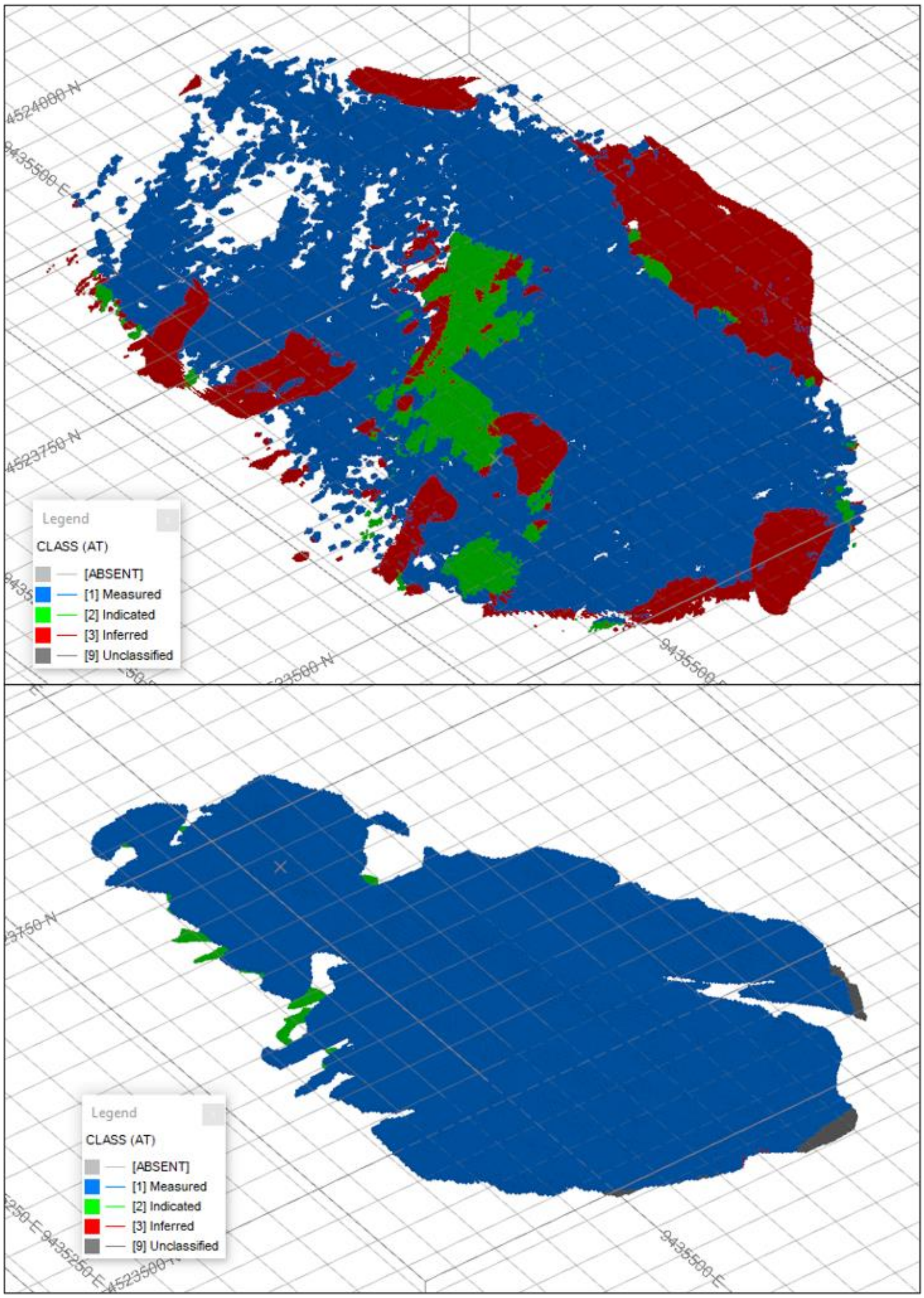


Figure 14-39: 3D view of the classified Resource for the Upper Zone and Overburden (above) and Wall Zone and Basement Mineralisation (below)
Source: CSA Global, 2022

14.13 Mineral Resource Reporting

14.13.1 Results

The MRE for the Ada Tepe Gold Mine is presented in Table 14-16. The Mineral Resources are reported exclusive of Mineral Reserves. The MRE is reported at a cut-off of 0.6 g/t Au for the Upper Zone and 0.8 g/t Au for the Wall Zone which is supported by current mining and mining studies. The Mineral Resource is constrained within the pit optimisation shell and the Mineral Reserve shell.

Table 14-16: Mineral Resource Statement – Ada Tepe Gold Mine

Dundee Precious Metals – Ada Tepe					
Mineral Resources within Resource Shell, excluding Reserves - Depleted					
Ada Tepe MRE as of 31 December 2022 (Total)					
Resource category	**Tonnes (Mt)**	**Au (g/t)**	**Ag (g/t)**	**Metal content**	
				Au (Moz)	**Ag (Moz)**
Measured	0.08	4.27	3.19	0.011	0.008
Indicated	0.02	3.83	2.94	0.002	0.002
Total Measured + Indicated	**0.10**	**4.19**	**3.15**	**0.013**	**0.010**
Inferred	0.01	4.04	2.24	0.001	0.000

Notes to the Mineral Resource statement:

- *Figures have been rounded to reflect this is an estimate.*
- *Measured, Indicated and Inferred Mineral Resources have been reported in accordance with NI 43-101 and the CIM Definition Standards published on May 10, 2014.*
- *Estimates of Measured and Indicated Mineral Resources are reported exclusive of those Mineral Resources modified to produce Mineral Reserves.*
- *The MRE has been prepared by CSA Global who are independent of DPM.*
- *Mineral Resources are based on a gold cut-off grade of 0.6 g/t for the Upper Zone and Overburden and of 0.8 g/t for the Wall Zone and Basement mineralisation calculated using a gold price of US$1,600/oz and are effective as of 31 December 2022.*
- *The Mineral Resource is effective as of 31 December 2022.*
- *Mineral Resources that are not Mineral Reserves have not demonstrated economic viability.*
- *Mineral Reserves and Resources may be subject to legal, political, environmental and other risks and uncertainties.*

14.13.2 Factors that May Affect the Mineral Resource

Mineral Resources are not Mineral Reserves. The Qualified Person is not aware of any environmental, permitting, legal, socio-economic, marketing or political factors that could materially impact the Mineral Resource. The risk attached to other factors identified are summarised in Table 14-17 and the overall risk to the Ada Tepe Mineral Resource is considered low.

Table 14-17: Summary of other relevant factors

Factor	Risk	Comment
Sample collection, preparation and assaying	Low	DPMKr has good procedures and data management practices in place and risk associated with sample collection, preparation and assaying is low.
QAQC	Low	No issues of concern have been identified.
Geological data and mineralisation model	Moderate	Upper Zone mineralisation is complex. Volume estimation through Indicator Kriging has been benchmarked against GC model and reconciliation is currently very good. As production moves out of oxide and into fresh, this must be monitored. The basement hosted mineralisation is irregular in form and shows low levels of grade and geologic continuity. This is not a material risk given this mineralisation type represents an extremely small contribution to the total Mineral Resource inventory above cut-off.
Grade estimate	Moderate	The wireframes have been interpreted with a reporting cut-off in mind. Therefore, any changes to cut-off, either increasing or decreasing may result in different volumes being interpreted.
Tonnage estimate	Low	There are sufficient density measurements from core to assign reliable in-situ dry bulk density to the Mineral Resource. Uncertainty exists in the density of overburden due to the semi-consolidated nature of this material and in voids, where the discount in density assigned is based on in-pit observations rather than quantitative measurements However, the volume of this material is very low and overburden is classified as Inferred Mineral Resources to reflect lower confidence in grade and tonnage estimates.

Factor	Risk	Comment
Mineral Resource upgrading and extension	Low	The Mineral Resource is geologically constrained to the Upper Zone and the Wall Zone. There is very limited mineralisation in the basement zone and low likelihood of Mineral Resource expansion.
Economic factors including mineral processing	Low	Ada Tepe is currently in production. While clay content has had a limited impact plant recovery, the plant is operating to within design criteria, and geometallurgical studies have helped to build a proxy for kaolinite which has been estimated into the block model to aid plant optimisation.
Accuracy of the estimate	Low	While no simulation studies have been undertaken to quantitatively evaluate accuracy at Ada Tepe, the close reconciliation between the Mineral Resource model and GC model via the benchmarking exercise would suggest acceptable levels of accuracy.
Overall rating	**Low**	**The current MRE carries low uncertainty and risk due to the level of close spaced drilling available and production data.**

14.13.3 Comparison with Previous Estimates

A comparison has been made between the current Mineral Resource and the 2020 Mineral Resource, reported in the 2020 NI 43-101. The comparison has been made on Mineral Resources inclusive of Mineral Reserves. For a direct comparison, both the 2020 and 2022 models were depleted to 31 December 2022, thereby comparing the material left to mine only.

Both the 2020 and 2022 MREs were constrained within pit optimisation shells to satisfy RPEEE described in Section 14.12.1. These two pit shells shared different economic parameters whereby the 2020 pit optimisation shell was run at a $1,400/oz gold price and the 2022 shell was run at a $1,600/oz gold price. The effects of the change in gold price and the increased drill density since the 2020 MRE is presented in Table 14-18.

Table 14-18: Comparison between previous estimate, inclusive of Reserves and depleted as of 31 December 2022

Dundee Precious Metals – Ada Tepe Gold Mine						
Depleted comparison between current MRE (2022) and previous MRE (2020) as of 31 December 2022						
Resource category	**Model**	**Tonnes (Mt)**	**Au (g/t)**	**Ag (g/t)**	**Metal content**	
					Au (Moz)	**Ag (Moz)**
Measured	2022 MRE	2.22	5.94	3.54	0.424	0.253
	2020 MRE	1.15	7.01	4.60	0.259	0.170
	% Difference	93%	-15%	-23%	64%	49%
Indicated	2022 MRE	0.02	3.11	3.11	0.002	0.002
	2020 MRE	0.65	4.64	3.25	0.097	0.068
	% Difference	-97%	-33%	-4%	-98%	-97%
Total Measured + Indicated	**2022 MRE**	**2.25**	**5.89**	**3.53**	**0.426**	**0.255**
	2020 MRE	**1.80**	**6.15**	**4.11**	**0.356**	**0.238**
	% Difference	**25%**	**-4%**	**-14%**	**20%**	**7%**
Inferred	2022 MRE	0.02	1.46	1.12	0.001	0.001
	2020 MRE	0.03	2.44	1.79	0.003	0.002
	% Difference	-33%	-40%	-37%	-67%	-50%

Overall, there is an increase in tonnage classified as Measured Mineral Resources (93%), and a corresponding decrease in Indicated Mineral Resources due to the availability of production data and close spaced GC drilling. The grade and tonnage of Inferred Mineral Resources has decreased, and Inferred Mineral Resources now constitute a very small part of the Mineral Resource (when reported inclusive of Mineral Reserves for comparison purposes).

Total metal in Measured Mineral Resources and Indicated Mineral Resources has increased by 20% for 0.426 Moz of gold (70,000 ounces of gold).

Table 14-19 presents the comparison between the 2020 MRE and the 2022 MRE depleted as of 31 December 2022 and inclusive of Mineral Reserves, broken down by material.

Measured and Indicated Mineral Resources for the Upper Zone shows a tonnage increase of 61%, but gold grade has decreased by 3% and silver grade has decreased by 15%. This has led to a 57% increase in contained gold and a 36% increase in contained silver.

Measured and Indicated Mineral Resources for the Wall Zone shows a tonnage increase of 3%, and gold grade has increased by 2% and silver grade has decreased by 8%. This has led to a 4% increase in contained gold and a 5% decrease in contained silver.

All changes are supported by 5 m x 5 m production data and benchmarking of the Mineral Resource model against the GC model to better predict tonnes and grades moving forward.

Table 14-19: Comparison between previous estimate, inclusive of Reserves and depleted as of 31 December 2022, broken down by material

Dundee Precious Metals – Ada Tepe Gold Mine							
Comparison between current MRE (2022) and previous MRE (2020) depleted as of 31 December 2022							
Material	**Resource category**	**Model**	**Tonnes (Mt)**	**Au (g/t)**	**Ag (g/t)**	**Metal content**	
						Au (Moz)	**Ag (Moz)**
Upper Zone and overburden (cut-off 0.6 g/t Au)	Measured	2022 MRE	1.11	4.53	2.76	0.162	0.098
		2020 MRE	0.04	4.83	3.03	0.006	0.004
		% Difference	2675%	-6%	-9%	2600%	2350%
	Indicated	2022 MRE	0.00	4.35	4.11	0	0
		2020 MRE	0.65	4.64	3.26	0.097	0.068
		% Difference	-100%	-6%	26%	-100%	-100%
	Total Measured + Indicated	**2022 MRE**	**1.11**	**4.53**	**2.76**	**0.162**	**0.098**
		2020 MRE	**0.69**	**4.65**	**3.25**	**0.103**	**0.072**
		% Difference	**61%**	**-3%**	**-15%**	**57%**	**36%**
	Inferred	2022 MRE	0.02	1.46	1.12	0.001	0.001
		2020 MRE	0.03	2.44	1.79	0.003	0.002
		% Difference	-33%	-40%	-37%	-67%	-50%
Wall Zone and basement (cut-off 0.8 g/t Au)	Measured	2022 MRE	1.11	7.33	4.33	0.262	0.155
		2020 MRE	1.11	7.1	4.67	0.253	0.166
		% Difference	0%	3%	-7%	4%	-7%
	Indicated	2022 MRE	0.02	2.49	2.11	0.002	0.002
		2020 MRE	0	1.69	1.38	0	0
		% Difference	0	47%	53%	0	0
	Total Measured + Indicated	**2022 MRE**	**1.14**	**7.23**	**4.28**	**0.264**	**0.157**
		2020 MRE	**1.11**	**7.09**	**4.66**	**0.253**	**0.166**
		% Difference	**3%**	**2%**	**-8%**	**4%**	**-5%**
	Inferred	2022 MRE	0.00	0	0	0	0
		2020 MRE	0	17.98	7.55	0	0
		% Difference	-	-	-	-	-

14.14 F0a Reconciliation – 2020 and 2022 MRE vs Grade Control Model

The performance of the 2022 MRE was evaluated against the Grade Control (GC) model by running a reconciliation of the 2021 mining using the 2022 MRE against the current GC model (F0a).

Both the 2020 and 2022 MREs were estimated using wireframes and indicator estimated volumes and Ordinary Kriging. The workflow used to estimate the MRE and GC models are closely aligned. There is a close alignment of the 2022 MRE with the GC model in terms of tonnes, grade and contained metal mined in 2021. Figure 14-40 and Figure 14-41 show the reconciliation of the 2020 and 2022 MREs against the GC model.

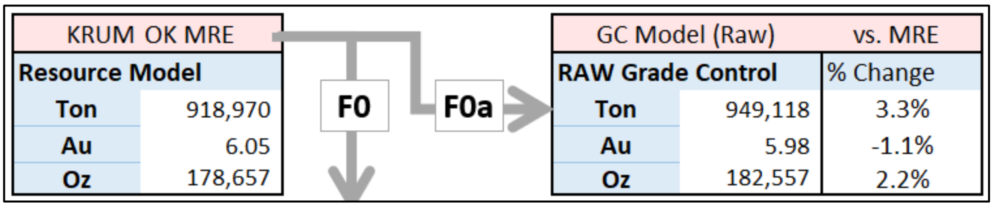


Figure 14-40: 2020 MRE vs GC model, restricted to 2021 mining

Source: CSA Global, 2022

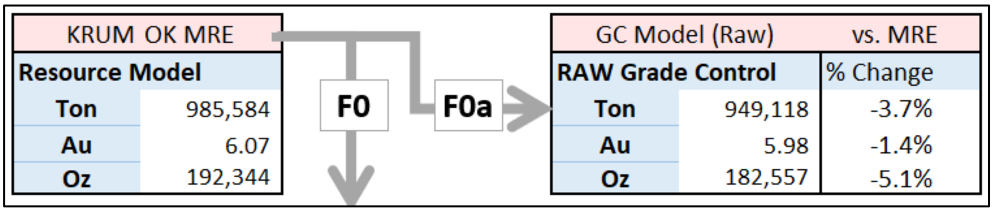


Figure 14-41: 2022 MRE vs GC model, restricted to 2021 mining

Source: CSA Global, 2022

The results indicate reconciliations continue to sit within 5% on a metal basis. The 2022 MRE gold grade is with 1.4% of the GC model. The estimation of tonnes shows the largest change between the 2020 and 2022 MRE against the GC model. The 2022 MRE now over reports tonnes against the GC model by 3.7% compared to under reporting by 3.3% in the 2020 MRE. The 2022 MRE reconciles well against the GC model and therefore continues to accurately estimate in terms of tonnes and grade. This is particularly important at Ade-Tepe considering the need for accurate tonnage predictions for short- to medium-term mine planning.

15 Mineral Reserve Estimates

The Mineral Reserves for Ada Tepe have been reported using the CIM Estimation of Mineral Resources & Mineral Reserves Best Practice Guidelines, (2019). The Mineral Reserves are exclusive of the Mineral Resources as stated in Section 14.

A Mineral Reserve is an estimate of the economically mineable part of a Measured and/or Indicated Mineral Resource. It includes diluting materials and allowances for losses, which may occur when the material is mined.

The mining method applied at Ada Tepe is a conventional open cut, drill, blast, load and haul operation. Primary excavation uses hydraulic excavators loading to 40-tonne class off-highway haul trucks. The mining equipment is owner operated and maintained under a contract with the equipment supplier.

15.1 Mining Model Preparation

Two block models were produced by CSA Global and were provided in Datamine™ software format. The first block model was the MRE block model with block dimensions of 2.5 m x 2.5 m x 2.5 m (X x Y x Z) with the smallest sub-cell size of 0.5 m for the purpose of providing appropriate definition of the topographic surface, geological and mineralisation zone boundaries (discussed in detail in Section 14). The second model uses the base MRE model and utilises the Datamine™ Mineable Shape Optimiser ("MSO") to produce a diluted block model, that accounts for operational mine dilution and expected level of selectivity and is suitable for open pit optimisation. The key inputs to the MSO process are mining flitch height of 2.5 m, preferred mining direction of east-west, ROM and stockpile gold cut-off grades (0.6, 0.8, 1.0 and 2.5), minimum practical mining width (perpendicular to the mining direction of 3 m and parallel 5 m). The parameters selected are supported by reconciled performance.

The MSO model was imported into Geovia™ Surpac software where geotechnical sectors and economic parameters were integrated into the block model. Verification by comparison of the total tonnage and grades was performed to ensure that the Geovia™ Surpac block model was loaded identically to the original Datamine MSO model.

Once the mining parameters were added to the block model, the Geovia Surpac block model was exported to Geovia Whittle™ software format for pit optimisation.

15.2 Pit Optimisation

A pit optimisation exercise was undertaken by DPM using Geovia Whittle™ software. A series of pit shells were created by varying the gold price factor to the base price in steps of $50/oz and optimising discounted cash flow using the Lerchs-Grossmann ("LG") pit optimisation algorithm. A discount rate of 5% and a 0.85 Mtpa processing throughput limit was applied. Only Measured and Indicated classified Mineral Resources have been considered as ore in the pit optimisation. Inferred Mineral Resources have been considered as waste rock.

The pit wall angles were set at the inter-ramp angle ("IRA"). No allowances for haulage ramps are required in the pit walls as pit access is along the footwall, which follows the orebody and is shallower than the associated IRA. The nested pit shells generated with various revenue factors were analysed on total and incremental present value basis to aid decision making in determining the optimal pit shell to be utilised as a guide to ultimate pit design.

The input parameters for the pit optimisation are summarised in Table 15-1.

A reference mining cost of $2.32/t was used in Whittle and a mining cost adjustment factor, incrementing with depth using a reference elevation (400 mRL) was set at $0.01/t/m.

Processing costs are dependent on ore type. The cost for processing is a combination of the following:

- Labour cost.
- Consumables cost.
- Reagents cost.
- Power cost.
- Maintenance cost.
- Services cost:
  - Total Upper Zone process cost: $22.82/t milled
  - Total Wall Zone process cost: $25.24/t milled.

The slope design parameters are outlined in Table 15-2 and reflect the various geotechnical slope domains and IRAs. No allowances have been included for haulage ramps as pit access is along the footwall, which is expected to follow the orebody and be shallower than the maximum IRAs.

Table 15-1: Pit optimisation parameters

Parameters	Units	Input
Macro		
Discount rate	%	5
Capacity constraints		
Milling	ktpa	850
Mining	ktpa	3,200
Metal price		
Metal price Au	US$/oz	1,400
Selling costs		
Concentrate grade	g/t Au	600
Off-site concentrate costs (Treatment and penalty charges)	US$/dmt conc.	220
Au Refining cost	US$/oz	7.5
Freight and other costs	US$/dmt conc.	77
Au payable deduction	%	2.25
Moisture penalty	US$/dmt conc.	45
Royalty	%	4
Mining costs		
Reference mining cost	US$/t	2.32
Incremental mining cost	US$/t/m	0.01
Reference elevation	mRL	400
Processing costs		
Wall Zone	US$/t ore	25.24
Upper Zone	US$/t ore	22.82
Other costs		
General and administrative	US$/t ore	11.75
IMWF	US$/t ore	7.73
Processing recovery		
Au	%	85
Cut-off – marginal		
Wall Zone	g/t Au	1.27
Upper Zone	g/t Au	1.20
Cut-off – Bulgarian		
Wall Zone	g/t Au	0.80
Upper Zone	g/t Au	0.60

15.3 Cut-Off Grades

The input parameters for the calculation of an economic marginal cut-off are set out in Table 15-1. The estimated economic marginal cut-offs for the Upper zone and Wall zone material types are 1.20 and 1.27 g/t respectively.

For statement of Mineral Reserves and the economic plan included in Section 22, the cut-off grade was lowered from the calculated economic marginal cut-off to follow the Bulgarian state mandated cut-off grades (0.8 g/t Au and 0.6 g/t Au cut-off for the Wall and Upper Zones respectively).

15.4 Geotechnical Pit Slope Parameters

The Ada Tepe pit is mined as multiple phases in a series of pushbacks from the current mining face position expanding towards the north. The geotechnical slope criteria are based on a technical memorandum by Golder Associates UK (Golder, 2014).

Golder geotechnical slope stability analysis assessed critical sections throughout the pit to determine a factor of safety ("FOS") both on an overall slope and bench scale. The conclusion of the slope stability analysis was that slopes cut in historical mine waste in the eastern wall failed to meet the minimum design acceptance criteria of a FOS of 1.3. Following assessment of the materials and potential stable geometries, the design recommendations listed in Table 15-2 were made for areas of the pit cut in weak material to provide an acceptance FOS.

Additionally, it was found that slopes cut in fresh conglomerate material returned safety factors which exceeded the design criteria (with FOS values typically being >2.0) and as such, slope geometries were provided with a view to increasing the overall slope angle.

The design recommendations that were made following completion of the analysis are in Table 15-2, with design zones identified in (Figure 15-1).

Table 15-2: Slope design guidelines – final walls

Sector	Slope section	IRA (°)	Bench height (m)	Bench face angle (°)	Berm width (m)
1 – Yellow	Lower	46	15	65	7.5
	Upper (Blue)	27	15	35	7.5
2 – Green	Lower	49	15	70	7.5
	Upper (Blue)	27	15	35	7.5
3 – Red	N/A	49	15	70	7.5

Source: Golder, 2014

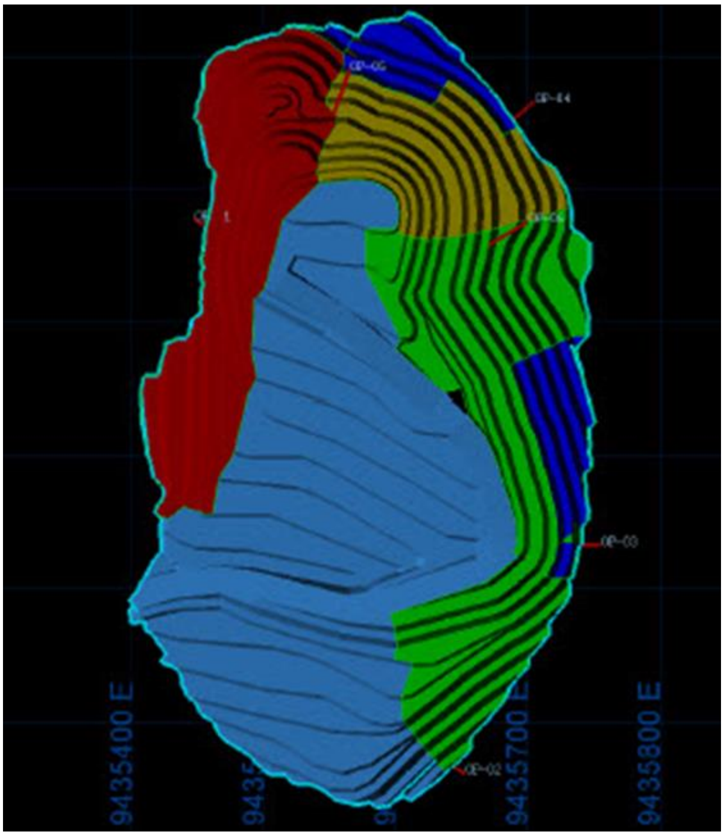


Figure 15-1: Geotechnical zones at Ada Tepe

Areas depicted in dark blue indicate areas that Golder identified as having low FOS.
Source: Golder, 2014

The interim phased pit designs slope parameters are summarised in Table 15-3. The design criteria for these interim walls was based on the existing pit design configurations.

The ultimate pit design follows Golder's criteria as shown in Table 15-1 (above), while the pushback designs follow the interim wall slope design guidelines (Table 15-2, below).

Table 15-3: Slope design guidelines – interim walls

Zone	IRA (°)	Bench height (m)	Bench face angle (°)	Berm width (m)
Weathered	40	10	60	6
Fresh	43	10	65	5

Source: DPM, 2020

15.5 Optimisation Results

The pit optimisation provides a series of nested pit shells by factoring input revenue estimates. The nested pit shells generated with various revenue factors are analysed on a present value and incremental basis to determine the optimal pit shell to be utilised as a guide to ultimate pit design. Smaller nested pit shells are also useful as a guide to stage or phase the pit design.

The pit optimisation results were used to guide the ultimate pit design and pit limits. The pit optimisation analysis is based on a gold price of U$1,400/oz and results are illustrated in Figure 15-2. A start price of $400/oz and a step of $50/oz were used to generate 33 nested pit shells. Ore material is above the marginal cut-off grade, whilst low-grade material is between the Bulgarian and marginal cut-off grades.

Though the result of the optimisations shows no significant change in pit value from 20 to 32, the revenue factor 1.14 Pit (or $1,600/oz – Pit shell 25) was selected as the optimal pit to guide the engineering pit design since one of the main objectives for the study is to maximise Mineral Resource utilisation. Figure 15-2 illustrates the results of the pit optimisations.

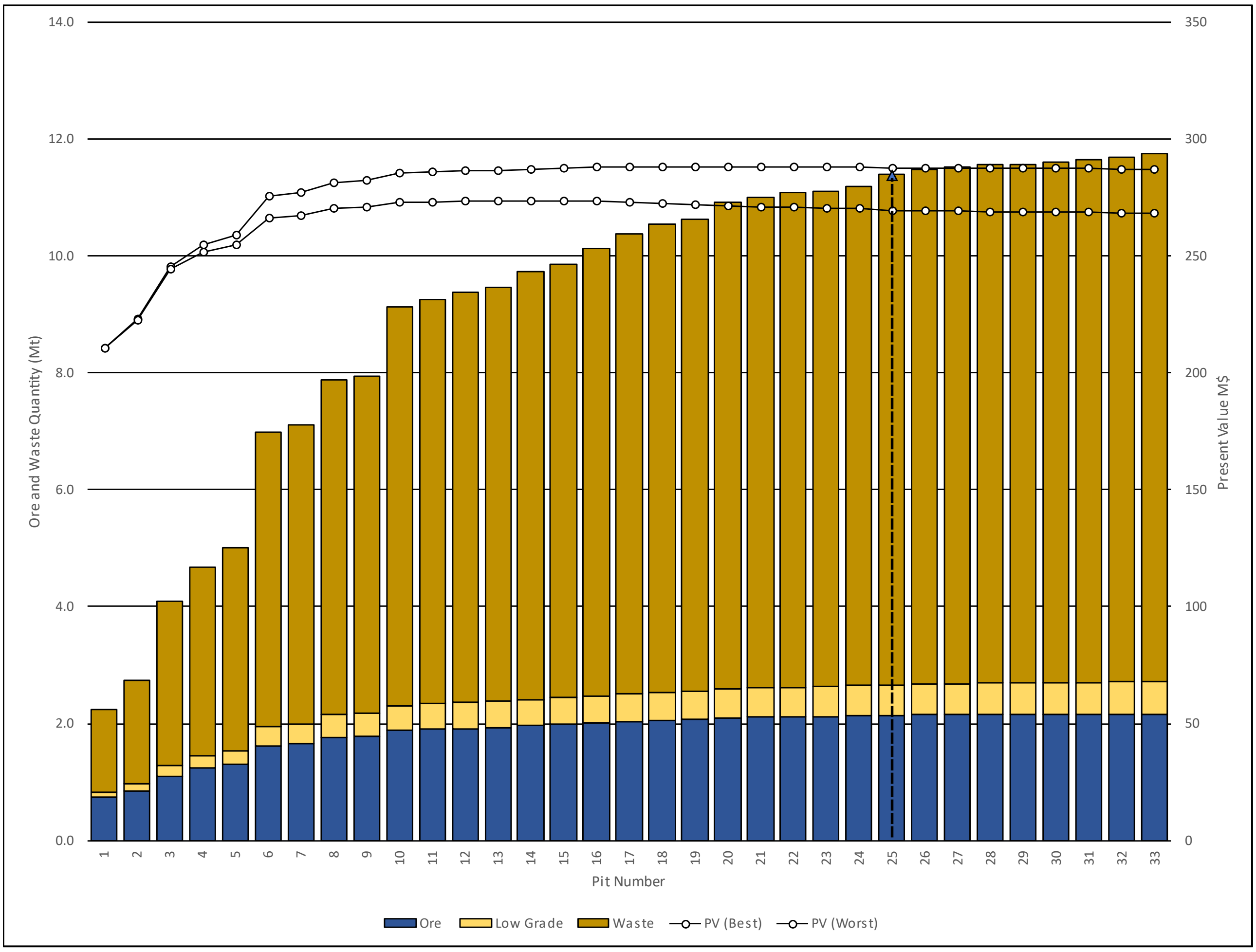


Figure 15-2: Open pit optimisation results
Source: DPM, 2022

The pit optimisation costs were based on 2022 actual costs. These costs are on average 40% below those presented in for the economic model presented in Sections 0 and 0. The metal price in the optimisation is also 25% below that used in Section 0. The economic model has added inflationary costs and further escalation to represent most recent views of impacts of the ongoing war in Ukraine as it has impact to Ada Tepe.

As reported in Section 0, Ada Tepe is 2.5 times more sensitive to metal price than cost. A 40% cost increase is equally balanced by a 16% price increase (for delivering an equal NPV). In terms of selection of the optimal pit shell, the cost and price balance as presented in Section 0 is within 7% of the price selection for the base case shell. Also it is important to note that the final design shell was selected as the 1.14 revenue factor (14% above the Mineral Reserve metal price). The higher price and cost regimen presented in Section 0 is well balanced to the selection of the pit shell for design and Mineral Reserve estimation.

15.6 Pit Design

The selected economic pit shell 25 (effectively $1,600/oz) was used to drive the pit design work. The pit design was checked against the Whittle shells to ensure they match reasonably well. The difference between the design and the guiding pit shell is minimal with less than 3% loss in ore and less than 1% change in total tonnage. This is considered good volumetric compliance. The total net cash flow of the design was 2% less than the optimised pit shell and again is considered good compliance.

The operating pit design parameters are listed in Table 15-4. Road and ramp parameters have been designed for Caterpillar (“CAT”) 770G rigid trucks and CAT 745C articulated dump trucks which are currently used on site. The final five benches of phase 4 have a reduction in access width to a single lane where productivity is not a constraint to the design process.

Table 15-4: Pit design parameters

Parameter	Units	Value
Haulage width	m	20
Maximum in-pit ramp gradient	%	10
Minimum mining width	m	25
Pushback width	m	150

The ultimate pit design (or also termed phase 4) is illustrated in Figure 15-3. Pit development was scheduled with four phases. Each phase design incorporates features of any previous phases for access or berm integrations. The initial phase 1 has been completed and is no longer relevant to scheduling or Reserve estimation. Phase 2 is shown as Figure 15-4 and Phase 3 as Figure 15-5.

The ultimate pit design is approximately 350 m in width and 580 m in length at its widest points and 125 m in depth.

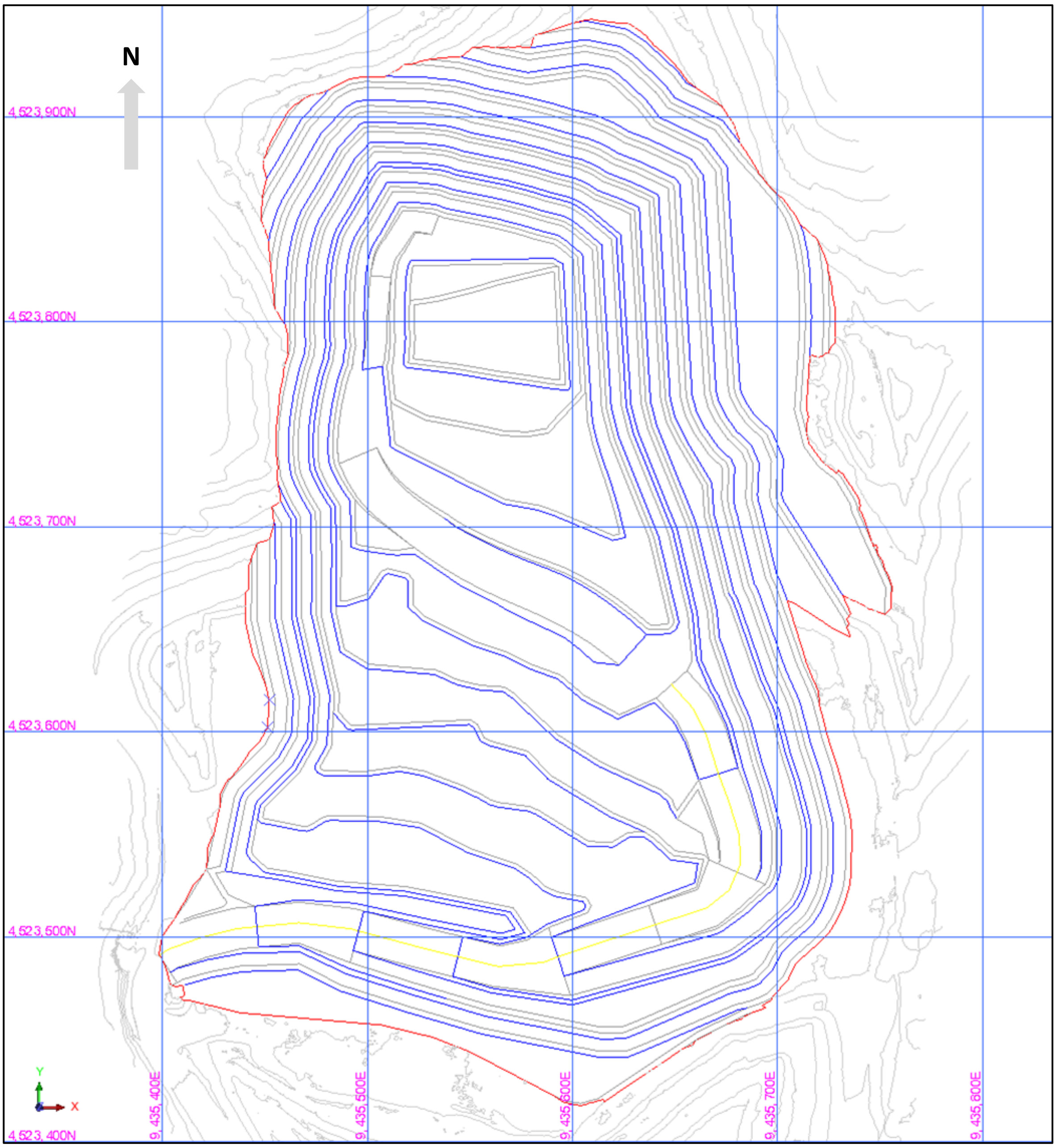


Figure 15-3: Open pit design – ultimate pit
Source: DPM, 2022

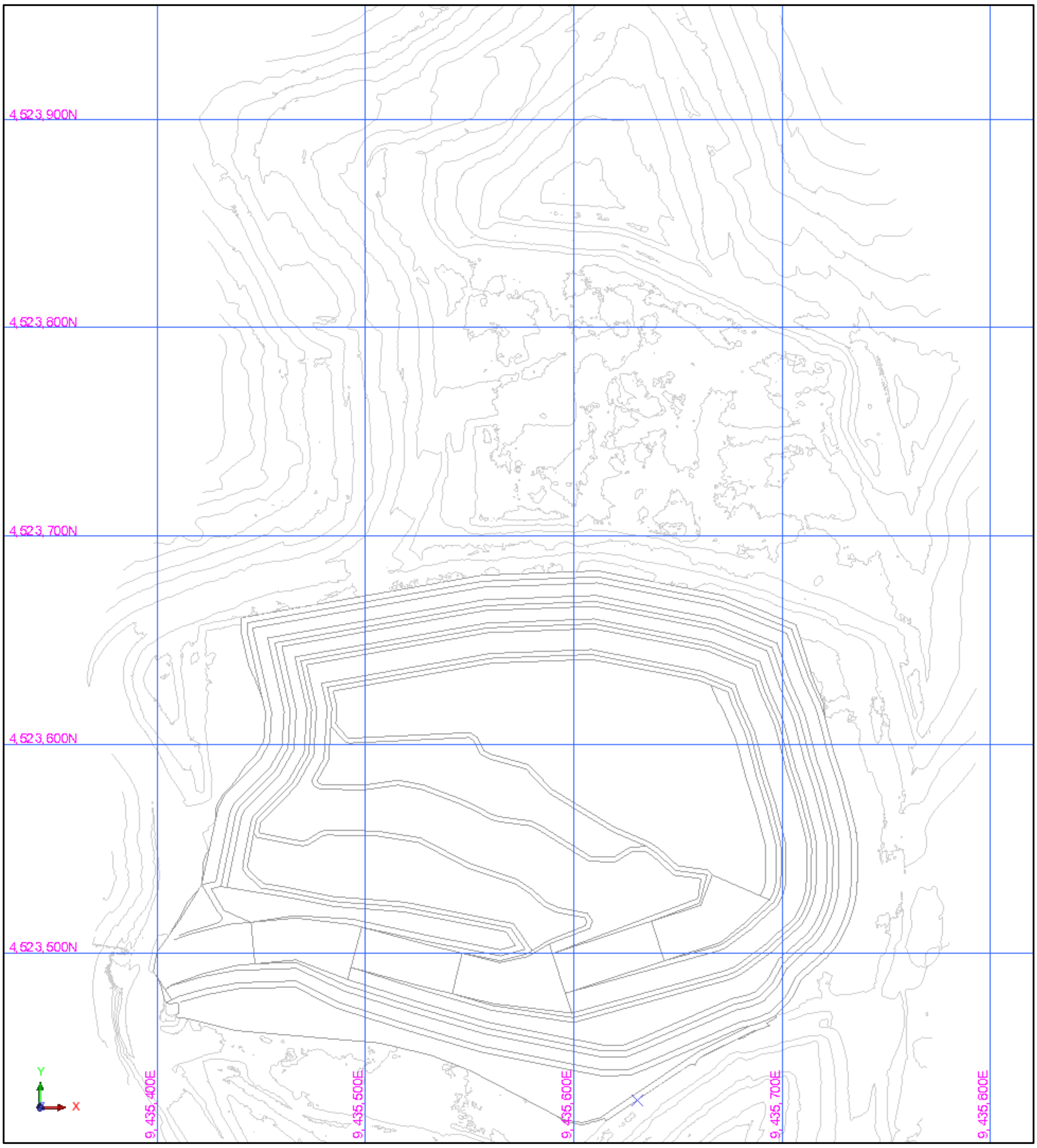


Figure 15-4: Open pit design – phase 2
Source: DPM, 2022

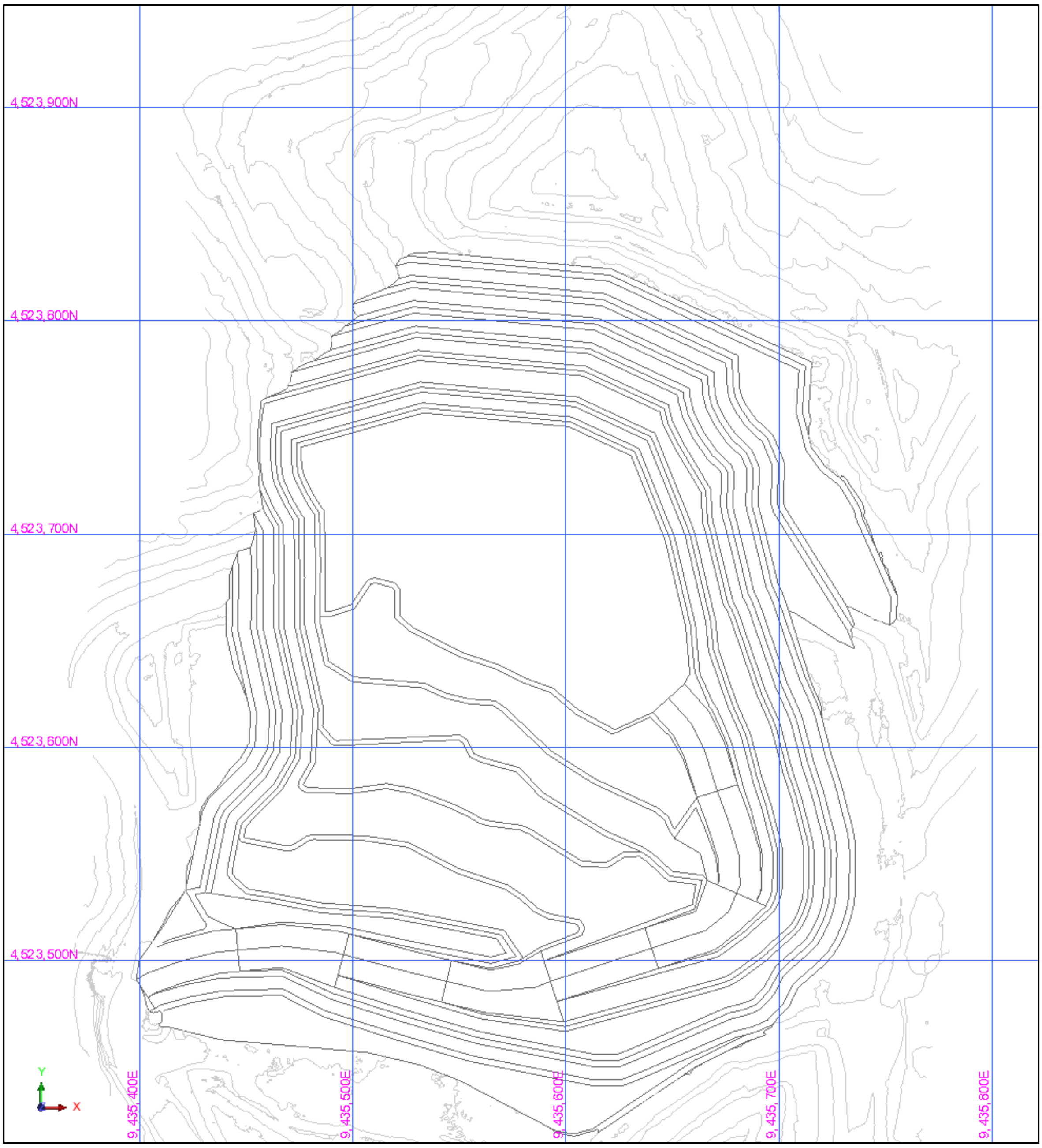


Figure 15-5: Open pit design – phase 3
Source: DPM, 2022

15.7 Mineral Reserves

The Ada Tepe mine supports an economic open pit mining operation. The entire mine design falls within a volume of material that is completely informed by grade control information and includes reconciliation to tonnages and grades delivered to the plant and plant recovery. The Mineral Reserve estimate is entirely based on the Measured category of the Mineral Resource contained within the pit design as no Indicated Resource material falls within the pit volume. The Mineral Reserve estimate has considered all modifying factors appropriate to the Ada Tepe mine. The modifying factors include reconciled mine and plant performance giving the strongest support for expected outcomes for these items.

The pit optimisation and design data were verified at each step. Although projected costs are above those used in optimisation, so too are projected metal prices. The net impact of cost and price increases over the pit optimisation base values counteract each other such that the basis of the pit design is appropriately selected to this outcome. Geotechnical performance is supported by actual data to date although some aspects of geotechnical performance require full pit development to be certain.

The reference point at which the Mineral Reserves are defined is where the ore is delivered to the processing plant primary crusher.

Table 15-5: Ada Tepe Mineral Reserves estimate (effective as of 31 December 2022)

Category	Tonnes (Mt)	Grade (g/t)		Metal content (Moz)	
		Au	Ag	Au	Ag
Proven					
Upper Zone	1.13	4.20	2.56	0.153	0.093
Wall Zone	1.15	6.82	4.02	0.252	0.149
Stockpile	0.21	1.49	1.32	0.010	0.009
Subtotal – Proven	**2.49**	**5.19**	**3.13**	**0.415**	**0.250**
Probable	-	-	-	-	-
PROVEN AND PROBABLE					
Upper Zone	1.13	4.20	2.56	0.153	0.093
Wall Zone	1.15	6.82	4.02	0.252	0.149
Stockpile	0.21	1.49	1.32	0.010	0.009
TOTAL	**2.49**	**5.19**	**3.13**	**0.415**	**0.250**

Footnotes:

- *Mineral Reserves have been estimated using a gold cut-off of 0.6 g/t for the Upper Zone, and 0.8 g/t for the Wall Zone.*
- *Long-term metal prices assumed for the pit optimisation were US$1,400/oz for gold and US$20/oz for silver. The optimised pit was selected based on a revenue factor of 1.14.*
- *Mineral Reserves include mining depletion as of 31 December 2022.*
- *Proven ore includes stockpile inventory as of 31 December 2022.*
- *Sum of individual values may not equal due to rounding.*

No Inferred Mineral Resources are included in the Mineral Reserves. Inferred Mineral Resources do not contribute to the financial performance of the mine and are treated in the same way as waste.

The Mineral Reserves at Ada Tepe have been estimated by including a number of technical, economic and other factors as outlined in the above text. A change to any of the inputs would have some effect on the overall results although for appropriate sensitivity ranges for all modifying factors that affect economic outcomes none were determined to have material impact. Sensitivity of economic performance is included in Section 0. An important consideration for Ada Tepe is the existence of multiple years of reconciled performance on metallurgy, delivered tonnages and grade, along with all material being defined with GC drilling for the life of the Mineral Reserve. The high grade of the Wall Zone and its defined extent creates a robust scenario for pit optimisation and design. It is concluded that the modifying factors used to define the Mineral Reserve support allocation of a Proven Reserve category.

LOM proof of geotechnical performance is difficult to ascertain as current pit walls are not of extensive vertical height, but so far all indications are of expected performance.

16 Mining Methods

16.1 Mining Methods and Equipment

The mine planning and Mineral Reserve estimation process principally comprises of pit optimisation, mine design, and mine scheduling.

The mining methods used at the Ada Tepe pit are conventional excavator and truck methods typical for this type and style of gold-silver mineralisation. Drilling and blasting of ore and waste is conducted over bench heights of 5 m and explosives are delivered to the hole by the drill and blast contractor. Hydraulic excavators are used to achieve good selectivity in conjunction with good blasting practice and mine to a 2.5 m flitch height. Ore and waste are generally loaded to 40-tonne capacity off-highway haul trucks to a ROM stockpile or to the IMWF.

3D high precision global positioning system ("3D HPGPS") guidance is installed on the mining excavators and dozers. This allows high precision excavation at the ore waste boundaries and improved floor control.

A blast movement monitoring system has been implemented since the first ore blast in July 2018 to date. The geology and survey team continue to monitor all blasts with blast movement monitoring to ensure ore loss, dilution and misclassification are minimised. A summary of the equipment in use at Ada Tepe is tabulated below in Table 16-1.

Table 16-1: Ada Tepe mining equipment as of 31 December 2022

Item	Model	Units
Excavator	CAT 352 F	3
Excavator (IMWF)	CAT 336 F	2
Rigid Truck	CAT 770 G	4
Articulated Truck	CAT 745 C	7
FEL	CAT 988 K	1
Bulldozer	CAT D8 T(*2)/D6 T	3
Grader	CAT 120M2	1
IT (tool carrier)	CAT 938 K	1
Drill Rig[1]	Furukawa HCR1200	2

[1] Contractor owned drill rig.

All the production fleet is principally sourced from Caterpillar. In addition to the main equipment units there are support equipment including graders, water trucks, lighting towers and mobile maintenance service units. Mining operations are conducted in two 8.0-hour shifts per day. The mining production rate is about 3.2 Mtpa total material.

16.2 Production Scheduling

The LOM plan mill feed tonnage and grade estimates are based only on Measured Mineral Resources (the current model includes no Indicated material as the entire model is informed with grade control spaced data and reconciliation has proven highest confidence applies to the estimate). Inferred Resources are included in the waste rock quantities. The LOM production schedule is constrained by excavator capacity (500 tph) with additional constraints summarised in Table 16.3 on an annual basis. The key objective for the schedule is to meet the mill feed target while utilising the available excavator loading capacity. Stockpiling of lower-grade ore is used to bring forward high grade mill feed.

Table 16-2: Mine planning constraints

Planning parameters	Units	2023	2024	2025	2026
CAT 352F					
Fleet size	#	2	2	2	2
Weekdays	days	260	262	261	261
Weekends	days	105	104	104	104
Hours per day	hours	16	16	16	16
Available hours	hours	4160	4192	4176	4176
Availability	%	90%	90%	90%	90%
Utilisation	%	85%	85%	85%	85%
Work hours	hours	3,182	3,207	3,195	3,195
Productivity	tph	500	500	500	500
Loading capacity	**Mt**	**3.2**	**3.2**	**3.2**	**3.2**

The production schedule is down in Table 16-3. The schedule is shown from January 2023, with Phase 2 mined first, followed by Phase 3 and Phase 4. The mine life is four years.

Table 16-3: Production schedule summary – annual

LOM Plan	Units	2023	2024	2025	2026
MINE					
Wall Zone	**kt**	**469**	**275**	**247**	**160**
Au	g/t	9.16	5.59	5.10	4.73
Ag	g/t	4.92	3.66	3.23	3.23
Metal – Au	kg	4,293	1,537	1,259	754
Metal – Ag	kg	2,304	1,005	797	516
Upper Zone	**kt**	**293**	**260**	**278**	**302**
Au	g/t	3.22	5.99	4.60	3.25
Ag	g/t	2.10	2.91	2.59	2.67
Metal – Au	kg	945	1,557	1,279	979
Metal – Ag	kg	615	757	719	804
Total mined ore	**kt**	**762**	**535**	**525**	**461**
Au	g/t	6.88	5.79	4.84	3.76
Ag	g/t	3.83	3.30	2.89	2.86
Metal – Au	kg	5,238	3,095	2,538	1,733
Metal – Ag	kg	2,920	1,762	1,515	1,320
Milled ore	**kt**	**767**	**614**	**524**	**584**
Au	g/t	6.28	5.52	5.18	3.41
Ag	g/t	3.52	3.21	3.03	2.63
Metal – Au	kg	4,820	3,388	2,713	1,991
Metal – Ag	kg	2,698	1,970	1,587	1,533
Gold-silver concentrate produced	**dmt**	**6,962**	**4,939**	**3,975**	**2,813**
Au recovery	%	86.66	87.48	87.90	84.74
Ag recovery	%	64.76	62.41	61.64	52.27
Metal – Au	kg	4,177	2,964	2,385	1,688
Metal – Ag	kg	1,748	1,230	978	801
Au	g/t	600	600	600	600
Ag	g/t	251	249	246	285
METALS					
Recovered Gold (troy oz)	**koz**	**134**	**95**	**77**	**54**
Recovered Silver (troy oz)	**koz**	**56**	**40**	**31**	**26**

LOM Plan	Units	2023	2024	2025	2026
Waste mined (t)	kt	2,443	2,533	2,692	1,067
Total material (t)	kt	3,205	3,068	3,217	1,528
Strip ratio (t:t)	t:t	3.21	4.74	5.13	2.31

The pit progress maps are illustrated below, between Figure 16-1.

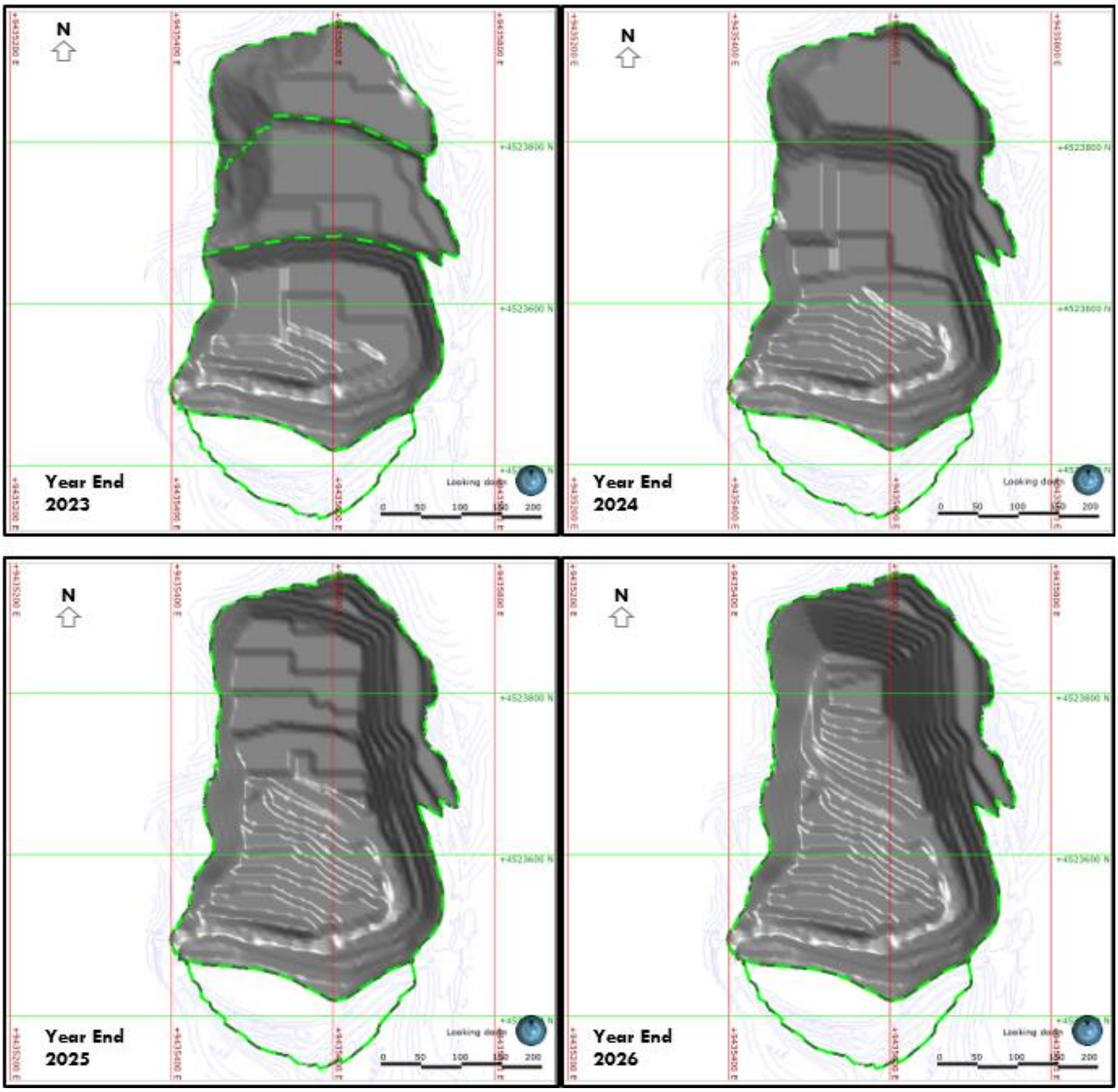


Figure 16-1: Annual period progress maps YE 2023 to YE 2026 (isometric view)

Source: DPM, 2022

16.3 Hydrological Considerations

The pit is situated on a ridgeline with no aquifers encountered and in relation to precipitation is mostly free draining during its life. Water loading has been reviewed and considered in geotechnical designs of pit walls. In-pit pumping removes entrained rainfall and snowmelt if required.

16.4 Geotechnical Considerations and Mine Design

Geotechnical considerations in mine design and images are included in Section 15.

17 Recovery Methods

17.1 Recovery Methods and Process Design - Introduction

The 2012 mining study project described a mine and process facility with design treatment rates of nominal 0.85 Mtpa and 1.1 Mtpa. The process flowsheet incorporated a relatively fine (P_{80} of 30 µm) primary grind size, recovery of the precious metals by flotation, and the tailings being thickened and co-deposited with the mining waste in an IMWF. No changes were made to the original concepts; however, the base assumptions for each of different components were interrogated to ensure the optimum production throughout the life of the operation.

The mine plan was optimised to advance the processing of the wall ore (the highest-grade material, but also the hardest) as much as practicable (Section 16). An iterative series of plant trade-off studies based on this occurred throughout the design optimisation phase in 2012 between DPM's project consultants, AMEC Engineers, and the owner's team. The outcome formed the basis for the final design (Macromet, Process Design Review, April 2013), and this sought to minimise the equipment requirements while maximising the production profile throughout the life of the operation. All aspects of the project were considered in this process which has enabled the plant equipment and overall infrastructure requirements to be optimised. From the engineering perspective, the requirement to achieve the relatively fine primary grind from the relatively hard ore types present presented several challenges and were the subject of considerable study during the design phase.

17.2 General Design Basis

The Ada Tepe process plant and associated service facilities handles ROM ore from the mine and produces a gold-silver bearing concentrate for shipment to a smelter. The process encompasses crushing and grinding of the ROM ore, followed by froth flotation to produce a gold-silver bearing concentrate. Tailings are thickened to a sufficient density to enable deposition in the IMWF.

The process plant design is based on a metallurgical flowsheet with unit operations that are well proven in mineral processing operations worldwide. The key criteria for equipment selection have been the suitability for duty, reliability, and ease of maintenance. The plant layout provides ease of access to all equipment for operating and maintenance requirements while maintaining a compact footprint.

The key project and ore-specific criteria for the plant design are:

- Treatment of a maximum of 0.85 Mtpa of ore for each year of operation.
- Operation of the crushing plant on a 12 hours per day basis; mill operations on a 24 hours per day basis. Surge capacity is provided in a 3,000-tonne capacity silo located between the circuits.
- Design plant availability of 91.3% with standby equipment in critical areas.
- Sufficiently automated plant control to minimise the need for operator interface on a continuous basis but allow manual override and control if required.

17.2.1 Design Criteria Summary

The important design parameters used as the basis of the plant unit processes are summarised in Table 17-1 (Ref. Process Criteria Document – KGP100-2000-1100-DSC-0001).

Table 17-1: Ada Tepe – process design criteria

Criteria		Units	General	
Ore throughput	Maximum annual	tpa	850,000	
Design recovery (range)	Master composite basis	Au %	85.0 (83.5 - 88.7)	
		Ag %	70.0 (54.6 - 77.8)	
Primary grinding	Grind size, P_{80}	µm	30	
Flotation circuit – stages	Rougher/Scavenger	stages	8	
	First cleaner, cleaner scavenger	stages	9	
	Second cleaner	stages	4	
Concentrate regrind	Grind size, P_{80}	µm	15	
Final concentrate	Design	g/t	380	
	Expected	g/t	440	
			Upper Zone	**Wall Zone**
LOM Tonnage*		t	4,611,315	1,593,000
Plant availability	Design	%	91.3	
	Nominal throughput	tph	105	90
Design feed grades	Gold	g/t	3.7	6.7
	Silver	g/t	2.1	3.5
Physical characteristics	Impact Work Index	kWh/t	12.5	16.1
	Rod Mill Work Index	kWh/t	16.1	22.8
	Ball Mill Work Index	kWh/t	17.0	20.0
	SAG Power Index (range)	minutes	45–96	76–149
JKMRC functions	A and b		49.5 and 1.24	83.5 and 0.35
	Average UCS	MPa	29	117
	Abrasion Index	g	0.28	0.60
Tailings thickening	Thickener flux	$t/m^2.h$	0.641	
	U/F, design solids density	%w/w	56	
	Maximum measured	%w/w	68	

**LOM tonnage as of 21 March 2014.*

17.3 Circuit/Mechanical Equipment Selection

17.3.1 Grinding Circuit

The original comminution circuit design was based upon a conventional SAG/Ball Mill circuit ("SABC"), with a third stage of grinding incorporating a vertical stirred mill – selected to take advantage of the more efficient energy utilisation these types of mills offer compared to conventional ball mill inefficiencies at the finer end of the grind size range.

Several trade-off studies were carried out investigating alternative comminution circuit options. Final selection was a single stage SAG mill in closed circuit with cyclones producing a product P_{80} of 125 µm, followed by two stirred mills operating in parallel. The combination of a conventional SAG and ball mill proved to be the most cost effective (both capital and operating) circuit. Single-stage primary mills are not unusual in this application; however, the successful performance of the single-stage SAG mill at DPM's Chelopech operation generated a high level of confidence in the approach (Jobson et al., 2012).

The actual plant throughput is dictated by the percentage of the Wall Zone mineralisation in the ROM ore feed treated in any one year.

17.3.2 Flotation Circuit

The 2012 mining study design incorporated the flowsheet developed from the extensive test program completed at SGS and the subsequent FLEET circuit modelling program. This specified the equipment required to achieve the predicted metal recovery for the two throughput options being considered for the project at that time. The first iteration of the plant design undertaken in 2012 incorporated the mining study conventional tank cell design for the flotation circuit, which was the base case for the first round of capital cost analysis. One of the subsequent trade-off studies included a layout comparison of the conventional mechanically agitated tank cells to that of a new style of flotation cells marketed by Woodgrove Technologies known as the Staged Flotation Reactor ("SFR").

In parallel to the Ade Tepe testwork program, DPM incorporated a production size unit of an SFR into the current Chelopech cleaner circuit in mid-2012. This offers some significant advantages over conventional "tank" cell designs, including reduced floor area requirement, reduced circuit operating costs (power and air demand), together with some process advantages in most applications (Woodgrove Technologies, February 2013).

Because of overall site layout restrictions, space in the plant area was at a premium. With the study outcomes having confirmed some of the advantages claimed and, of particular importance to the project, the potential reduction in floor area (approximately 30% of the original flotation circuit footprint), DPM elected to continue with the SFR approach, and these units have been incorporated in the final design.

17.4 Process Plant

17.4.1 Process Flowsheet

The overall process flowsheet is illustrated in Figure 17-1.

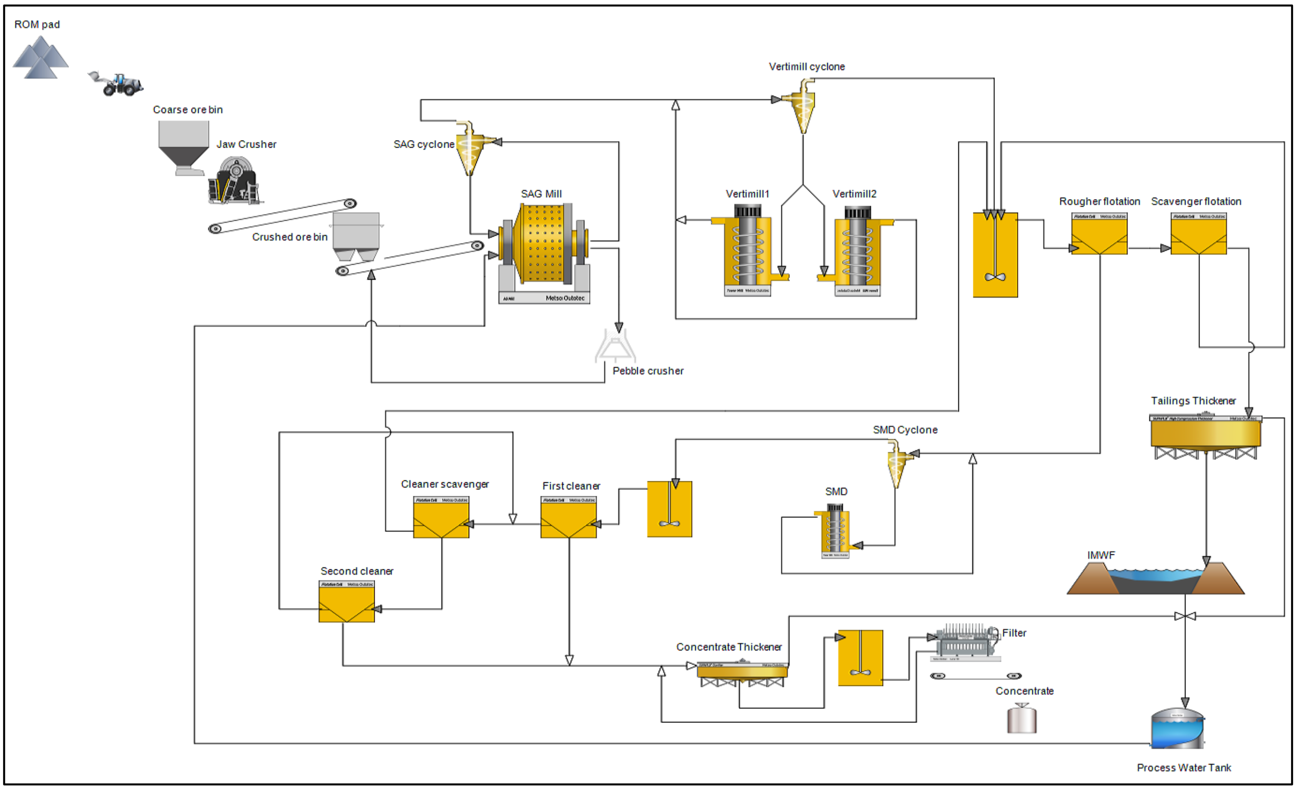


Figure 17-1: Overall plant flowsheet
Source: DPM, 2022

17.5 Process Description

The Ada Tepe processing facility was designed to recover very fine free gold and silver by flotation to produce a high-grade concentrate for off-site precious metals refining.

Two main ore types are present within the orebody (i.e. Upper Zone and Wall Zone material), where the latter represents a much lower proportion of mill feed tonnes but at considerably higher precious metals grades. Some general LOM average characteristics of the two ore types employed for the process plant design are summarised in Table 17-1.

The information presented in Table 17-1 indicates that the silicified Wall Zone material is considerably harder and much more competent than the brecciated Upper Zone ore types. Whilst the Wall Zone ore type represents around 20% of total mined tonnes, the higher-grade results in that ore type representing approximately 33% of the total feed gold content.

In general, the process plant is designed to be operated under the following conditions:

- Primary crushing of ROM ores to a design P_{80} size of 110 mm with subsequent crushed ore storage in the coarse ore bin with 24 hours live capacity. The crusher is designed to operate for 12 hours per day at 80% utilisation for a throughput rate of 263 dry tph.
- The grinding and flotation circuits are designed to operate for 8,000 hours per annum, which is equivalent to 91.3% overall utilisation. Due to the different comminution characteristics of the two mined ore types, varying proportions of each during the LOM, and a capital cost reduction exercise completed during April 2013, a variable range of grinding circuit throughputs was adopted for the final design. Depending upon the proportion of the harder Wall Zone material, the design grinding circuit throughput ranges from 105 tph (~99% Upper Zone) to 90 tph (~36% Wall Zone material) and varies for every month of operation over the mine life.
- Crushed ore is reclaimed to a single-stage Metso SAG mill equipped with pebble crushing (SSC). The SAG mill is a 6.71 m (22’) diameter by 3.96 m (14’) effective grinding length (EGL) unit equipped with a 3,000 kW (6.6 kV) variable speed drive (“MVVVF”) motor. The SAG mill is designed to operate within a ball charge envelope of 6% to 15% by volume and reduce the 110 mm F_{80} material to a P_{80} size of 125 µm in closed circuit with the primary classification bank of six 400 mm hydrocyclones (four operating).
- SAG mill discharge is screened and washed via a trunnion mounted trommel to produce a feed stream to the pebble crushing circuit. The pebble crusher is a Sandvik CH420 hydroset type cone crusher designed to reduce 30% of the SAG mill feed throughput to a P_{80} size of 13 mm for recycle to the SAG mill via the feed conveyor system.
- SAG milling circuit cyclone overflow reports to a vibrating trash screen where the undersize is directed to the primary regrind classification system, a bank of twelve 250-mm diameter hydrocyclones (nine operating). The system cyclone overflow, at a design P_{80} size of 30 µm, is directed to the rougher flotation circuit. The underflow stream is gravity transferred to two Metso vertimill 1250WB regrind mills (932 kW installed each) operating in parallel and with mill discharge streams recycled to the classification feed system in closed circuit.
- Primary regrind circuit cyclone overflow is transferred to the rougher flotation circuit comprised of a conditioning tank, four rougher SFRs operating in series and flotation tails and concentrate pumping systems.
- The rougher tail stream is transferred to the scavenger flotation circuit which is comprised of four SFRs and associated tails and concentrate pumping equipment. The general, design and separate nature of the two vessels for the SFRs is illustrated in Figure 17-2. Scavenger concentrate is recycled to the head of the rougher flotation circuit whilst the tail represents the final waste stream of the flotation circuit and is directed to the final tailings thickening area.
- The rougher concentrate stream reports to the concentrate regrind classification system comprised of a bank of five 150 mm diameter hydrocyclones (two operating). The system cyclone overflow, at a design P_{80} size of 15 µm, is directed to the cleaner 1 flotation circuit. The underflow stream is gravity transferred

to a Metso stirred media detritor (SMD-355-E) regrind mill (355 kW installed) with the discharge from this mill returned to the classification feed system in closed circuit.

- The cleaner 1 flotation circuit is comprised of a conditioning tank and two SFRs operating in series. The combined concentrate forms part (50% design) of the final concentrate stream and the tails is directed to the cleaner scavenger flotation circuit.
- The cleaner scavenger flotation circuit is comprised of five SFRs operating in series with the concentrate stream reporting to the cleaner 2 flotation circuit and the tails recycled to the rougher conditioning tank.
- The cleaner 2 flotation circuit is made up of four SFRs operating in series with the concentrate combined with the cleaner 1 concentrate to form the final concentrate and is transferred to the concentrate thickener. The cleaner 2 tail stream is recycled to the cleaner scavenger flotation circuit feed.
- The 4 m diameter high-rate concentrate thickener receives the combined cleaner 1 and cleaner 2 concentrate streams, and the underflow is transferred to the concentrate filter feed tank whilst the thickener overflow stream reports to the process water system. Final concentrate is dewatered to a design moisture content of around 20% via an automated vertical plate pressure filter and packaged as final product in a semi-automated bagging and weighing unit.
- Final scavenger flotation tail is transferred to the tailings thickener, a 16.5 m diameter "deep cone" unit fitted with an underflow shearing system to reduce thickened discharge (at a design density of 56% solids) slurry viscosity for easier pumping. Thickener underflow is directed to one of two on-site IMWFs (north and south) for the co-deposition of both mine waste and process plant thickened tailings.
- Several separate water systems are operated over the entire site with process water and raw water the two main processing area water types.
- Several reagents are used to enhance the flotation characteristics of the contained gold, including:
  - Copper sulphate activator ($CuSO_4.5H_2O$)
  - Potassium amyl xanthate (PAX) collector
  - Aero 238 Promotor (to be replaced with Aero 208 or similar in 2020 due to recent EU restrictions)
  - Cytec F-549 Frother
  - Sodium silicate dispersant ($NaSiO_2$).

Figure 17-2: Scavenger SFRs
Source: DPM, 2020

The processing facility is controlled by a state-of-the-art process control system located in a central control room and assisted by closed circuit monitoring cameras ("CCTV"). Associated database historian systems allow for the storage and retrieval of a wide range of Process Control System parameters and manipulation to produce mass-metals.

An image of the Control Room arrangement is shown in Figure 17-3.

Figure 17-3: Control Room overview
Source: DPM, 2020

17.6 Plant Performance

The Ada Tepe process plant was commissioned in April 2019 and ramped up to nameplate production in September 2019. Various production data (from start-up month) for Ada Tepe are available to demonstrate that the plant has achieved nameplate capacity, and design metallurgical performance. Figure 17-4 shows the monthly Ada Tepe process plant performance (throughput and recovery) relative to design and operating targets since start-up.

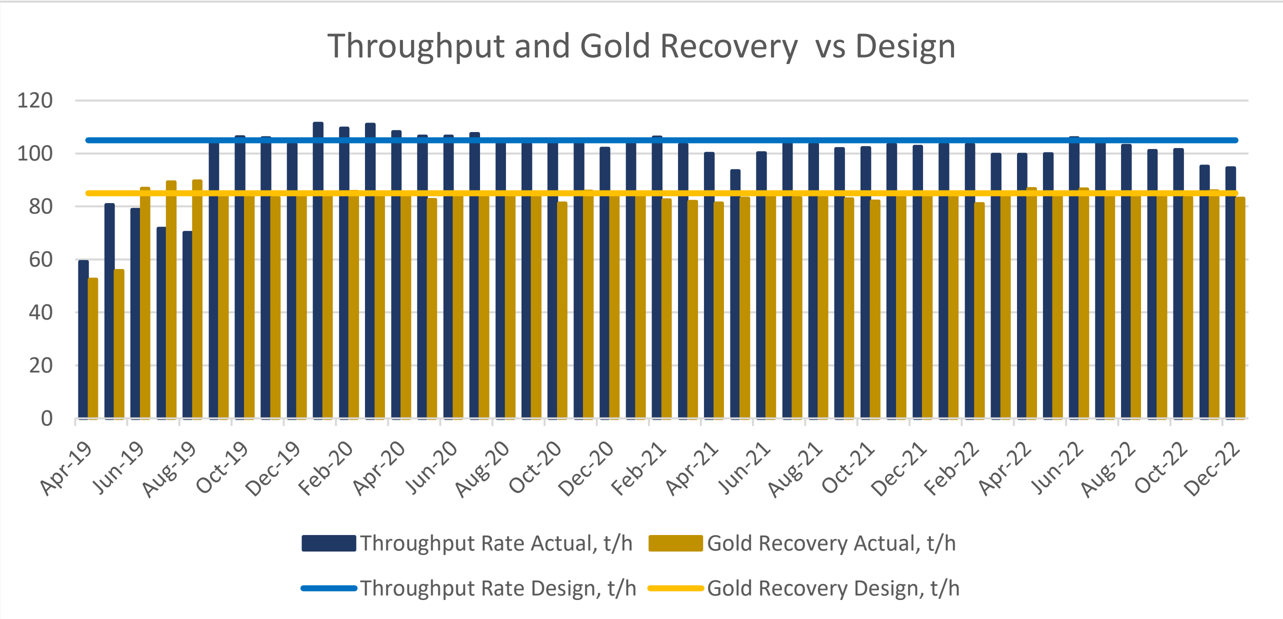


Figure 17-4: Production data

Source: DPM, 2023

A summary of the monthly key performance indicators of the process plant since commissioning are shown in Table 17-2.

Table 17-2: Process Plant key performance indicators

Period	Plant utilisation (%)	Flotation feed			Gold concentrate		
		Throughput (tpa)	Throughput (tph)	Grade (g/t)	Recovery (%Au)	Concentrate grade (Au g/t)	Produced (Au oz)
2019	68.9	400,891	66	4.90	85.91	692	54,253
2020	94.6	890,738	107	4.92	84.35	623	118,754
2021	96.4	865,587	103	5.75	83.16	570	133,028
2022	96.4	852,990	101	4.06	84.35	523	93,940

The actual plant performance to date, in terms of throughput and gold recovery to concentrate, supports the assumptions used in the current Mineral Resource/Reserve estimate.

17.7 Process Control Optimisation

Having reached steady state full production, during the second half of 2019, further process plant control optimisation has been implemented:

- On stream gold analyses for various flotation streams allows for real-time flotation control and optimisation – commissioned in Q4 2020.
- Advanced process control and further automation of the various circuits (grinding, flotation and thickening) – Implemented during 2020–2022 phase by phase.
- A geometallurgical clay model (estimated kaolinite percentage within block models) has been created to increase the orebody knowledge and link it to plant performance. This allows for further process optimisation through improved planning, prediction and control of the mining operation, feed blending and plant control. Deployed in 2022.
- Potential flotation circuit modifications are under investigation to get the most out of the SFRs currently delivering higher than designed selectivity and upgrade ratios.
- Deployed "digital twin" model of the plant that allows economic optimisation of the entire operation for short interval control. Includes simulation capabilities of digital twin to choose optimum process control options (in a future to be integrated with Advanced process control system) – commissioned in 2022.

17.8 Current and Projected Requirements for Energy, Water and Process Materials

The actual operating power consumption to date is approximately 45.5 kWh/t. The main process consumables and reagent consumption to date is shown in Table 17-3. Optimisation initiatives to reduce these consumption rates will likely be offset by blending in the Wall Zone material, resulting in a plant feed of greater hardness, abrasiveness and higher gold grade from 2022 onwards. Freshwater consumption to date of 0.150 m^3/t is expected to remain in that range over the LOM. All the energy and consumable requirements have been included in the operating costs for the LOM financial forecasts (2023–2026).

Table 17-3: Reagent and grinding media consumption

Item	Unit	2019	2020	2021	2022
Collector	g/t	268	317	328	354
Promoter	g/t	41	31	29	30
Concentrate Flocculant	g/t	10	6	6	6
Tailings Flocculant	g/t	93	117	87	82
Frother	g/t	39	19	31	37
Activator	g/t	153	120	123	125
Dispersant	g/t	1317	1039	949	595
SAG Mill Balls	kg/t	748	650	974	803
Primary Regrinding Mill Balls	kg/t	1,262	1,274	1,925	1,988
Conc. Regrinding Mill Ceramic Media	kg/t	13	17	22	10

18 Project Infrastructure

18.1 Integrated Mine Waste Facility

18.1.1 Background and Site Selection

The concept of a conventional slurry disposal facility as proposed in the 2005 mining study has been replaced with an IMWF which receives both the thickened tailings and the mine waste rock from the Ada Tepe open pit. The tailings storage location was revised to minimise land use and the environmental footprint. Two sites were initially identified for a potential IMWF, located north and south of the open pit, respectively. Preliminary capacity assessments as well as optimisation of the mine and road layout resulted in selection of the south site.

18.1.2 General Description

The IMWF allows the placement of thickened tailings into cells constructed from mine waste rock. The mine waste rock provides strength required for overall stability and also internal drainage. Water reporting to the underdrain is pumped to the Raw and Process Water Reservoir ("RPWR") located southwest of the open pit. The IMWF is constructed within two small valleys, being operated as two separate facilities early in the LOM and later merging into a single facility as operations progress. Rehabilitation of the lower slopes of the IMWF began during the early stages of mine operation and continues throughout the LOM through to closure.

The IMWF structures required for commencement of mining operations are constructed from the soil and rock excavated to create the platform for the process plant and the roads on the mine site. The mine waste rock is trucked from the open pit to the IMWF, dumped and spread to construct containment cells for the tailings. Tailings are thickened in the tailings thickening circuit to the optimum density and then pumped via pipelines to the containment cells. The IMWF is a fully drained facility and is designed to contain only short-term superficial surface water ponding at any time during its operation. A system of under-drains has been constructed along the axis of each small surface water channel in the footprint of the IMWF and these drains discharge to one of two sumps located at the toe of the facility.

Figure 18-1: IMWF
Source: DPM, 2021

Assessment of liquefaction potential of tailings has been conducted, showing a stable facility within the required FOS for both static and pseudo-static/seismic event conditions. Piezometers, extensometers and Total Station-Trimble 4D is in please to track stability of the IMWF. The assessment reinforced the requirement for adequate drainage measures within both the tailings and waste within the IMWF, which is currently being executed. The properties of the tailings being generated from the process have been compared against the design testing, and there is ongoing validation through testing of tailings from both the process plant and in-situ.

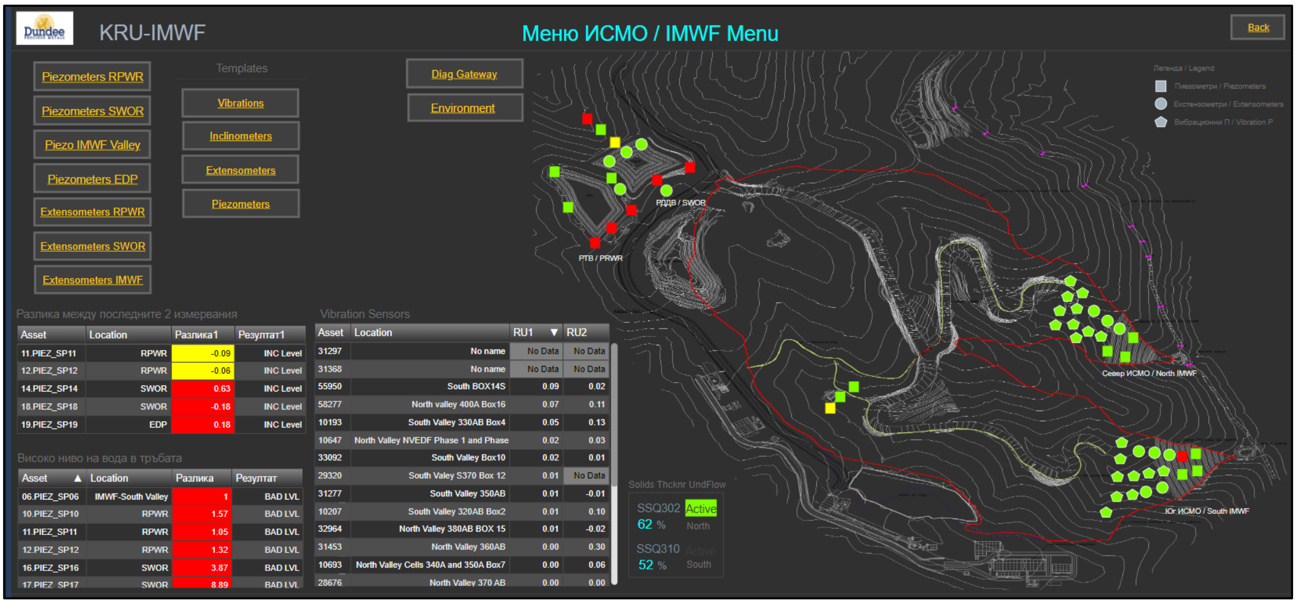


Figure 18-2: IMWF piezometer and extensometer tracking tool
Source: DPM, Osisoft PI system, 2023

The IMWF is constructed from the bottom up, with mine wastes placed on starting platforms at the bottom of the valley at approximately 300 m above sea level ("masl") elevation and then progressively built up in benches during the mine life to elevation 440 masl. This allows the lower, completed sections of the facility to be reclaimed and closed progressively during the life of the mining operation.

Given the economic parameters used for the current LOM Plan, 15.6 Mt of mine waste rock and 5.3 Mt of tailings will be stored within the IMWF over eight years during the life of the mine. The IMWF has a remaining capacity of 2 Mm^3 cell volume which is sufficient to store all the remaining LOM tailings generated from the process plant.

A dual reservoir system has been developed which has resulted in the mine being able to adopt a zero-discharge water management strategy. The two reservoirs are the RPWR and the Stormwater Overflow Reservoir ("SWOR"). These two reservoirs are adjacent to each other and have differing functions with regards to water management, these being management of process water and storage of stormwater and pit inflows, respectively.

18.1.3 Closure and Rehabilitation

Closure of the Ada Tepe IMWF will involve conventional practice for mine waste facilities.

Drainage into the IMWF is collected in an under-drain system that prevents the build-up of a water table within the rock and tailings. Water draining from or through the IMWF will exit at the toe of the ravines. During operations, water reporting to the sumps at the toe of the ravines will be pumped to the RPWR prior to clarification for use for mill make-up. Following operations, the chemical and sediment characteristics of the water reporting to the sumps will be monitored. When the discharge is of an acceptable condition, drainage will be allowed to enter the river directly.

The IMWF is constructed from the bottom up, with horizontal benches at 10 m vertical intervals with the intervening slope constructed at 2.5H: 1V. During operations, the external faces of the completed portions of the IMWF can be covered with topsoil and vegetated. This means the majority of the IMWF can be rehabilitated prior to the end of the mining operations.

18.2 Water Management

The water management plan is central to maintaining an appropriate environmental and operational performance for the mine. The principle adopted for site water management is to intercept and divert away water flowing towards operational areas and intercept water in contact with operational areas. This contact water may then be used in the operations or discharged in line with discharge consents. The process plant sources its water mainly from recycle of decant water. Make-up water is taken from a borehole well to located approximately 0.3 km southwest of the process plant near the Krumovitsa River.

The water management plan has been developed to ensure minimum impact on the surrounding community users. To manage the water balance across the site a dual water storage system is used. This system is composed of a RPWR and a SWOR is used to collect and temporarily store water. The dual reservoirs have a capacity of 130,450 m^3.

In wet years where there is an excess of water, a Reverse Osmosis Water Treatment Plant is available. This Reverse Osmosis Water Treatment Plant treats water to Drinking Water Standard (EU/ BG Regulation No. 9, 2001) and discharges downstream of Ada Tepe, 7 km from site.

All surface water within the processing facilities area is collected in a channel that diverts the water into two site water reservoirs, and this water is then be pumped back to the RPWR. The groundwater and surface water reporting to the open pit is collected in a sump and pumped directly to the SWOR. Rainfall that infiltrates into the IMWF and the water expelled from the tailings during consolidation is directed to an underdrain system. These drains discharge to one of the two sumps located at the toe of the facility. The collected water is pumped to the RPWR. The IMWF is a fully drained facility and does not contain a permanent water pond.

Groundwater from the IMWF is intercepted by a Grout Injection Curtain which runs between the IMWF and the Krumovitsa River. The intercepted water is pumped into the adjacent sumps, and then pumped to the RPWR for use in the process.

18.2.1 Water Supply

The water balance is negative on an annual basis. For that reason, a supplementary source of freshwater has been allowed for in the form of a borehole well located southwest of the process plant near the Krumovitsa River, and all rainfall runoff and consolidation water from the IMWF is captured and recycled.

18.3 Communications

The mine site is linked to the public network in the town of Krumovgrad using a fibre optic cable which supports both data and voice communications. A repeater system provides the infrastructure to enable hand-held and mobile radio sets to communicate around the site.

18.4 Access Roads

The access road to the processing plant is an existing secondary paved road approximately 2 km in length which runs from Zvanarka through Pobeda, two small villages located near by the site. This secondary road connects with the main road leading to the town of Krumovgrad. In anticipation of increased traffic on the section of the secondary road between Zvanarka and Pobeda, seven pull-over areas are incorporated into the existing road to facilitate vehicle passing. The road has been upgraded to accommodate heavy vehicles. A second portion of the access road from the paved road to the processing plant follows an existing road for approximately 950 m. This new portion of the road has been widened and sealed to minimise dust emission.

On site a 950 m long road connects to an exit of the mine open-pit and provides access to the crusher area. The main section of this road is comprised of a 20 m wide running surface with 2 m high x 3 m wide berms located on the down slope side of the road.

The IMWF access roads provide access from the open pit to the two embankment dams. One road is 1.9 km length and connects the open pit with the north embankment construction site. A second road, 760 m long, connects to the south embankment construction. It has been surfaced with gravel, maintained by frequent grading and sprinkled with water for dust control as necessary.

18.5 Effluent

Sewage from the various plant site buildings is dealt with by means of a packaged Tertiary Wastewater Treatment System. Waste such as hydrocarbons from equipment maintenance and chemical waste from the laboratory is stored and collected by contractors who remove from site and dispose of in accordance with the applicable regulations. Office waste and waste from the meals areas is collected by a municipal company that disposes of the waste materials in a solid municipal landfill site.

18.6 Fuel Storage and Distribution

Diesel fuel is supplied to process equipment, light vehicles, the mining fleet and mobile plant and equipment. All fuel required at the plant site is delivered in tanker trucks by commercial suppliers. Light vehicles equipped with small tanks are available for refuelling mobile equipment on location. The fuel storage area is bunded to prevent spillage of fuel contaminating the site area or watercourses. Minor quantities of petrol required are obtained from local fuel distributors.

18.7 Vehicle Washdown Facilities

A vehicle washdown facility is located adjacent to the diesel fuel refuelling area. It comprises of a bunded concrete slab sloping to a settling sump. Captured rainfall and diesel spillage from the adjacent diesel refuelling facility are also directed to this sump. A sump pump transfers dirty water to an oil/water separator.

18.8 Power Supply and Reticulation

The plant electrical power is supplied by a local power authority via an underground high voltage cable supplied from the local Krumovgrad 110 kV/20 kV substation. A 20-kV main substation is established at the plant site to facilitate power distribution to various areas within the plant. Within the main substation, a tariff metering system has been established to allow for reading of whole of plant power consumption.

18.9 Buildings

Infrastructure buildings are classified as either architectural, control rooms or industrial. Architectural buildings include administration offices and ablution facilities. Control rooms include the crusher control room and the main process plant control room. Industrial buildings include workshops, warehouses and buildings that house process equipment.

The assessment of building requirements has been based on the number of personnel required in each area and the functions required in each area. These buildings are constructed of steel, reinforced concrete, blockwork, or brick. Roofing and cladding are made using corrugated steel and elevated floors from steel or reinforced concrete. Local construction materials have been used to the maximum extent possible.

An aerial view of the Ada Tepe site is shown in the figure below.

Figure 18-3: Site aerial view
Source: DPM, 2022

18.10 Fire Protection

Fire protection consists of the provision of fire hydrants, sprinklers, fire hose reel cabinets and fire extinguishers placed strategically around the facilities in accordance with the requirements of the relevant regulations. Firefighting water is supplied from a dedicated volume in the freshwater reservoir. Water is gravity fed to firewater pumps at the process plant. Jockey, duty and diesel-powered standby pumps are provided.

Various types of fire extinguishers are provided in areas where water as a means of fire control is undesirable. These include motor control centres and control rooms.

18.11 Security

All persons entering the process plant and mine facilities areas are required to pass through the continuously manned boom gate adjacent to the administration building on the access road. Security guards located within the administration building control all entry and exit of vehicles and personnel. Search and inspection of personnel, bags and items leaving the plant is carried out at this facility.

A stock fence has been constructed around the operation's facilities including the process plant, IMWF, mine, RPWR and SWOR. Additional secondary fencing has been constructed around the SWOR and Emergency Disposal Pond. Security fencing with lockable access gates is installed locally around the remote pumping facilities and electrical facilities.

Additional security fencing has been placed around the process plant yard where the concentrate is stored and additional access permissions enforced. All security fencing around the key areas is 2.4 m high wire chainmesh (cyclone-type) fencing with four-strand barbed wire.

19 Market Studies and Contracts

19.1 Contracts

During the early stage of production at the mine, several smelters received and processed trial lots of Ada Tepe concentrates. These trial lots were arranged as part of a competitive bidding process to determine the best arrangement for DPM. As an outcome of this process, DPM secured a multi-year agreement for the sale of 100% of concentrate production from Ada Tepe and, therefore, concentrate sales are fully in place for the next two years, until December 2024. Commercial terms, including payable metals, treatment charges, refining charges and any penalties that may be applicable, are fixed over this period. These terms are market-based and within industry norms, having been established as part of the competitive process.

Logistics agreements are in place to deliver the concentrate from Ada Tepe to the customer with rates within the normal range for these types of agreements. DPM does not hedge a material quantity of its production. A prepaid sales transaction was put in place several years ago against a portion of the Ada Tepe production which was completed in December 2020.

The drill and blast operations are provided by a local company under contractual agreement, renewed annually. The drill and blast contractor is licensed for the storage and use of explosive materials. DPMKr also has a two-year contract with a local company for the supply of fill and liner material required for the construction of tailings cells within the IWMF. The mining equipment maintenance is OEM provided and the contact is also renewed annually.

19.2 Markets

Following the expiry of the current sales contract at the end of 2024, DPM expects that it will be able to secure a contract or contracts for Ada Tepe concentrates over the remaining mine life on similar terms and conditions. This expectation is based on DPM's knowledge of the market for this product and the terms received from various customers during the competitive process outlined above. Gold concentrates can be sold to copper smelters and there is abundant demand for this type of material.

Gold prices in the model use DPM's internal price outlook, which is determined based on consensus market price forecasts.

The Qualified Person has reviewed the use of the contract sales terms as presented in Sections 15, 0 and 0 and find they are consistent with commonly available market terms.

The gold and silver prices utilised in the Mineral Reserve estimate (US$1,400/oz and US$20/oz) are below the three-year trailing spot price of US$1,750.00/oz and US$22.50/oz (gold and silver respectively) and the current spot price on February 17, 2023 of US$1,824.20/oz and US$21.71/oz (gold and silver respectively from www.kitco.com). Section 0 utilises prices of US$1,750.00/oz and US$20.00/oz for gold and silver respectively which are also below the three-year trailing spot prices and the spot prices on February 17, 2023. The Qualified Person supports the assumptions of metal prices and metal sales costs as used in this Report.

20 Environmental Studies, Permitting and Social or Community Impact

20.1 Environmental Impact Assessment

Under Bulgarian environmental regulations, mining projects are required to comply with an EIA process as a key part of project permitting. The content and depth of the EIA is compliant with the Bulgarian Environmental Protection Act. The Bulgarian environmental legislation is fully harmonised with EU legislation.

The EIA systematically assesses project impacts in relation to the physical, biological and human environmental components, taking into account activities that take place during the construction, operation and closure phases. Consideration was also given to alternative options for technology (mining, processing, and waste management) and to the location of facilities (process plant, IMWF and RPWR).

The EIA report includes two major appendices. The first one is the Assessment on the Compatibility of Conservation Objectives of the Protected Zone Eastern Rhodope and Protected Zone Krumovitsa with the Investment Proposal. This assessment has been prepared pursuant to the Bulgarian Law on Biodiversity, and the Regulation on Requirements for Conducting a Compatibility Assessment between Plans, Programs, Projects, as well as Investment Proposals and the Conservation Objectives of Protected Zones. Assessment of compatibility of the investment proposal with the object and purpose of protected areas is done according to the requirements of the European ecological network (Natura 2000).

The second appendix of the EIA is The Mining Waste Management Plan. This was developed in connection with the Underground Resources Act ("URA"), SG 23/12.03.1999, last amendment and elaboration in SG 78/8.09.2020 and the Regulation on the Specific Requirements to Mining Waste Management, SG 10/6.02.2009.

The Bulgarian Minister of Environment and Waters has signed a Resolution No. 18-8, 11/2011 approving the EIA for the Company's Ada Tepe project . The resolution is in force and all requirements are applied.

The European Commission published in 2014 a report and a case study on the permitting procedure and compatibility of activities with the Natura 2000 requirements, aiming at improving these processes in Europe. The Compatibility Assessment of the Krumovgrad Project was published as one of 12 case studies for best practices on the continent.

20.2 Community Impacts, including Air Quality

The setting of the Ada Tepe mine site is rural, the site being located 3 km from a small town with no significant pre-existing sources of industrial emissions that could affect people's health and enjoyment of the environment. The mine operation is source of emissions that are important in relation to community health and amenity, including gases, fumes, dust, noise and blasting vibration. The nature of these emissions is well understood and specific mitigation against non-fugitive and fugitive emissions, such as dust and noise, are in place according to the air quality management plan as well as environmental processes and procedures. The Company's mitigation strategy is appropriately adopted, so that no significant impact is expected to the local community in relation to their health or enjoyment.

It is however likely that from time to time, a local nuisance impact will be experienced by adjacent communities, particularly regarding dust during dry, windy weather. Such impacts are managed by good operational practices such as regular irrigation, real-time meteorological monitoring coupled with an effective community liaison scheme.

Site traffic during construction and operation has led to a significant increase in trucks on local public roads. The Company has implemented a traffic management plan with specific mitigation measures. Mitigation measures and constant monitoring are in place with focus on managing vehicle routing, speed limitations, availability of the existing infrastructure and site access.

Health of the workforce is protected by industry-standard measures to limit exposure to harmful emissions and (where that is not possible) utilisation of personal protective equipment.

20.3 Surface Water

The region is located within a climatic belt that experiences both Mediterranean and Southern Bulgarian (Central European) climatic influences with most rain (and occasional snow) in the winter period. Rainfall tends to be experienced as marked events and surface water flows therefore show great variation. The mine site is drained by the Krumovitsa River which flows at the foot of Ada Tepe, past the town of Krumovgrad. This river is part of a system that crosses into Greece about 50 km downstream from the site. Water quality is relatively good and lacks evidence of industrial pollution. The town of Krumovgrad sources its supply from alluvial gravels below the riverbed. The abstraction points are protected by a sanitary protection zone.

Operational activities are a potential source of contamination of surface water and disturbance of surface water flows. However, currently there is no observable deviation from the background parameters typical for the region. Operational activities employed to mitigate against surface water impacts include the following strategies:

- Thickening of the tailings before discharge to the IMWF and recycling of the supernatant water, which reduces evaporation losses (compared to deposition of tailings in a conventional tailings management facility)
- Recycling of the mine and IMWF drainage waters back into the process
- Water supply scheme that maximises use of recycled water and minimises the draw of freshwater from site area inflows
- Maximising recycling and minimising environmental discharge, targeting towards “zero discharge”
- Development and implementation of environmental management plan that includes procedures for spill avoidance, containment and treatment as well as various housekeeping measures that are in line with international best practice
- Progressive closure and rehabilitation of the IMWF which protects erosion of the slopes and reduces suspended solids in rainwater and dust in the ambient air
- Maintenance and operation in design parameters of both wastewater treatment plants.
- Topsoil storage depots for rehabilitation and maintaining grass over them
- A Reverse Osmosis Water Treatment Plant is available for treating captured surface runoff.

All mitigation strategies are in place and there is no significant impact on surface water flows or quality. Other surface water users (including communities, businesses and wildlife) are not significantly affected by DPMKr operations. The Company has a wide-ranging water monitoring program to ensure this, and results are reported on an annual basis to the competent authorities in Bulgaria and Greece.

20.4 Groundwater

The mine site and adjacent land are underlain by Palaeogene rocks that contain no significant aquifers. Local communities draw groundwater from shallow wells and as noted above, the town of Krumovgrad sources its water from the Krumovitsa Valley alluvial aquifer about 3 km from Ada Tepe. Mining at Ada Tepe and abstraction of water for the operation has no significant impact on groundwater resources. The mitigation measures, especially relating to water management generally and management of wastes, in particular, are established to prevent groundwater contamination in the short and long term (post-closure). The IMWF Grout Injection Curtain and pumping system prevents groundwater from the IMWF entering the Krumovitsa groundwater system.

The Company obtained Permit No. 31530328/04.03.2013 for abstraction of groundwater resources through construction of new water abstraction facility – one tube-and-shaft well with drainage branch, located on land plot No. 000281 on the land of Skalak village, Krumovgrad Municipality, Kardzhali District. The permitted annual abstraction quantity is 70,000 m^3. An amendment to the water abstraction permit was issued in 2021, increasing the permissible level of water abstraction to 152,250 m^3 per annum. The permit for water abstraction is in force and due to expire on 04.03.2031.

20.5 Soils and Land Ownership

Soils are in general low in fertility and very shallow over the hilly areas. The chemistry of the soils appears to reflect underlying geology and mineralisation and there are indications of certain areas having naturally elevated levels of heavy metals, including arsenic. These levels are not significant having regard to potential for pollution of surrounding land (e.g. by dust blown during soil stripping operations), but existing soils geochemistry is an important consideration for re-use of soils recovered from the stripping of operational areas in rehabilitation activities.

The operational areas, which has been purchased by the company, were mainly located on state owned forestry land. Where possible, rehabilitation has commenced on site. Whole disturbed lands will be rehabilitated (forested) and will ultimately be classified as either recreational or as natural conservation land. Where possible, rehabilitation has already commenced on site.

20.6 Wildlife

The mine site is located within a region well documented as containing a very diverse and interesting terrestrial ecology. Various sites and areas have designated protected status, but none of these lie within proximity of the Ada Tepe mine site and all fall outside a nominal area of influence.

The entire operation area lies within the footprint of Natura 2000 protected site known as BG 0001032 Rhodopes East under Council Directive 92/43 on the Conservation of Natural Habitats of Wild Fauna and Flora. Furthermore, BG 0002012 Krumovitsa, which is a protected site under Council Directive 79/409/EEC for the Conservation of Wild Birds, is near the operation area.

Compatibility Assessment, performed for all habitats and species, was completed as an integral part of EIA report (2010). The results from this Compatibility Assessment concluded that the Ada Tepe mine operation is compatible with the goal of safeguarding protected sites.

DPMKr has developed and implements a biodiversity action plan which is currently applied in order to assure that all protected species maintain a sustainable population and to reduce any impacts caused by operational activities. The Company performs specific monitoring of protected species on an annual basis. Their populations are closely monitored and if necessary, corrective measures will be taken to support them.

20.7 Cultural Heritage

Archaeological investigations, walkover surveys and literature research indicated the presence of numerous sites of archaeological interest in the vicinity of the mine. A few of these sites have been directly affected by land needed for the project and were carefully studied before operations commenced. No archaeological objects of significant expositional or architectural value were found during excavations.

In 2010, DPMKr signed a Frame Agreement with the National Archaeological Institute at the Museum of the Bulgarian Academy of Science (“NAIM-BAS”) for provision of archaeological observation at Ada Tepe, throughout the LOM. This Frame Agreement is amended every year with a relevant annual agreement for Site archaeological observation, which is one of the DPMKr’s obligations within the Concession agreement with the Ministry of Energy (“MoE”).

In August 2022 DPMKr, together with Krumovgrad municipality and NAIM-BAS, finalised reconstruction of the municipal building and open the interactive museum exposition in Krumovgrad with the archaeological objects from Ada Tepe Site.

20.8 Social Impacts

As part of the permitting process an Environmental and Social Impact Assessment was conducted ("ESIA"). Based upon the outcomes of the ESIA, a Social Management Plan ("SMP") was put in place at the earliest stage and followed during project development and construction. As a living document, the SMP is being followed during operation to ensure implementation of coherent and integrated strategic initiatives targeted towards sustainable economic and social benefits.

Several commitments have been made by the Company to the Municipality of Krumovgrad in the areas of direct employment. This includes job creation initiatives such as encouragement of local businesses facilitated through a US$5 million fund for supporting a small and medium enterprises financing facility, funding of a community investment development program, improvement of municipality infrastructure, rebuilding of a lodge and bungalows at a new recreation area approved by the Municipality and taking care of archaeological finds.

The management team has worked with the local community and authorities to ensure sustainable development of the local communities during operation and after mine closure. As part of DPM's approach, a Memorandum of Understanding ("MOU") was signed in 2015 to facilitate the continuation of open consultations with the local community. Under the MOU, the parties agreed to combine their efforts and act as partners to promote sustainable benefits for the residents of the Krumovgrad Municipality through cooperation for economic and social development, small and medium business development, healthcare and education.

DPMKr aims to benefit all of its stakeholders – shareholders, employees, contractors, local communities, Bulgarian people and the government. Among some of the measurable impacts are:

- Direct employment – Based on an equal gender opportunities approach, 90% of the recruited workforce come from Krumovgrad municipality. DPMKr's operations formed the core of a significant increase in employment rate in the region. This increase includes not only staff employed directly by DPMKr (288), but also indirect and induced jobs.
- Consumption effect – DPMKr employees receive remunerations that provide a favourable environment for induced economic effects and local business development, which otherwise would not be present.
- Strategic community investments – As per the MOU, the Krumovgrad Municipality receives an annual community investment to develop local infrastructure, education and healthcare.
- Micro, Small and Medium-size Enterprise Fund – Established in 2019, the fund supports local start-ups and businesses to promote local entrepreneurship. At this stage the Fund supported more than 30 new projects with more than 100 new working places which are not connected with the mining on site.
- Value to national government – This includes royalties, duties, VAT, excise taxes, individual income taxes, corporate tax, social security, health insurances and other taxes paid directly by DPMKr and its employees.
- Value to local government – A proportion of royalties, tax payments and as well as a custom-made local fund are specifically directed to the local government to promote entrepreneurs.
- Socio-economic effects – Besides taking the multiplied socio-economic effect of direct jobs, investments in the local community of Krumovgrad account for direct and indirect investments in education, health, infrastructure, sports, culture, etc.
- Improved levels of safety awareness in the local community.
- Additionally, DPMKr has initiated environmental and public infrastructure rehabilitation in close proximity to the mine site.

20.9 Permitting

The mine site has all required permits for operation. A construction permit for the main operational site was issued in 2016. A final operational permit was issued in 2019. All other major permits and construction permits (discharge pipeline, new part of the access road, existing road, pump station etc.) were issued and entered into force within the period between 2016 and 2019.

20.10 IMWF Site Monitoring

The IMWF operation is based on an IMWF Control and Monitoring Plan and an Emergency Risk Assessment, which are also part of the overall Mine Waste Management Plan. The Plan and the Assessment provide the technical details of each IMWF component plus guidelines for control and monitoring.

DPM has developed and adopted a comprehensive Tailings Management Standard (TMS), which covers all development phases from planning, design through construction, operation, closure and post-closure where applicable, of tailings management facilities at all DPM-controlled locations. This standard sets out the Company's requirements in addition to the local regulatory ones.

The Global Industry Standard on Tailings Management (GISTM) developed by the International Council on Mining & Metals (ICMM) was released in 2020, and members of ICMM (including DPM) committed to implementing the GISTM requirements. Reviews of the Integrated Mine Waste Facility (IMWF) and Chelopech Tailings Management Facility were performed by an Independent Tailings Review Board (ITRB), who, as part of their findings, also recommended the DPM TMS be updated to fully align with the GISTM. DPM has committed to this alignment and is in the process of updating the DPM TMS to reflect the requirements of the GISTM. Current practices in place for each facility follow the requirements of the GISTM (where applicable), including the ITRB audits, and engagement of both and Engineer of Record and an Independent Third-Party auditor for each facility.

The monitoring of the facilities is a combination of visual observations and measurements. All collected information is analysed and interpreted to assess the efficiency, safety and stability of the facilities and include:

- Routine daily monitoring – by visual observation and records
- Compliance monitoring – by regular measurements and data reviews against a set of criteria included in the Control and Monitoring Plan
- Environmental monitoring – by identifying the qualitative parameters of surface water, groundwater, decant water, and the disposed tailings.

All observations and measurements are documented, interpreted and analysed. The reviews of all data collected as part of the IMWF monitoring process (including data of all facilities under the IMWF system) are conducted at several levels and with different frequency, these which include:

- Operational analysis conducted by the Company's engineering team.
- Quarterly and annual data reviews by an independent, international company. This consists of an overall review of operational data, compliance monitoring, water monitoring and stability assessments. The summarised data is compiled as a report and presented to the operational team with conclusions and recommendations. This includes verification that the IMWF operates according to best international practices.
- Regulatory compliance reviews are conducted to monitor the IMWF compliance against the Control and Monitoring Plan, Bulgarian and EU regulatory requirements.
- Twice per year, a committee formed of both internal and external technical experts, reviews the compliance assessment based on reports and other documents by government regulators, local municipalities, universities, government experts, designers, and consultants. This is to ensure compliance with Bulgarian legislation.
- DPM has also established and Independent Tailings Review Board (ITRB) which is performing a review of the facilities on an annual basis, in compliance with the requirements of the Global Industry Standard on Tailings Management (GISTM).

20.11 Closure Plan and Rehabilitation

Closure of the IMWF is a progressive process undertaken during mine operations. The IMWF is constructed from the bottom up with horizontal benches at 10 m vertical intervals with the intervening slope constructed at 2.5H:1V. During operations, the external faces of the completed portions of the IMWF are covered with topsoil and vegetated. This means that the majority of the IMWF will be covered and reclaimed prior to the end of the mining operations. The rehabilitation of the slopes of the IMWF is currently in progress for the bench on level 360.

All drainage into the IMWF is collected in an underdrain system that prevents the build-up of a water table within the waste rock and tailings. Following operations, the chemical and sediment load reporting to the sumps is monitored. Water draining from or through the IMWF will be collected and treated in the existing wastewater treatment plant. Monitoring and maintenance of the facility is included as active and passive care within the closure and rehabilitation plan.

The financial guarantee for closure and rehabilitation of the site was determined as part of the Closure and Rehabilitation Plan. Total cost estimate for closure of the site and IMWF, plus rehabilitation, is BGN 16.7 million (approximately US$9.28 million). In November 2022, the financial guarantee was renewed for a year.

21 Capital and Operating Costs

21.1 Introduction

Ada Tepe is the first greenfield mine in Bulgaria in the last 40 years. The mine site is located approximately 3 km south of the town of Krumovgrad in south-eastern Bulgaria.

While using a conventional open pit mining, crushing, milling and flotation processing circuit, production employs innovative methods for water management and mining waste management. The mine produces a high-grade gold concentrate which is then transported for further treatment.

Commercial production at Ada Tepe was achieved in June 2019 with ramp-up to full design capacity achieved in the third quarter of 2019. As of 30 June 2019, construction of the project was complete. The capital cost for this project was approximately US$164 million, compared to the original estimate of US$178 million.

The capital and operating costs have been developed using actual cost and performance, applied to the projected mine and processing plan. Table 21-1 presents the total sustaining capital of US$52.3 million associated with ongoing operations for the life of the mine and includes estimated closure and rehabilitation costs.

Table 21-1: Capital cost summary

Item	**Unit**	**LOM**
IMWF	US$ M	27.6
Mining & Processing sustaining capital	US$ M	8.2
Administration and associated sustaining capital	US$ M	5.9
Other Sustaining capital	US$ M	1.8
Growth capital	US$ M	0.8
Closure and rehabilitation costs	US$ M	8.0
LOM capital expenditure	**US$ M**	**52.3**

21.2 Operating Costs

The average estimated annual operating cost for the life of mine ("LOM") is US$73.02/t treated, as presented below in Table 1-3.

Table 21-2: Operating Cost Summary

Item			
LOM tonnes of ore processed (Mt)	2.5		
LOM Au ounces contained in concentrate (Moz)	0.36		
LOM Au ounces payable (Moz)	0.35		
LOM Ag ounces contained in concentrate (Moz)	0.15		
LOM Ag ounces payable (Moz)	0.14		
Item	**US$ M**	**US$/t**	**US$/oz Au**
Mining	46	18.55	131
Processing	72	29.02	205
General and administration	38	15.32	108
Royalty	25	10.13	71
Total operating costs	**182**	**73.02**	**515**
TCs, RCs, penalties, freight, & other selling costs	10	4.02	28
Total operating costs plus selling costs	**192**	**77.03**	**543**
Less: by-product credits	(3)	(1.15)	(8)
Total operating costs, plus selling costs, less by-product credits(1)	**189**	**75.88**	**535**

Notes:

(1) Operating costs are reported in US$, although majority of costs incurred are denominated in non-US$, and consist of all production related expenses including mining, processing, services, royalties and general and administrative.

22 Economic Analysis

22.1 Introduction

This section describes the mine economics under conditions applicable for its development and operation, and discloses economic analyses based on changes in key parameters.

The analysis has been conducted on a site basis only and, consequently, does not include corporate overheads or head office costs.

Mining and processing data and capital and operating costs are drawn from other parts of the Technical Report and combined with the site's fiscal regime in an economic model that calculates normal measures of economic return, such as NPV, and reports key production statistics for the mine. This section describes the mine economics under conditions applicable for its development and operation, and discloses economic analyses based on changes in key parameters.

22.2 Assumptions

In calculating the LOM returns, the following fundamental assumptions were made:

- Metal prices of US$1,750/oz for gold and US$20/oz for silver will be maintained throughout the life of the project
- Metal price and currency hedging is excluded.

22.3 Currency, Escalation and Exchange Rates

Analysis has been conducted in United States dollars rather than Bulgarian Lev, since it is considered the standard currency for DPM.

Base exchange rates used for the evaluation of the project are:

- US$ 1.10/EUR
- BGN 1.95583/EUR

Effects of significant shifts in these exchange rates are considered as part of the sensitivity analysis in Section 22.6. The analysis has been conducted excluding escalation of both metal prices and capital and operating costs, however, cost increases have been estimated by the Company as a product of the current inflationary environment.

22.4 Taxation

The financial analysis has been conducted after tax. The taxation of corporate income and profits is governed by the Corporate Income Tax Act ("CITA"). Under CITA, all resident companies and partnerships, as well as permanent establishments of non-residents, are liable to corporate income tax of 10%. This tax was deducted from the expected cash flows.

22.5 Royalty

The Company pays a royalty to the Bulgarian government at a variable royalty rate applied to the gross value of the gold and silver metals contained in the ore mined. The royalty rate depends on the profitability of the operation. At a pre-tax profit to sales ratio of 10% or less, the royalty rate is 1.44% of the value of the metals. At a pre-tax profit to sales ratio of 50% or more, the royalty rate is 4% of the value of the metals. At intermediate levels of profitability, the royalty rate varies on a sliding scale between 1.44% and 4% in a linear fashion.

22.6 Summary of Results

The relevant LOM assumptions and results are presented in Table 22-1 to Table 22-4.

Table 22-1: Production summary

Production and revenue (2023 to 2026)		
Item	**Unit**	**LOM**
Mined ore		
Total quantity of ore mined	Mt	2.28
Waste mined	Mt	8.74
Gold grade	g/t	5.52
Silver grade	g/t	3.29
Milled ore		
Total quantity of ore milled	Mt	2.49
Gold grade	g/t	5.19
Silver grade	g/t	3.13
Metallurgical recoveries		
Gold recovery	%	86.8
Silver recovery	%	60.9
Metal content		
Gold in concentrate produced	koz	360.4
Silver in concentrate produced	koz	152.6

Table 22-2: Revenue and operating surplus (2023 to 2026)

Production and revenue (2023 to 2026)		
Item	**Unit**	**LOM**
Total net revenue	US$ M	610

Table 22-3: Cash flows (2023 to 2026)

Cash flows (2023 to 2026)		
Item	**Unit**	**LOM**
Total pre-tax cash flow	US$ M	410
Corporate taxation	US$ M	27
Total after-tax cash flow	US$ M	383

Table 22-4: LOM economics

LOM economics (2023 to 2026)		
Item	**Unit**	**LOM**
NPV at 5% discount rate	US$ M	343

22.7 Sensitivity Analysis

Sensitivity analysis has been conducted to assess the effects of changes in key parameters upon the NPV. The analysis encompasses the range of ± 10% and ±20% of the following key parameters:

- Gold price
- Aggregate operating costs
- Exchange rate (US$/EUR).

In assessing the sensitivity, each of these parameters is varied independently of the others. Combined beneficial or adverse variations in any of these parameters will therefore have a more marked effect on the economics of the project than the individual variations considered.

The sensitivity analysis to assess the effects of changes in key parameters upon NPV, after taxation in this case, is presented in Table 22-5.

Table 22-5: LOM sensitivity analysis – after taxation

Gold price	Price (US$/oz)	NPV at 0% (US$ M)	NPV at 5% (US$ M)	NPV at 7.5% (US$ M)
-20%	1,400	267	239	227
-10%	1,575	325	291	276
0%	1,750	383	343	325
10%	1,925	440	394	374
20%	2,100	499	446	424
Aggregate operating costs	**US$/t of ore processed**	**NPV at 0% (US$ M)**	**NPV at 5% (US$ M)**	**NPV at 7.5% (US$ M)**
-20%	58.41	419	375	356
-10%	65.72	401	359	341
0%	73.02	383	343	325
10%	80.32	365	326	310
20%	87.62	346	310	294
Exchange rate	**US$/EUR**	**NPV at 0% (US$ M)**	**NPV at 5% (US$ M)**	**NPV at 7.5% (US$ M)**
-20%	0.88	409	367	348
-10%	0.99	396	355	337
0%	1.10	383	343	325
10%	1.21	369	331	314
20%	1.32	356	319	302

As a consequence of the COVID-19 pandemic, the war in Ukraine and other events the global economy has faced significant instability marked by increased inflation and supply chain issues. Global economic conditions could further deteriorate, and the economy may contract and enter into a recession. Additionally, future economic shocks may be precipitated by a number of causes, including a rise in the price of oil, geopolitical instability, natural disasters and outbreaks of medical endemic or pandemic issues. Any sudden or rapid destabilisation of global economic conditions could impact the Company's ability to obtain equity or debt financing in the future on terms favorable to the Company. Additionally, any such occurrence could cause decreases in asset values that are deemed to be other than temporary, which may result in impairment losses. Further, in such an event, the operations and financial condition of the Company could be adversely impacted.

In addition to potentially affecting the price of gold and silver, general inflationary pressures may also affect labor, commodity and other input costs, which could have a material adverse effect on the Company's financial condition, results of operations and capital expenditures. Over the course of 2022, global inflationary pressures increased driven by supply chain disruptions. Global energy costs have also increased significantly following the invasion of Ukraine by Russia in February 2022. The Company has been impacted by these inflationary pressures in the form of higher costs for key inputs required for its operations, most notably higher energy costs. The Company has made assumptions around the expected costs of these key inputs, and the Company's actual costs in an inflationary environment may differ materially from those assumptions. These inflationary impacts may be felt directly through purchases of diesel and fuel, as well as through higher transportation costs, and indirectly through higher costs of products which rely on energy as an input cost.

23 Adjacent Properties

The nearest adjacent property held by another company is the Rosino property, approximately 20 km due east from the Ada Tepe Mine and currently held by a joint venture between Velocity Minerals and Gorubso-Kardjali AD. Furthermore, Gorubso-Kardjali AD holds the Sedefche exploration licence to the west of the Ada Tepe where it is exploring for gold.

24 Other Relevant Data and Information

24.1 Legal Framework

24.1.1 Company Information

DPMKr is a joint stock company, solely owned by Dundee Precious Krumovgrad S.a r.l., a subsidiary of Dundee Precious Metals Inc. Canada. BMM was incorporated in September 1997. DPM acquired all shares in the Company from its previous owner on 30 September 2003. In 2013 the name of the Company was changed from BMM to DPMKr.

24.1.2 Business Legislation

The Constitution of the Republic of Bulgaria from July 1991 proclaims and establishes guarantee mechanisms for the main principles of the market economy as the inviolability of the private property, free business initiative, equal conditions for performing economic activities, for all individuals and legal persons.

The Bulgarian Commerce Act governs the legal organisational forms of corporate business entities, and the rules applicable to each form, in respect of incorporation procedures and documents, capital and shares, shareholders, management bodies, resolutions, administration, mergers, liquidation and insolvency. Investors are free to choose the legal form of presence in Bulgaria among all types of commercial companies and partnerships envisaged by Bulgarian legislation, as well as to register as sole traders (natural persons). Limited liability company ("OOD") and joint-stock company ("AD") are the most often chosen types of commercial companies. Regardless of the selected legal-organisational form, the investor must announce both, the initial formation and subsequent changes, with the Commercial Register at the Registry Agency of Bulgaria.

24.1.3 Mining Legislation

The Underground Resources Act regulates the conditions and the procedures for prospecting, exploration and mining of underground Mineral Resources located on the territory of the Republic of Bulgaria, the continental shelf and the exclusive economic zone in the Black Sea.

The Underground Resources Act came into force in March 1999 and has been amended several times since its promulgation, with the last amendment in September 2020, in force from September 2020. This act established the objects over which mining concessions may be granted and setting forth the conditions and the procedure for granting concessions.

24.1.4 Taxation

The taxation of corporate income and profits is governed by the CITA. In connection with the accession of Bulgaria to the EU on 1 January 2007, a new CITA was adopted to meet the necessity of harmonisation of Bulgarian taxation legislation with the requirements of the European directives concerning direct taxation. Under CITA, all resident companies and partnerships, as well as permanent establishments of non-residents, are liable to corporate income tax of 10%. Certain types of income originating from Bulgaria and payable to foreign entities, or individuals, are subject to a withholding tax amounting from 5% to 10%.

CITA establishes rules for defining the taxable income, for applying corporate income tax exemption, for loss carry-over, thin capitalisation, and withholding tax.

According to the Value Added Tax Act most of goods and services are subject to a 20% VAT rate. Any person, legal or physical, resident or non-resident, who has a taxable turnover of at least BGN 50,000 during the preceding 12 months, is obliged to register for VAT purposes. Only VAT registered persons may charge VAT on taxable supplies and recover input VAT charged to them.

24.1.5 Customs Duties

Customs duties are payable on the importation of goods and products to Bulgaria. Following Bulgaria's accession to the EU and gaining full member status on 1 January 2007, a number of changes and specific developments occurred in the foreign trade and customs regime, in regard to exports and imports of goods. More specifically, the new developments concerned the direct application of Community acquis, which regulates the common procedures, tariff and non-tariff measures (prohibitions and restrictions) on exports and imports of goods "to" and "from" non-member states and uniform customs control instruments.

The Single Market of the EU was built over the course of three decades in compliance with the founding documents. As a full EU member, Bulgaria also became an equal participant in the Single Market of the EU. Likewise, domestic legislation in the respective areas was brought into conformity with the legislation of the Community – the acquis Communautaire. Bulgaria is also a member of the World Trade Organization ("WTO").

The Bulgarian customs legislation is harmonised with the European one. The imports of products are subject to customs duties at rates determined in the Customs Tariff approved by the Government. At its accession to the EU, Bulgaria eliminated the customs duties in its trade with the other EU Member States and started applying the Common Customs Tariff of the EU in its trade with non-member states.

The Common Customs Tariff requires levying of the same duties on products, imported from third countries. It is used by the EU as an instrument for regulation of international trade. The EU keeps adapting the Common Customs Tariff to the results of negotiations for tariff reduction within the framework of the General Agreement on Tariffs and Trade, recently applied by the WTO.

Bulgaria has preferential tariff agreements (free trade agreements) with the EU, European Free Trade Associated ("EFTA") and Central European Free Trade Associated ("CEFTA"), Turkey, Israel, Macedonia, Albania, Serbia and Montenegro, which may result in certain tariff rates being reduced or eliminated. The preferential tariff rates apply to products originating from the respective party to the agreement and are subject to submission of an evidence of origin.

24.1.6 Relief or Deferral of Customs Duties

Generally, customs duties and import VAT are payable at the time of the importation. However, there are some customs procedures and arrangements under which products could be imported into Bulgaria without need of immediate payment of customs duties. Such procedures include:

- Inward processing: An approval can be obtained from the customs authorities, subject to certain conditions, that goods be imported into Bulgaria without payment of customs duties for the purposes of their processing and subsequent re-exportation.
- Warehousing procedures: An approval from the customs authorities could be obtained such that goods are imported free of customs duties and stored in warehouses in Bulgaria, until needed for the purposes of the business. If the goods are subsequently re-exported, no customs duties are payable. If the goods are placed on the Bulgarian market, all custom duties are due, but the payment of such can be deferred until the goods are withdrawn from the warehouse.
- Temporary imports: In some cases, assets can be imported into Bulgaria without immediate payment of customs duties, for the purposes of them being used in Bulgaria and subsequently re-exported. Certain professional equipment could be temporarily imported without payment of customs duties. Upon importation of such equipment, the custom duties that are due are deposited with the State as a guarantee. If the goods are subsequently re-exported, a certain percent of the custom duties is due (3% per month of warehousing). If the goods are placed on the Bulgarian market, all custom duties are due plus interest, but the payment of such can be deferred until the goods are withdrawn from the warehouse. Other assets could be temporarily imported with a partial relief from customs duties.

24.1.7 Social Security/Health Insurance Contributions

The main legal instruments in the field of social security and health insurance regimes are the Social Security Code and the Health Act. Legislation requires that all employees are covered by the social security system. The system includes coverage for a group of social risks, which are general illness, work accidents, occupational diseases, maternity, disability, unemployment and retirement. Every employee, who was employed for more than five working days, or 40 working hours, during a calendar month, has to be secured against all social risks, for the period of employment.

The social security/health insurance contributions are based on the employee gross monthly remuneration. However, the legislation provides for a minimum and a maximum limit of the amount, used as a base for calculating the social security/health insurance contributions. The minimum amount depends on two factors a) the code of economic activity under a company's registration and b) the group of professions divided by organisational levels in which the particular position falls into. The minimum amount varies for different professions. The maximum amount for 2022 is BGN 3400. These amounts are usually reviewed every year.

24.2 Foreign Investment

24.2.1 National Treatment

The Investment Promotion Act ("IPA") provides for national treatment to foreign investors, which means that foreign investors are entitled to perform commercial activities in the country under the same provisions applicable to Bulgarian investors, except where otherwise provided by law. In particular, this principle covers the whole range of economic and legal forms of activities for accomplishing entrepreneurial businesses. The national treatment of foreign investors allows for the possibility of foreign investors to participate in the process of privatisation and acquisition of shares, debentures, treasury bonds and other kinds of securities.

24.2.2 Most Favoured Nation Status

Bulgaria is signatory to a number of bilateral treaties on promotion and mutual protection of foreign investment which provide, further to the national treatment regime, for the most favoured nation status of the investment made by entities and individuals, from one of the contracting countries on the territory of the other contracting country.

24.2.3 Priority of International Treaties

According to the Bulgarian Constitution any international treaty, which has been ratified according to a procedure established by the Constitution, which has been promulgated, and which has entered into force for the Republic of Bulgaria, shall be part of the domestic law of the land. Any such treaty shall take precedence over any conflicting standards of domestic legislation. This guiding principle finds expression in the treaties for protection of foreign investments, and especially, in the agreements for the elimination of double taxation regulations.

The international treaties on mutual protection of foreign investment always include an extended concept of a foreign direct investment, and the application of this concept has priority over the Bulgarian legislation. National treatment applies to foreign investors, which means that foreign persons are entitled to invest in Bulgaria under the terms and conditions provided to Bulgarian investors, except as otherwise is provided by law.

24.2.4 Guarantees against Adverse Changes of the Legislation

The IPA stipulates in Article 23 that foreign investment made prior to legislative revisions imposing statutory restrictions solely on foreign investments shall be governed by the legal provisions which were effective at the moment of implementation of the said investment.

The Underground Resources Act provides in Article 63 for protection of investments, in prospecting and/or exploration and concession activities, against changes in the legislation which result in the restriction of rights to, or material damages for, the holder of prospecting and exploration permits or mining concessions. In cases where such changes have been adopted, the permit or concession holder upon request thereby the terms and conditions of the concluded contract shall be amended so as to restore the holder's rights and interests in conformity with the initially concluded contract.

24.2.5 Institutional Framework

In accordance with the latest amendments of the IPA, the Bulgarian Foreign Investment Agency, established in 1995, was transformed into an agency under the supervision of the Ministry of Economy, and renamed as the Invest Bulgaria Agency. Currently, the Agency is under the supervision of the Ministry of Innovation and Growth and its basic function is to support the Minister in the implementation of the State policy for encouragement of investments.

The key function of the Agency is to assist companies in the investment process. It provides to prospective investors updated information about site identification and selection, support with the application for investment incentives, contacts with suppliers and prospective business partners, liaison with central and local government, branch chambers and non-government organisations.

24.2.6 Investment Incentives under the IPA and Commerce Act

Foreign investors are entitled to incorporate Bulgarian companies, to invest in Bulgarian companies, to acquire and to own Bulgarian companies and assets, and to freely transfer that ownership and other contractual rights. No restrictions are imposed on foreign ownership and participation in Bulgarian companies. Foreign entity may own 100% of a Bulgarian registered company. There are no restrictions on the amount of capital that can be invested in a Bulgarian company.

Earnings and profits may be repatriated after payment of liabilities due to the State, and capital can be repatriated upon cessation of the investment, or upon winding-up the business. All enterprises with foreign investments must take the form of business entities pursuant to the Bulgarian Commercial Act.

Foreign legal entities may register branches, if they have been registered abroad and are entitled to carry out business activities. Under the national law, a branch is a part of the main company but with a different seat. No authorised capital is needed for its opening.

Foreign persons may also set up representative offices registered at the Bulgarian Chamber of Commerce and Industry. The representative office, however, may not carry out commercial activities.

A joint venture is a company formed jointly by a Bulgarian and a foreign partner. The size of the foreign participation is not limited. Joint ventures must take the form of any of the business organisations stipulated in the Commerce Act.

25 Interpretation and Conclusions

25.1 Summary

BMM conducted detailed exploration of the Ada Tepe prospect between 2000 and 2004. A total of 52.9 km of drilling, and 18.3 km of surface trenching was completed, with more than 66,000 individual assay intervals and 5,700 bulk density determinations during this time. Since production commenced, some additional 383 km of RC drilling has been undertaken as part of operational grade control practices. There is a strong level of confidence in the data on which the Mineral Resource is based. Benchmarking of Upper Zone mineralisation volumes against the GC model has resulted in a more reliable grade-tonnage scenario.

The mine plan shows a high conversion of Mineral Resources to Mineral Reserves at the cut-off grades selected. The extent of the data collected through this exploration program and the quality control standards used provide the basis for a high level of confidence for this operation which has been demonstrated to be technically and commercially viable.

25.2 Geology and Sampling Procedures

During site visits by CSA Global in 2013, 2014, 2015, 2016 and 2017, 2019 and 2022 meetings have been held with DPM staff. Data and procedures were reviewed in the mine office, open pit operations, processing plant and SGS laboratory. Conclusions based on these site visits were that procedures are consistent with good mining industry practice.

25.3 Geological Model

CSA Global believes the current understanding of geology and mineralisation controls is good, and that the current Mineral Resource model adequately predicts the in-situ grades and tonnes realised during open pit development and mine production. Good comparison between the GC model, sampling and drilling data with the MRE model, demonstrates the robustness of the MRE model.

25.4 Assay QAQC

Conclusions from the QAQC results for gold and silver exploration sample analysis are summarised below:

- The QAQC procedures implemented at Krumovgrad are adequate to assess the accuracy and precision of the assay results obtained.
- No fatal flaws were noted with respect to cross contamination or assay accuracy (blank or standard analysis respectively). CSA Global noted that accuracy and precision exhibited by SGS Chelopech was, at times, poorer than the other laboratory results, however, no significant bias was noted and CSA Global considered that the gold and silver CRMs analysed by the SGS – Chelopech laboratory to be accurate and appropriate for Mineral Resource estimation studies.
- CSA Global conclude that for the purpose of Mineral Resource estimation, acceptable levels of precision with no significant bias for both gold and silver were reported for all the sampling stages analysed.
- Relatively high levels of inter-laboratory precision were evident for the gold analyses between primary and umpire laboratories. In addition, there was no evidence of bias between the compared datasets.

A review of the quality control data for the grade control drilling was completed for gold and silver assays. Data from RC drillholes drilled between 2020 and 2022 were reviewed.

- No failures were noted in the preparation blanks and therefore no issues are expected with respect to cross contamination.
- Gold CRM results were mostly accurate with no significant bias or failures. Silver low grade CRMs have multiple bias issues, but these are attributed to the imprecision of the assay methods at low grades.

- Acceptable levels of precision have been exhibited for gold duplicate pairs with SGS_BO having the poorest precision for field duplicates and laboratory duplicates. Silver pairs were mostly low grade, but where pairs were greater than 10 times the lower detection limit, precision was mostly acceptable.

Quality control results indicate that the grade control assay results are accurate and repeatable with no material contamination apparent. No significant issues of bias or fatal flaws were noted in the overall QAQC review and therefore the author believes these results can be used with confidence in downstream work.

25.5 Database Validation

Project data are housed in an acQuire relational database which has inbuilt validation criteria, constraints, and triggers to ensure that all data in the database are validated and meet these criteria. Verification checks are also completed by DPM on surveys, collar coordinates, lithology, and assay data. Data undergoes further validation by CSA Global through a series of Datamine loading macros.

An audit of the DPMKr database was completed by CSA Global and the overall conclusions were that the database was well maintained, good practices appeared to have been followed, and data in the database should be fit for purpose for downstream work.

The Qualified Person has reviewed the reports and believes the data verification procedures undertaken on the data collected from DPMKr adequately support the geological interpretations and the analytical and database quality, and therefore supports the use of the data in Mineral Resource and Mineral Reserve estimation.

25.6 Bulk Density

CSA Global concludes that the in-situ dry BD data is collected using appropriate sampling methods and analysis procedures. Investigations based on the geological logging codes concluded that the modelled geological constraints allowed for appropriate grouping of the BD data. CSA Global reviewed these assumptions in the July 2020 MRE update by further subdividing these geological zones based on mineralised vs waste material. Minor differences observed between the mean density values for the waste and mineralised material in the Upper Zone conclude that the previous grouping of BD values is appropriate. No material differences were identified for the Wall Zone in the updated dataset. CSA Global has therefore used the values determined in the previous study, with the inclusion of values for the basement waste rock.

25.7 Mineral Resource Estimation

A total of 7,472 holes for 462,579 m were used in the update to the Ada Tepe MRE. At the time of reporting the Ada Tepe deposit is essentially drilled out on 5m x 5 m centres within the current LOM shell, constrained by permitting extents.

The availability of close spaced sampling data throughout the deposit has allowed for refinement of the MRE model during the 2022 update, as set out in Section 14.

In addition, benchmarking of the MRE against the GC model and recent production data shows close comparison (to within 5% on a tonnes, grade and contained metal basis) and CSA Global concludes that the Mineral Resource model is robust and can be used in downstream Mineral Reserve evaluation and mine planning with confidence.

Technical risk associated with downstream use of the Mineral Resource model is considered low.

25.8 Process Plant and Infrastructure

Plant operating data indicates that the Ada Tepe processing facility is currently achieving nameplate production, and design gold and silver recoveries to saleable concentrate. Future mine production will include a higher percentage of the harder Wall Zone material in the plant feed. This will result in a decrease in plant throughput rate from 105tph down to 90tph as per the latest LOM production, and processing plan.

The IMWF design and construction schedule based on the updated LOM plan waste quantity and tails volume indicates sufficient available tailings storage throughout the LOM.

Future plant performance optimization opportunities include the installation of an On-Stream Analyzer allowing for further advanced control and automation of the flotation circuit to stabilize and improve recovery performance.

25.9 Mine Operations

The successful establishment and construction of the mine has resulted in a viable mining operation that has reached its design capacity and realised planned milestones. The established operational approach is indicated to continue to deliver the production and results of the LOM Plan.

No risks are considered to be fatal flaws in the context of the Ade Tepe operation, although continuing actions to improve the risk profile will be undertaken. Recent increases in costs require to be monitored and opportunities to decrease inflationary pressure sought.

25.10 Qualitative Risk Assessment

Table 25-1 summarises the areas of uncertainty and risk associated with the project, informed by the conclusions summarised above, and recommendations discussed in Section 26.

Table 25-1: Project-specific risks

Project risk area	Summary	Outcome	Mitigation
Geology and data management	Upper Zone mineralisation is complex. Volume estimation through Indicator Kriging has been benchmarked against the current good performance of the GC model in production.	Performance may change as mining moves from predominantly oxide to fresh.	As production moves out of oxide and into fresh, performance must be monitored to ensure assumptions remain valid.
Mineral Resource estimation	The wireframes have been interpreted with the current reporting cut-offs in mind.	Any changes to cut-off, either increasing or decreasing may result in different volumes being interpreted, data being selected and therefore tonnes and grades being estimated.	If a broader spectrum of cut-off grades are of interest, a non-linear estimation method is recommended.
Mining	The Upper Zone mineralisation is highly complex and exhibits a high nugget component and significant short-range grade variability.	Misallocation of ore and waste. Unplanned dilution within feed.	Continue to ensure that RC GC drilling is undertaken ahead of mining, preferably one year ahead. Careful mining practices to minimise dilution, such as the use of BMM and HPGPS guided excavators should continually be used during ore extraction.
Processing	No significant risks		
Waste and tailings management	Shortage of waste available from Pit for constructing tailings cells, or excessive volume of tailings, due to misalignment between design and actual waste/tailings mass balance.	Alternative local and/or imported waste required. Periods of lower plant throughput or plant stoppage to allow.	Detailed LOM plan showing waste and tails production indicate that cell construction schedule allows sufficient available volume for tails throughout the LOM. This schedule is progressively reviewed and adjusted as the mine progresses to account for as-built situation.

Project risk area	Summary	Outcome	Mitigation
			Contingency tailings storage capacity available.
Force majeure (including COVID-19 outbreak)	Could affect labour and supply chain which could impact capital and operating costs. Could affect obligations under the concession and exploration contracts	Could impact on the mining and exploration schedule	Managing inventories and reviewing alternative supply options should any disruptions occur. Focus on managing outbound supply chains, including, by considering multiple sale and transportation outlet. Written notice to MoE for temporary suspension of the concession contract for the period of Force majeure. Additional agreements for extending the exploration contract terms and extension of other contracts for land use.

26 Recommendations

The following recommendations are made in relation to the Ada Tepe mine operations:

26.1 Geology and Mineral Resources

Characterisation of "voids" are recommended to ensure they are adequately mapped, and that grade and density relationships are well understood.

Moving forward the MRE model essentially becomes the GC model since no additional drilling is planned by DPM. As successive levels of the deposit are mined over the remaining years of the LOM, the performance of the MRE model should be routinely assessed against production data as part of regular reconciliation reviews.

Site teams should continue to develop the geologic models, particularly for the metamorphic basement hosted mineralisation given its irregular form and low levels of grade and geologic continuity. As this mineralisation is exposed during mining, mapping and structural measurements should be employed to validate the interpretation of this domain.

26.2 Mining and Processing

26.2.1 Recommended Focus Areas

CSA Global recommends the following activities are continued;

- Training and development of the technical workforce to further optimise and improve management and operational practices.
- Reconciliation, with particular focus on comparisons as mining commences into fresh material to ensure assumptions remain valid, with respect to the Mineral Resource model and the MSO parameters used in estimation of dilution and ore loss in the Mineral Reserve model.
- Careful monitoring of the IMWF and continued management of the waste and tailings placement process according to the design principles.
- Monitoring of inflationary costs and development of programs to seek alternative suppliers and reduced energy consumption based on trade-off studies.
- Focus on continuous improvement and application of appropriate innovations to operational activities – including the installation of an online analyser, allowing for improved flotation control performance.
- Implement further process plant optimisation opportunities to improve flotation performance and provide increased process control measures to ensure "steady state" operations.
- Apply the recently developed geometallurgical block model in combination with the plant performance predictive model, to the production planning process. This would allow for further process optimisation through improved planning, prediction and control of the mining operation, feed blend and plant control.

26.2.2 Recommended Work Programs

During 2022 the results of extensional drilling to the north of the deposit returned a series of narrow intervals of mineralisation above the mine cut-off and within the commercial discovery boundary, which may represent incremental extensions of Upper Zone vein swarms. A recommendation is that DPM consider RC infill drilling to the north of the deposit to properly assess the Mineral Resource potential of these volumes.

An estimate of 8,000 m of RC drilling would be required to complete this assessment at an approximate cost of USD$480,000.

27 References

Abzalov, M., 2008, Quality Control of Assay Data: A Review of Procedures for Measuring and Monitoring Precision and Accuracy, Exploration and Mining Geology, Vol. 17, Nos. 3–4, p. 131–144, 2008

Amec, 2013, Trade-off Study 3 – ROM Feed, Krumovgrad Gold Project. Report: KGP100-2000-3000-RPT-0003, prepared for Balkan Minerals and Mining EAD, dated 23 May 2013.

Amec, 2015, Process Design Criteria. Technical Specification: KGP100-2000-1100-DSC-0001_0, prepared for Dundee Precious Metals, dated 11 November 2015, Author: S O'Leary.

CSA Global, 2012, Summary Report, Data Review and Site Visit Report, For Ada Tepe, Krumovgrad Gold Project, Bulgaria. Prepared for Dundee Precious Metals, Author: Galen White.

CSA Global, 2019, Summary Report, Ada Tepe Drill Hole Spacing Analysis review, Report number R503.2019, Author: Greg White

CSA Global, 2020, Summary Report, Ada Tepe Mine Scheduling Review, Report number R130.2020, Authors: Daniel Grosso, Jorge Llido and Karl van Olden

CSA Global, 2020, Summary Report, Ada Tepe End of Month Systems and Procedures Review, Report number R191.2020, Authors: Malcolm Titley and Greg White

CSA Global, 2020, Ada Tepe acQuire Database Audit, prepared for Dundee Precious Metals, Report number R290.2020, Author: David Muir.

CSA Global, 2020, Summary Report, Review of at risk material within the updated grade control model for use in short term planning, Report number R330.2020, Author: Greg White

CSA Global, 2020, Close Out Report, Mine Geology Support Krumovgrad Gold Mine - Q2 2020 Close Out Report, Report number R331.2020, Authors: Greg White and Tom Shelmerdine-Hare

CSA Global, 2020, Summary Report, 2021 Ade Tepe Grade Control Drill Plan Review , Report number R394.2020, Author: Tom Shelmerdine-Hare

CSA Global, 2020, Mineral Resource & Mineral Reserve update, Ada Tepe Mine, Bulgaria. NI43-101 Technical Report, Report number R404.2022, Authors: Galen White and Karl van Olden.

CSA Global, 2021, Close Out Report, Mine Geology Support Krumovgrad Gold Mine - Q4-2020 Close-Out Report, Report number R182.2021, Authors: Greg White and Tom Shelmerdine-Hare

CSA Global, 2021, Summary Report, Krumovgrad GC Sample Contamination Review , Report number R217.2021, Authors: David Muir and Jane Coll

CSA Global, 2021, Summary Report, Peer Review of Update to Grade Control Block Model for Push Back 3 Between 450-420RL, Report number R242.2021, Authors: Jane Coll and Greg White

CSA Global, 2021, Summary Report, DPMK - Fragmentation for IWMF, Report number R454.2021, Author: Barry McCreadie

CSA Global, 2022, Summary Report, Peer Review of Update to Grade Control Block Model for Push Back 4 Between 445-325RL , Report number R266.2022, Authors: Tom Shelmerdine-Hare and Greg White

CSA Global, 2022, Summary Report, Advice on preparation of the Ada Tepe 2022 Reserve Statement, Report number R286.2022, Author: Andrew Sharp

CSA Global, 2022, Interpretative Report, Geometallurgical Assessment of the Ada Tepe Deposit in Bulgaria, Report number R219.2022, Authors: Pim van Geffen, David Kaeter and Nerys Walters

CSA Global, 2022, Ada Tepe QAQC review, Report number R134.2022, Author: Maria Combrink

CSA Global, 2022, Interpretative Report, Geometallurgical Assessment of the Ada Tepe Deposit in Bulgaria, Report number R219.2022, Authors: Pim van Geffen, David Kaeter and Nerys Walters

CSA Global, 2023, Summary Report, Review of Ade Tepe Production Reconciliations for the 2022 Calendar year, Report number R112.2023, Authors: Greg White and Tom Shelmerdine-Hare

Dundee, 2007, Orange Book - General Exploration Protocols Based on the Krumovgrad Model, Dundee Precious Metals Exploration Department, June 2007.

Golder, 2013, Interpretative Report, Geotechnical and Hydrogeological Ground Investigation: KRUMOVGRAD GOLD PROJECT, Report No. KGP100-0500-1100-RPT-1009_r1, PROJECT No. 12514950442.504/A/0, prepared for Balkan Mining and Mining EAD, dated June 2013.

Golder, 2013, Krumovgrad IMWF Detailed Design: Open Pit Inflow Analysis - Contribution to Water Management Requirements, Report No. KGP100-0500-1100-TRM-1001_A, Project No. 12514950442.536.00, Technical Memorandum, prepared for Dundee Precious Metals, dated 15 July 2013, Author: Grace Yungwirth, To: Stewart, F.

Golder, 2013, Krumovgrad Gold Project: Detailed Design: IMWF Stability Assessment, Report No. KGP100-0500-1100-RPT-1004_A, Project No. 12514920442.523.00, Technical Memorandum, prepared for Dundee Precious Metals, dated 26 July 2013, Author: Dr. B Zhang, To: Stewart, F.

Golder, 2013, Krumovgrad Gold Project: Open Pit Mining Review, Report No. KGP100-1000-2000-1700-RPT-1200_A, Project No. 12514950419.010.45, Technical Memorandum, prepared for Dundee Precious Metals, dated 9 August 2013, Author: Bryan Pullman, To: Stewart, F.

Golder, 2013, Krumovgrad Gold Project: Open Pit Site Investigation: Groundwater Monitoring – June 2013, Report No. KGP100-2000-1700-RPT-1003_1, Project No. 12514950419.508/B.1, Technical Memorandum, prepared for Dundee Precious Metals, dated 6 September 2013, Author: Jo Birch, Grace Yungwirth, To: Stewart, F.

Golder, 2013, Krumovgrad Gold Project: Open Pit Design Validation, Report No. KGP100-2000-1700-MEM-1001_B, Project No. 12514950419.509/B,0, Technical Memorandum, prepared for Dundee Precious Metals, dated 29 November 2013, Author: Mark Donald, To: Stewart, F.

Golder, 2014, Krumovgrad Gold Project: Open Pit Design Validation, Report No. KGP100-2000-1700-MEM-1001_C, Technical Memorandum, prepared for Dundee Precious Metals, dated 15 September 2014. Author unknown.

Gossage, B.L, and Ridley, J., November 2004 (RSG Global): Krumovgrad Project, Ada Tepe Prospect, Bulgaria - Database Review, Geological Modelling, and Resource Estimate.

Jobson et al. “The Modernisation and Upgrade of Concentrator Operations at the Chelopech Mine, Bulgaria - Part 2: Design, Installation and Operation of the 250 t/h Comminution Circuit”, AusIMM - Mill Operators Conference, Hobart 2012.

“Krumovgrad Gold Project Definitive Feasibility Study”, Dundee Precious (Krumovgrad) BV, November 2011.

“Krumovgrad Gold Project Ada Tepe Deposit Definitive Feasibility Study Technical Report Amended and Restated”, Dundee Precious (Krumovgrad) BV, 5 January 2007.

"Krumovgrad Gold Project, Ada Tepe Deposit, Database Review, Geological Modelling and Mineral Resource Estimate - December 2004 Update", RSG Global, March 18, 2005.

Macromet, 2013, Krumovgrad Gold Project - Process Design Basis Review. Prepared for Balkan Mining and Mining EAD, dated April 12, 2013.

Márton et al., 2015. Krumovgrad Project Review and Target Ranking. István Márton, PhD (Stockwork Geoconsulting Ltd), Evgeny Plyushchev, PhD (GECON Ltd), Kuncho Kunchev (DPM). February 3, 2015.

SGS Canada, Project 12251-002 – Final Report, 8 July 2010.

SGS Canada – Grinding Circuit Design at Feasibility Level using CEET2® Technology, November 2010.

SGS Canada – Flotation Circuit Design at Feasibility Level using FLEET2® Technology, February 2011.

Tosdal, R., 2012. Review of southern Bulgaria exploration properties for Balkan Minerals and Mining EAD. Prepared by Richard M. Tosdal, Ph.D., PGeo, PicachoEx LLC. November 19, 2012.

Woodgrove Technologies Technical Presentations to DPM, 2012 and February 2013.

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