Audit 2014
Volume 3 Mastra Resources and Reserves
Koza Altın İşletmeleri A.Ş.
Turkey

Report Prepared for

Koza Altın İşletmeleri A.Ş.

Report Prepared by

srk consulting

SRK Consulting (U.S.), Inc.
SRK Project Number 173600.130
January 31, 2015

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The metric system has been used throughout this report unless otherwise stated. All currency is in U.S. dollars unless stated otherwise. Market prices are reported in US$ per troy oz of gold and silver. Tonnes are metric of 1,000 kg, or 2,204.6 lb, unless otherwise stated. The following abbreviations are typical to the mining industry and may be used in this report.

Abbreviation	Unit or Term
°	degree
%	percent
AA	atomic absorption
AAS	atomic absorption spectroscopy
Ag	silver
amsl	above mean sea level
Au	gold
BLEG	Bulk Leach Extractible Gold
BWI	Bond Work Index
C	Celsius
CoG	cutoff grade
CIP	carbon in pulp
cm	centimeter
CP	Competent Person
CPR	Competent Person's Report
CRP	Community Relations Plan
CRM	Certified Reference Material
Cu	copper
dia.	diameter
Eq	equivalent
EIA	Environmental Impact Assessment
F	Fahrenheit
ft	feet/foot
g	gram
g/cm	grams per centimeter
g/t	grams per tonne
ha	hectares
HG	high-grade
hr	hour
ID2	Inverse Distance Squared
ID3	Inverse Distance Cubed
in	inch
IP	Induced Polarization
kg	kilogram
km	kilometer
koz	thousand troy ounce
kt	thousand tonnes
kV	kilovolt
kVA	kilovolt-amps
L	liter
lb	pound
LHD	load haul dump
LG	low-grade
LoM	life of mine

m	meter
M	million
m.a.	million annum
min	minute
mm	millimeter
Mm	million meter
Moz	million ounces
Mt	million tonnes
Mt/y	million tonnes per year
MTA	Mining, Research and Exploration Institute of Turkey
MVA	million volts amperes
NN	Nearest Neighbor
NPV	net present value
OK	Ordinary Kriging
OP	open pit
oz	ounce
ppb	parts per billion
ppm	parts per million
QA/QC	Quality Assurance/Quality Control
RC	reverse circulation
RoM	run of mine
SART	sulfidization, acidification, recycling, and thickening
t	tonne(s)
t/h	tonnes per hour
t/d	tonnes per day
t/m	tonnes per month
t/y	tonnes per year
TEM	Technical Economic Model
μ	micron
UG	underground
V	volt
WAD	weak acid dissociable
Zn	zinc

1 Introduction

SRK Consulting (U.S.), Inc. (SRK) was commissioned by Koza Altın İşletmeleri A.Ş. (Koza) to audit Koza's gold resources and reserves and exploration projects as of the end of December, 2013. Koza's Mining Assets are located in the Ovacık Mining District, Mastra Mining District, and Kaymaz District, including Söğüt, as well as Mollakara in the Diyadin District in Eastern Turkey and Himmetdede in Central Turkey.

This report is Volume 3 Mastra Resources and Reserves of the following ten volumes reports

- Volume 1 Executive Summary;
- Volume 2 Ovacık Resources and Reserves;
- **Volume 3 Mastra Resources and Reserves;**
- Volume 4 Kaymaz Resources and Reserves;
- Volume 5 Söğüt Resources and Reserves
- Volume 6 Himmetdede Resources and Reserves;
- Volume 7 Mollakara Resources and Reserves;
- Volume 8 Technical Economics;
- Volume 9 Hasandağ and Işıkdere Resource Areas; and
- Volume 10 Exploration Projects.

This report is prepared in accordance with the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (JORC Code 2012).

Volume I Executive Summary contains the Terms of Reference and Property Descriptions relevant to all volumes of this audit.

1.1 Mastra District

The Mastra District includes the Mastra Mine and Mastra North Project. These projects are located in the Pontic (Kaçkar) Mountains. The Location of the Mastra District is shown in Figure 1.1.1.

Source: Modified from Okay, et al., 2010; Basemap = ESRI Basemap NatGeo_World_Map, 2013

Figure 1.1.1: Location of the Mastra District

2 Mastra Mine

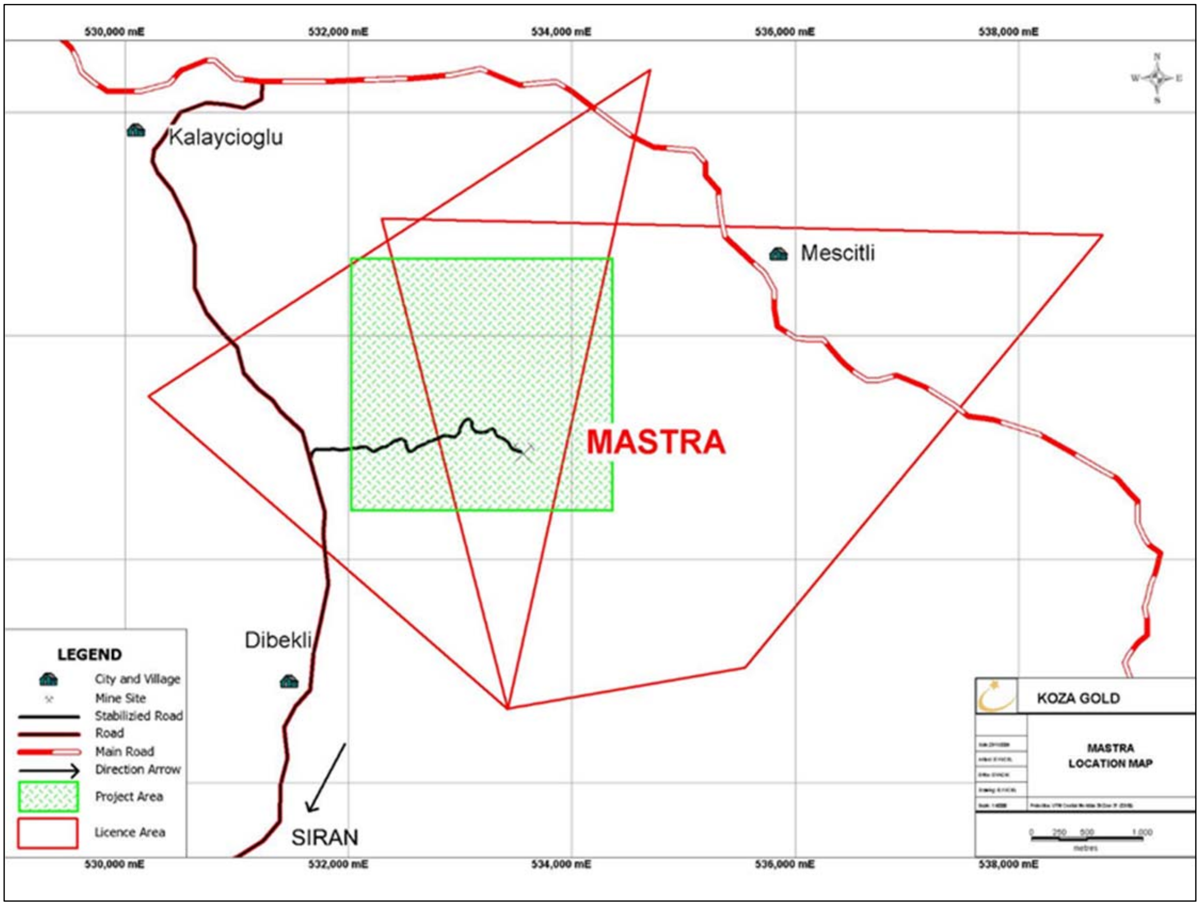
The Mastra Mine consists of an underground mine, a planned open pit and a processing plant. The Mastra North project is within the Mastra Mine property boundary.

2.1 Property Description and Location

The Mastra Mine and Mastra North Project are located approximately 1 km northeast of Mastra village in the province of Gümüşhane approximately 80 km south of the Black Sea port city of Trabzon, in northeastern Turkey. Trabzon is linked to the town of Gümüşhane by a major divided highway linking the coastal port with interior Turkish towns. This highway is State Road D883/International Road E-97 and becomes International Road E-91 at the village of Torul. These roads are an international transport route for land freight.

The Mastra Mine and Mastra North Project are accessed from the town of Gümüşhane by taking the E-91 approximately 15 km to the turnoff to Mastra village. From this turnoff it is approximately 5 km to the turnoff to the mine. The mine is located about 300 m above the village and the project area is located between UTM coordinates 4485500 N, 531000 E to 4482000 N, 535000 E in ED1950 Zone 37, between elevations 1,100 and 1,720 m.

Koza has two operation licenses at Mastra Mine and Mastra North Project. These include operation licenses numbers 4345 and 6642, which overlap and cover approximately 2,856 ha. Operation license 4345 has three operation permits: one for gold, one for silver and one for aluminum. The permits for gold and silver cover the same area of 758.49 ha as the operation license. However, the permit for aluminum covers a different area of 231 ha within operation license 4345. Operation license 4345 expired in June 2014 and is currently in the process of being renewed. Operation license 6642 has two operation permits, one for gold and silver and one for copper, lead and zinc. The permit for gold and silver covers approximately 755.74 ha and the permit for copper, lead and zinc covers approximately 1,215.19 ha. Land tenure for Mastra is shown in Figure 2.1.1.



Source: Koza, 2012

Figure 2.1.1: Mastra Location Map

2.1.1 Climate and Physiography of the Mastra District

The climate in the Mastra District varies between the Black Sea and the leeward sides of the Kaçkar Mountains. The Black Sea side is a wetter, more temperate climate while the leeward side has a more continental climate. The Mastra Mine and Mastra North, Torul and Işıkdere Projects are located on the leeward side of the mountains and experience a typical continental climate. These areas are in a semi-rain shadow, where precipitation from the Black Sea is frequently blocked by the mountain range between Gümüşhane and Trabzon. During the summer months from June to September, the weather is hot and dry. Temperatures have reached 36°C in July at Gümüşhane with average temperatures around 20°C. Winters are cold and snowy with average temperatures around -3°C for Gümüşhane. Minimum winter temperatures at the Mastra Mine have been reported to -24°C. Annual precipitation is reported to be 400 mm per year falling as rain in the summer and as snow in winter. Most of the rainfall occurs during March, April and May.

The Mastra Mine and projects in the District are located in areas of steep mountainous topography between 1,000 and 1,500 m amsl. Near the Mastra Mine, the elevation ranges from 1,040 m at the Kodil River to 1,750 m amsl at the highest peak. The terrain is steep and rugged with high relief.

2.2 History

The Mastra Mine property was held by Eurogold Madencilik, S.A. (Eurogold) and Normandy Madencilik, A.S. (Normandy) from 1990 to 1992 and again in 2003. Eurogold performed regional stream sediment sampling in the area collecting stream sediments for Bulk Liquid Extractible Gold (BLEG) analysis. Site specific work included soil samples, rock chip samples, trenching, 110 core and RC holes, geophysical surveys, and 1:25,000 scale mapping.

Koza acquired the property in 2005 and collected additional stream sediment samples, soil samples and rock chip samples, drilled surface and underground core holes and mapped the area at 1:5,000 and 1:10,000 scales. Historic Production at the Mastra Mill is shown in Table 2.2.1.

Table 2.2.1: Historic Production at the Mastra Mill

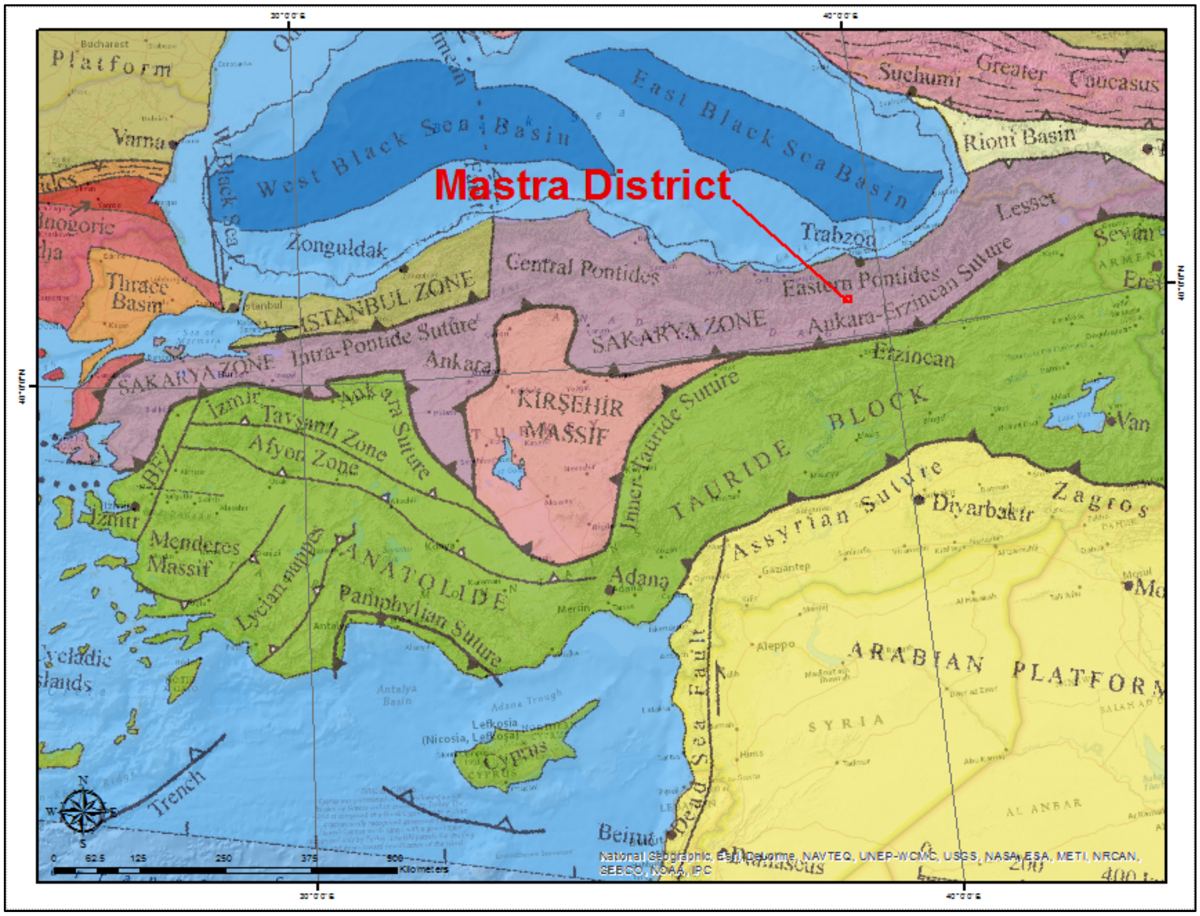
Operator	Year	Tonnes	g/t Au	g/t Ag	oz Au	oz Ag
Koza	2009	347,071	8.48	3.01	83,699	37,135
Koza	2010*	466,698	9.51	2,15	132,782	30,375
Koza	2011*	528,516	10.12	3.77	162,550	24,392
Koza	2012	519,339	6.62	3.85	107,522	28,719
Koza	2013**	512,756	5.31	6.56	80,871	41,504

Source: Koza, 2013
*Includes material from the Gıcık Mine
** Includes material from Çorakliktepe

2.3 Geology

2.3.1 Regional Geology of the Mastra District

The Mastra District is located in northeastern Turkey approximately 70 km SSW of Trabzon near the town of Gümüşhane. This area is within the Sakarya Terrane north of the Ankara-Erzincan Suture. This terrane is located in the eastern part of the Pontide Tectonic Belt in the Pontide island arc complex. This island arc formed during Jurassic to Miocene age subduction of the African Plate under the Eurasian Plate. The Pontide Tectonic Belt is a sub-province of the Tethyan Metallogenic Province. The Pontide Tectonic Belt is specifically associated with Kuroko-type massive sulfide deposits (Okay, 2008). Figure 2.3.1.1 shows the Mastra District's position in the Sakarya Terrane.

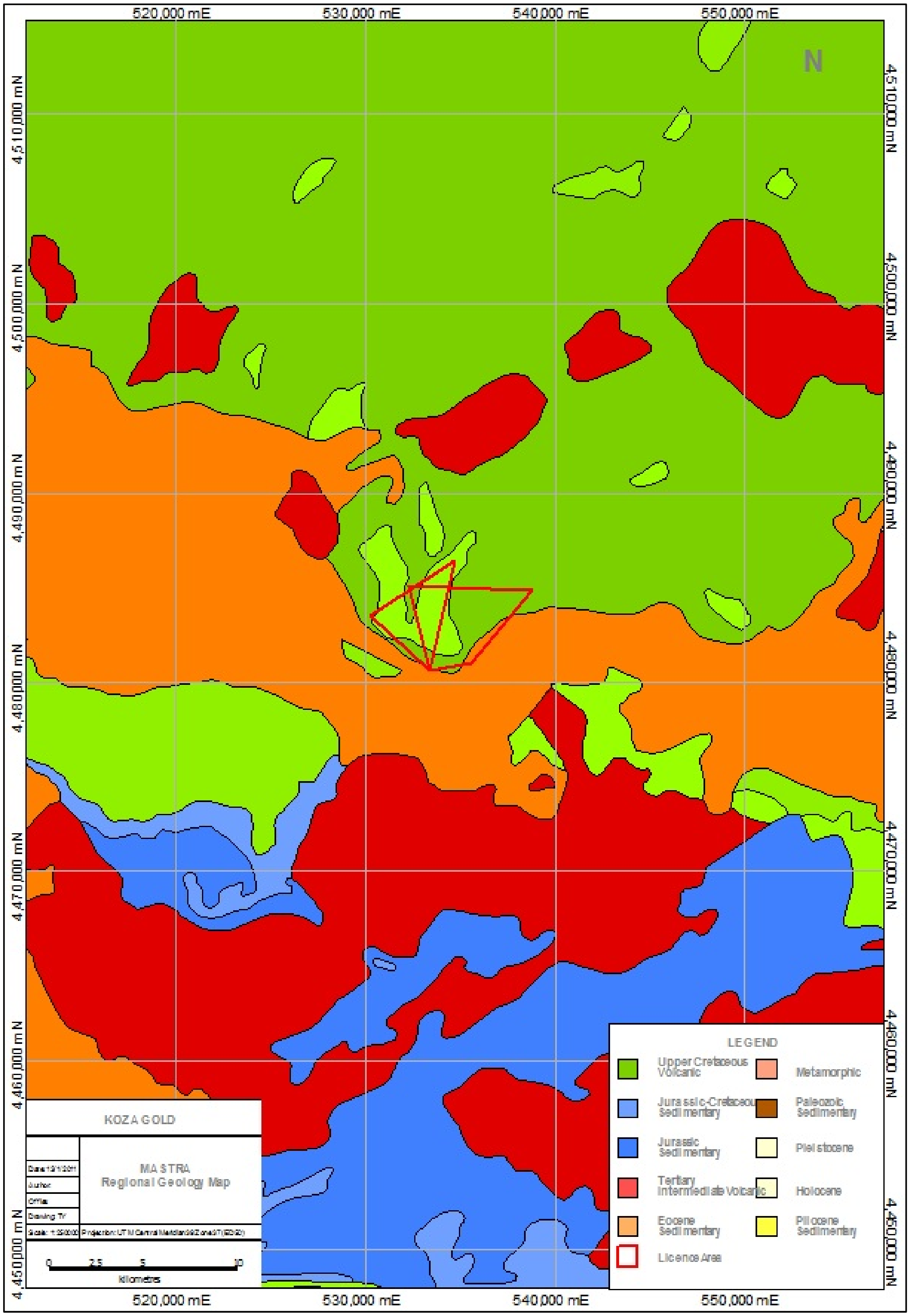


Source: Modified from Okay, et al., 2010

Figure 2.3.1.1: The Mastra District Relative to the Terrane Map of Turkey

The oldest units in the area are Paleozoic age metamorphic rocks, which have been intruded by the Permian age Gümüşhane granitoid suite. These rocks are unconformably overlain by basalt and andesite lavas of Liassic age, which are, in turn, overlain by Jurassic and Cretaceous age limestone. All of these units have been intruded by the Cretaceous age Kaçkar granitoid and capped by Eocene age andesite flows and pyroclastic rocks of the Kabakoy Formation (Tüyüz, et al., 1995).

Quartz veining on a regional scale is predominately found along a northwest striking structural zone. It is thought that this structural zone may be a strike-slip fault related to other regional trends (Chapman, 2007; Datamine International, 2008). Figure 2.3.1.2 shows the regional geology of the Mastra Mine.

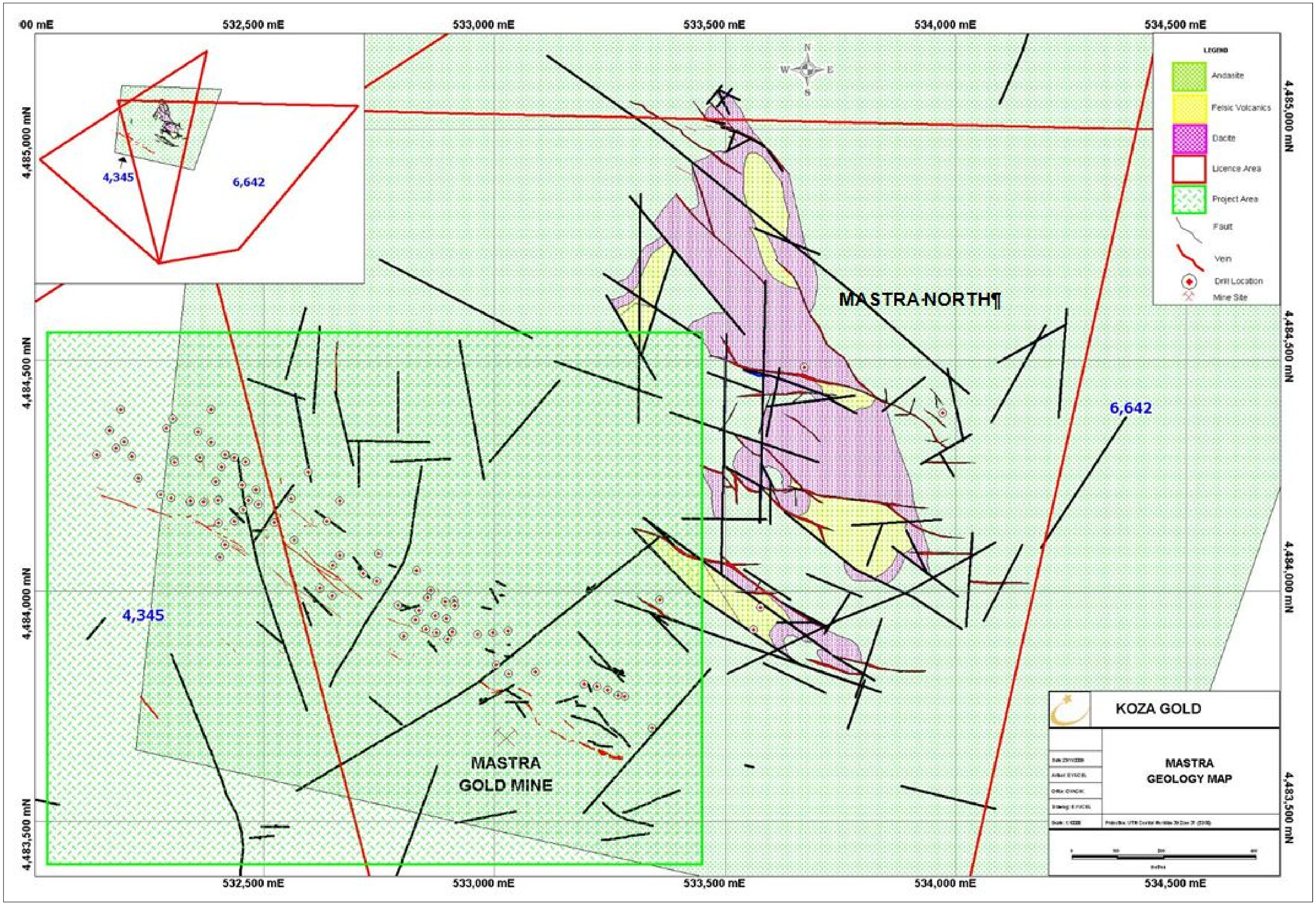


Source: Koza, 2012

Figure 2.3.1.2: Mastra District Regional Geology Map

2.3.2 Local Geology of the Mastra Mine and Mastra North Project

The Mastra deposit is described as a high angle, intermediate-sulfidation, Au-Ag epithermal vein deposit hosted by Eocene age andesite (Tüyüz, et al., 1995). Mastra is a structurally controlled series of thin quartz veins. The host structure is interpreted by Koza to be a sinistral strike-slip fault. The vein zone strikes approximately N65°W and dips from 60 to 80° NE with an alteration halo extending up to 300 m into the wall rock. This alteration zone includes silicification adjacent to the quartz veins grading into an argillic zone and finally into a distal propylitic zone. In the southern area of the deposit, the vein zone, splits into two distinct veins referred to as the East and West Veins. These veins both average 3 to 4 m in width, but in places are up to 7 m wide. A discontinuous vein has been mapped to the west (Far West Vein) and a smaller vein between the East and West Veins (MEW Vein) has also been delineated. Quartz within veins is amethystine in places and shows a wide range of epithermal quartz textures including crystalline and chalcedonic quartz and associated breccia zones. Quartz veining is typically episodic with high and medium temperature textures including colloform banded silica, acid leach textures, and irregular base metal concentrations. Fluid inclusion studies have confirmed temperature and pressure estimates of formation made from observations of textures and mineralogy verifying that this is epithermal. The veins also include adularia, alunite, calcite, barite and rarely gypsum. Sulfide minerals occur as intergrowths, bands and disseminations and include chalcopyrite, galena, sphalerite, pyrite, tetrahedrite, electrum and argentite (Chapman, 2007; Datamine International, 2008). Figure 2.3.2.1 shows the local geology of the Mastra Mine.



Source: Koza, 2012

Figure 2.3.2.1: Geology of the Mastra Mine and Mastra North Project

The Mastra North exploration project is focused on a vein zone paralleling the Mastra Mine zone (Figure 2.3.2.1). Koza has found evidence of two different epithermal gold-silver settings for the Mastra North mineralization:

- High temperature setting with saccharoidal and drusy quartz veins related to the late stage dike emplacement with elevated gold grades; and
- Low temperature/ upper level epithermal setting with chalcedonic silica with elevated silver and arsenic grades and low gold grades.

Koza has interpreted the presence of both types of settings as evidence of telescoping of the system over time.

Koza has completed mapping and sampling at this site and drilled 114 core holes. Koza interprets Mastra North as a low sulfidation vein system with similar mineralogy and vein orientation as the mineralization observed in the mine.

2.4 Exploration

Koza is using epithermal and porphyry systems as an exploration model in the district. The epithermal model is based primarily on the low sulfidation epithermal mineralization observed at the Mastra deposit. However, Koza is also applying high sulfidation epithermal models in addition to the variations of porphyry systems that can occur in this geological environment.

Although Koza is currently exploring the entire district, its primary focus at the mine is on vein zone extensions in the Mastra Mine and at Mastra North. During 2015, Koza's focus is on licensing fees. Koza has budgeted approximately TL54,000 (US$24,000). This is adequate for the licensing work but will need to be readdressed for any exploration activities.

2.5 Drilling and Sampling Procedures

2.5.1 Mastra Mine

The drillhole database consists of surface drilling conducted by Turkey's General Directorate of Mineral Research and Exploration (MTA), Eurogold and Koza and underground drilling, trenches, open pit grade control sampling and underground face sampling conducted by Koza (Table 2.5.1.1). Figure 2.5.1.1 is a drillhole location map showing surface and underground core drilling and Figure 2.5.1.2 shows the open pit grade control and underground face samples. The Mastra Project is on a rotated local grid.

Table 2.5.1.1: Mastra Resource Database

Company	Type	Prefix	Number	Meters	Samples	
					Number	Meters
MTA	Core	MT	10	1,194	247	329
Eurogold		MD, PD, TD, MMD	100	14,419	3,152	3,130
Koza	Trenches	TR	109	2,007	1,277	1,266
	Surface Core	KZM	254	58,845	19,025	18,200
	Underground Core	MUD	1,164	44,268	18,344	17,592
	Open Pit Grade Control	CHM	869	12,716	19,677	19,878
	Underground Face Samples	Various	3,851	4,433	19,503	19,043
Total			**6,357**	**137,882**	**81,225**	**79,438**

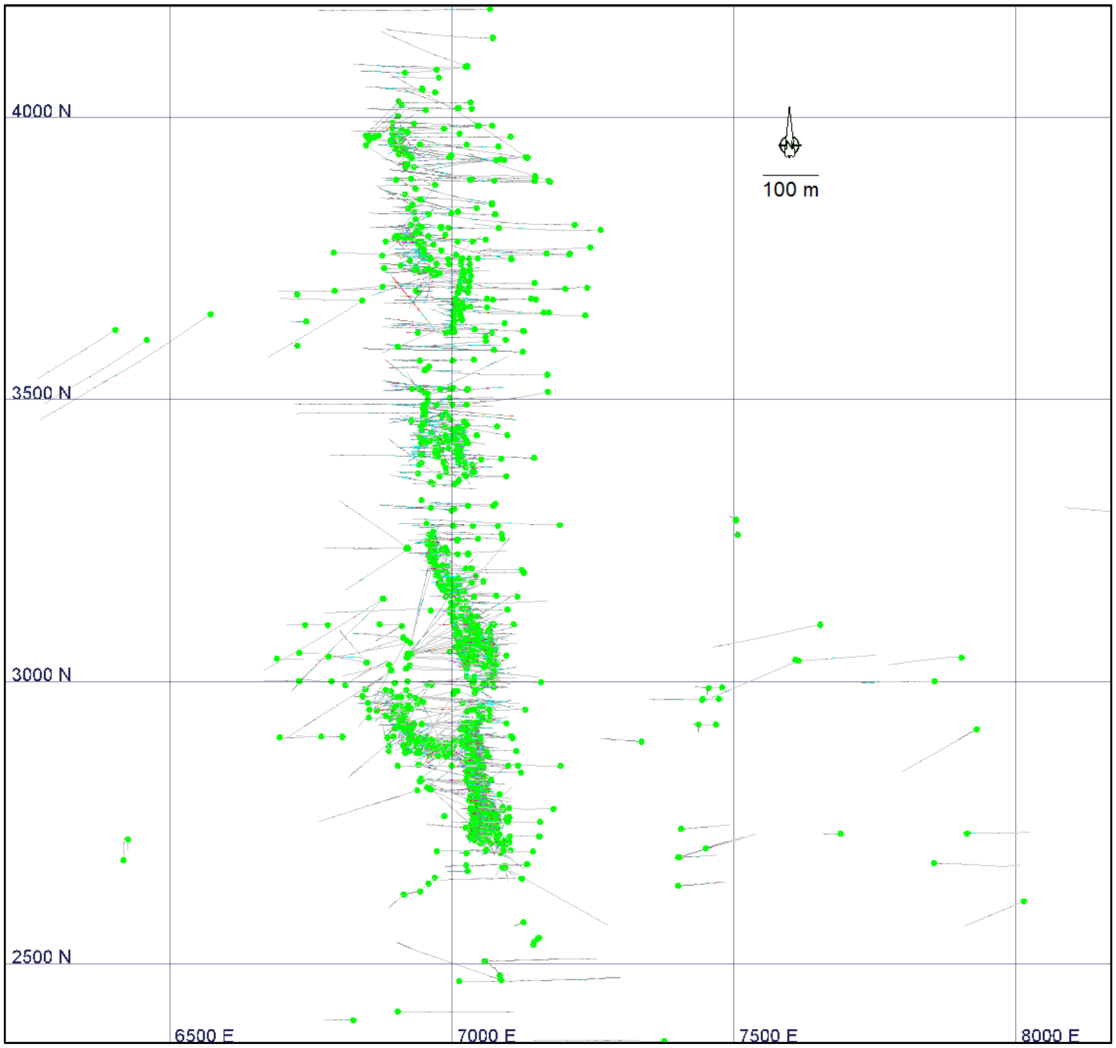


Figure 2.5.1.1: Mastra Surface and Underground Drilling, in Plan View

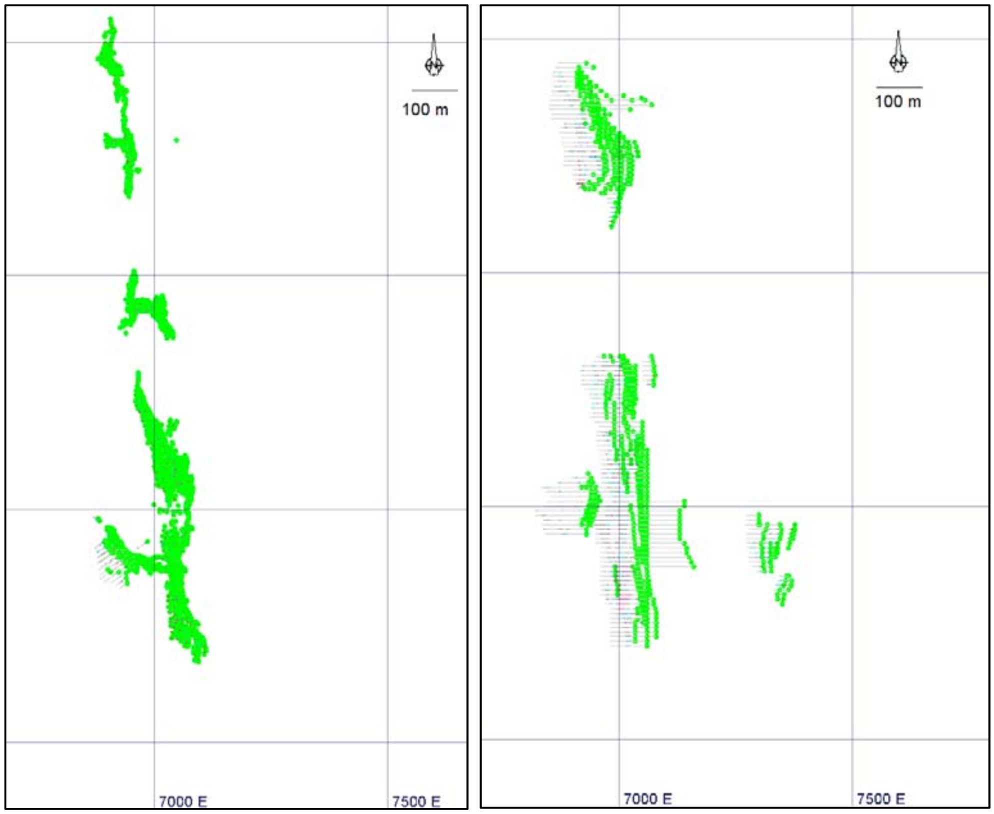


Figure 2.5.1.2: Mastra Underground Face Samples (Left) and Open Pit Grade Control Samples (Right), in Plan View

The surface core holes are drilled on east-west sections (in the local grid) spaced between 25 and 50 m apart and about 35 m apart on the section lines. The holes are mainly drilled to the west (on the local grid) with inclinations between 40° and 60°. The underground core holes are mainly oriented either east or west and are horizontal or shallowly dipping up or down. There are some longer underground core holes that have been drilled with steeper inclinations to intersect veins at depth.

Core recovery ranges from 4 to 100% with an average of 95%.

The drill core was sampled on nominal 1 m intervals adjusted at geologic boundaries, with the sample lengths between 0.4 and 2.20 m and an average of 0.99 m. The sampling is selective based on the presence of quartz or silicic alteration. Samples were cut in half lengthwise with a core saw. The remaining core is stored in wooden boxes and kept in two locations: inside a core storage building and outside in an open, unsecured area.

The Koza samples have been analyzed at three labs: SGS Vancouver in British Colombia, the Ovacık Mine laboratory and the Mastra Mine laboratory.

The open pit grade control samples are taken with Koza's standard method whereby lines are marked on the ground at 10 m intervals perpendicular to the strike of the vein. The sample locations on the lines are surveyed at 1 m intervals and the surface is cleaned with a backhoe. A jackhammer is used to break up the rock and a sample of about 3 kg is collected by the sample collectors. The grade control sample lengths are between 0.25 and 20 m and average 1.01 m.

The underground grade control samples are collected as horizontal channel samples at a height of 1 m. The samples are taken at 1 m intervals within the channel. The face sample lines are about 4 m apart. The sample lengths are between 0.1 m and 2.5 m and average 0.97 m.

2.5.2 Mastra North

The drillhole database consists of surface drilling conducted by MTA, Eurogold and Koza and is summarized in Table 2.5.2.1 and shown in Figure 2.5.2.1. The drillhole collars have been surveyed by Koza with staff trained at the Ovacık mine. Downhole surveys were taken by the drill contractor. Core recovery ranges from 33 to 100% with an average of 99%.

Table 2.5.2.1: Mastra North Resource Database

Company	Type	Number	Meters	Samples	
				Number	Meters
MTA	Core	4	931	127	143
Eurogold	Core	2	260	32	33
Koza	Trenches	21	4,784	1,344	1,787
	Surface Core	83	11,392	4,220	4,216
Total		**112**	**17,568**	**5,723**	**6,180**

Source: SRK, 2013

The drillholes are on two sets of section lines, one trending north-south and the other trending north-northeast. The resource was defined mainly by the drillholes on the north-northeast trending section lines. The lines are about 20 m apart and the drillholes are about 40 m apart on the lines. Most of the holes in the resource area are oriented to the northeast with an inclination of about 45°. There are seven vertical holes and one drilled to the south.

The drilling was sampled on nominal 1 m intervals adjusted at geologic boundaries, with the intervals varying between 0.08 and 4.0 m and an average of 1.1 m. The sampling is selective based on the presence of quartz or silicic alteration. Samples were cut in half lengthwise with a core saw. The remaining core is stored in wooden boxes and kept in two locations: inside a core storage building and outside in an open, unsecured area.

The Mastra North samples were analyzed at the Mastra Mine laboratory during 2013. Prior to that, analysis was conducted at ALS Global. The Mastra Mine laboratory conducted the following analyses:

- Au by aqua regia – DIBK (AR-DIBK with a lower detection limit of 0.1 ppm; and
- Ag by aqua regia and AAS finish with a lower detection limit of 0.2 ppm.

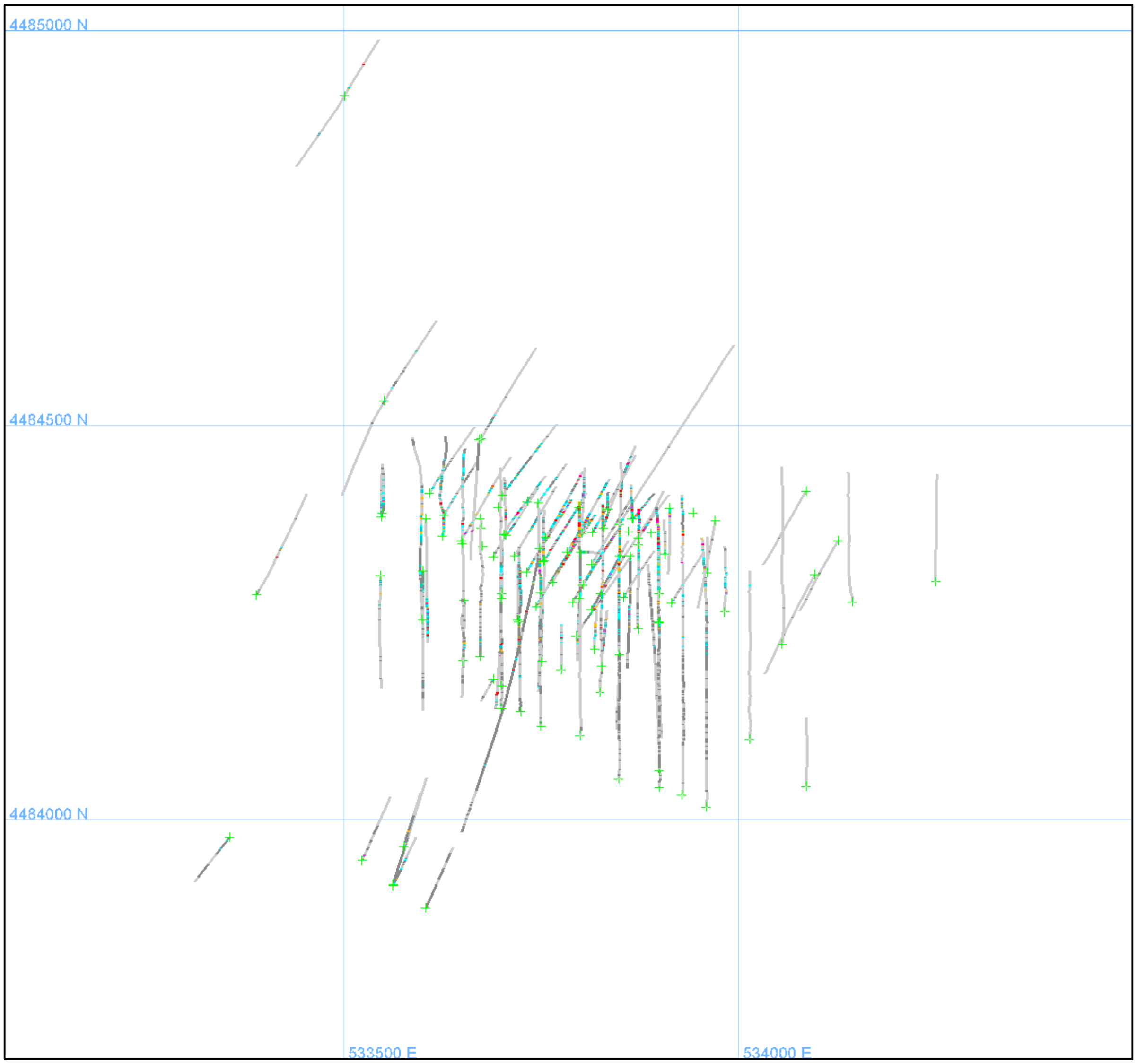


Figure 2.5.2.1: Mastra North Drillhole Location Map

2.5.3 Exploration Quality Assurance/Quality Control Sampling

Insertion of Internal Controls

Koza inserts QA/QC control samples into the sample stream at approximately one blank per drillhole, Reference Materials (RMs) at a frequency of approximately one in 25 samples and duplicate samples at a rate of one or two per drillhole. These samples are numbered in sequence with the drill samples and are inserted into the sample stream in sequence by the core logging geologist. The location of the control samples is noted on the sample log and in the sample database.

All Mastra control samples have been monitored for Au. SRK received Ag data for the blanks but not for the other QAQC samples. Because Ag is included in the resource, SRK recommends Koza also monitor Ag results in the standards and duplicates as well.

Certified Reference Materials

For 2013 two different RMs have been used at Mastra: both site-specific RMs made from material from the Mastra Mine (MA04 and MA05). The site-specific RMs were crushed, pulverized and homogenized using a single axis cement mixer at the Koza laboratory as described by Bloom (2013). Koza had ALS analyze 30 samples for Au and Ag at its Vancouver, Johannesburg and Lima laboratories (10 at each lab). ALS provided a report with summary statistics for each of the RMs. For all RMs Koza uses a performance range of ±10% of the mean. For these RMs, Bloom (2014) recommends using 7% as a threshold for a failure based on her communication with ALS.

Table 2.5.3.1 presents the expected mean, standard deviations and summaries of the analyses of the Au RMs. It should be noted that the standard deviation listed in the ALS report is the within-lab standard deviation which is the standard deviation of the three average values from the three labs. Although this is the standard method recommended for establishing the standard deviation of the RM, during the certification process 15 labs are used, not just three and the standard deviation would presumably be higher. Because of the method used to produce these materials, they are not considered certified.

Table 2.5.3.1: Results of Au RM Analyses at Mastra in 2013

RM	Number of Samples	Expected (ppm)		Observed (ppm)		% of Expected	7% Threshold	
		Mean	Std Dev	Mean	Std Dev		No. Failures	% Failure Rate
MA04	72	0.943	0.008	0.96	0.03	102.1	8	11
MA05	71	2.42	0.027	2.41	0.06	99.5	0	0
Total	**143**						**8**	**5**

MA05 had no failures and the observed mean is very close to the expected mean. MA04 had a failure rate of 14% and the observed mean is about 2% higher than the expected mean.

One RM performed higher than the mean and the other RM performed lower than the mean. These trends should be monitored and SRK recommends plotting the standards against time to determine if the laboratory had trouble during a certain period. If it is recognized that all standards were low or high during a discrete time frame then the laboratory should be contacted to determine if the samples should be reanalyzed.

The cutoff grade at Mastra is 1.90 g/t Au and the average grade is about 6 g/t. SRK recommends that Koza include two additional RMs, one at the average grade and one at about the 75th to 80th percentile to cover a wider range of the resource grade.

When a failure occurs, Koza assesses the failure and decides on a course of action. If it is only one failure, Koza reanalyzes five samples before and after the failure. However, in the case of multiple failures, Koza may reassay the entire batch. These actions are industry practice.

Blanks

Sample blanks test for contamination during preparation and assaying as well as handling errors. Koza inserted one sample blank per drillhole using pulp blanks up until June 2012 and preparation blanks since then. A blank failure is a result greater than five times the detection limit. The detection limit for Au is 0.1 g/t and the detection limit for Ag is 0.2 g/t. SRK has examined the results for Au and Ag in five blank samples. The results for Au were all reported as 0.09 g/t and the results for Ag ranged from 0.33 to 0.46 g/t. The five analyses showed no cross contamination. SRK recommends that the blank be placed within the mineralized zone to test for contamination.

Preparation Duplicates

Preparation duplicates are created by splitting a second cut of the crushed sample (coarse reject) in the same way and for the same weight as the original sample. The objective is to determine if:

- Splitting procedures are applied consistently; and
- Changes are required for the crush size.

It appears that Koza requests one duplicate per drillhole or one in 50 samples. The duplicate analysis data provided to SRK includes 35 duplicate pairs with Au analyses, of which 18 have Au values below detection limit and only two are above the resource cutoff grade.

A summary of the analytical results are presented in Table 2.5.3.2.

Table 2.5.3.2: Summary of Preparation Duplicate Au Analysis at Mastra

Criteria	Number of Samples	Original>Dup	Dup>Original	Original = Dup	Within +/- 20%
All samples	35	6	5	24	35
		17%	14%	69%	100%
> Detection Limit	17	6	5	6	17
		35%	30%	35%	100%

The results of the preparation duplicates indicate that the sample preparation is adequate for the analysis. SRK recommends that Koza select duplicate samples within the mineralized zones. SRK also suggests that it may not be necessary to continue with preparation duplicate samples for drilling at a mature mine such as Mastra. However, for new exploration outside the immediate mine area where there may a change in mineralization, it may be necessary to monitor preparation duplicates initially to confirm that splitting and crushing size are appropriate for these areas.

Pulp Duplicates

Koza has not submitted any pulp duplicate samples to the Mastra Mine laboratory. Pulp duplicates are the primary method of checking the precision of analysis. SRK recommends that the Company submit pulp duplicates to the laboratory to monitor the analytical precision.

Secondary Check Lab Analysis

Koza has not sent any pulps for check analysis from the Mastra project to a secondary laboratory as verification of the Mastra lab's analytical results. SRK recommends that Koza consider adding this type of QA/QC sample to its program as a periodic check fo the Mastra laboratory. Any new exploration the area that uses the Mastra lab for analysis should incorporate these type of check samples. Check samples must be analyzed at the secondary laboratory using the same method as the Mastra lab and RMs must be submitted with the pulps.

Conclusions and Recommendations

Koza monitors QA/QC of the laboratory analyses by inserting internal control samples into the sample stream. Reference materials, blanks and preparation duplicates are systematically inserted to ensure reliability and accuracy of the laboratory. Should there be a QA/QC sample failure during a drilling program, Koza investigates the failure to determine why it occurred and takes appropriate action. This is industry best practice. If the failure is due to laboratory error, then Koza requests that the entire batch be reanalyzed. SRK recommends that if one failure occurs that only the failure and three to four samples on either side of the failed control sample be analyzed. If there are multiple failures, then the entire batch should be reanalyzed.

SRK has the following recommendations:

- Ag results for the RMs and duplicates should be monitored;
- Plot the standards against time to determine if the laboratory had trouble during a certain period;
- MA04 and MA05 RMs should undergo a round robin analysis for certification;
- Include additional RMs with grades that represent a wider range of the resource grade;
- Continue inserting blanks to monitor for cross contamination and insert the blanks into mineralized zones; and
- Koza should monitor the internal pulp duplicates analyzed at the laboratory.

If the site-specific RMs are not certified, SRK recommends that Koza have a company specializing in the production of site specific Certified Reference Materials (CRMs) generate some for Mastra using Mastra minerlization or that Koza purchase CRMs that are appropriate for the deposit.

Overall the laboratory is performing within acceptable limits and the QA/QC program is sufficiently monitoring laboratory accuracy and reliability.

2.6 Mineral Resources Mastra Mine

The Mastra Mine resources were estimated by Koza in 2013 following the procedures established by Mr. Jonathan Graham, Senior Consultant, CAE Datamine International (CAE) (Datamine 2010) in 2010.

Koza did not conduct any drilling at Mastra in 2014 and the resource model is the same as 2013 with depletion for mining in 2014.

2.6.1 Geological Modeling and Assay Statistics

The Mastra Mine resource model is in a rotated local grid.

Before 2013, Koza had defined four vein domains: the East, West, Mid East-West (MEW), and Far West. In 2013, Koza separated five smaller veins from the Far West domain, FW1, FW2, FW3, FW4, and FW5. Two smaller veins were separated from the East Vein, Fe and Fe1. The MEW vein was unchanged and a new vein was added, Ort, which cuts the East and West veins. The veins were grouped into eight domains based on orientation as follows and as shown in Figure 2.6.1.1:

- Domain 1: East;
- Domain 2: FW3 and FW5;
- Domain 3: MEW;
- Domain 4: West and FE;
- Domain 5: FW2 and FW4;
- Domain 6: FW1;
- Domain 7: FE1; and
- Domain 8: Ort.

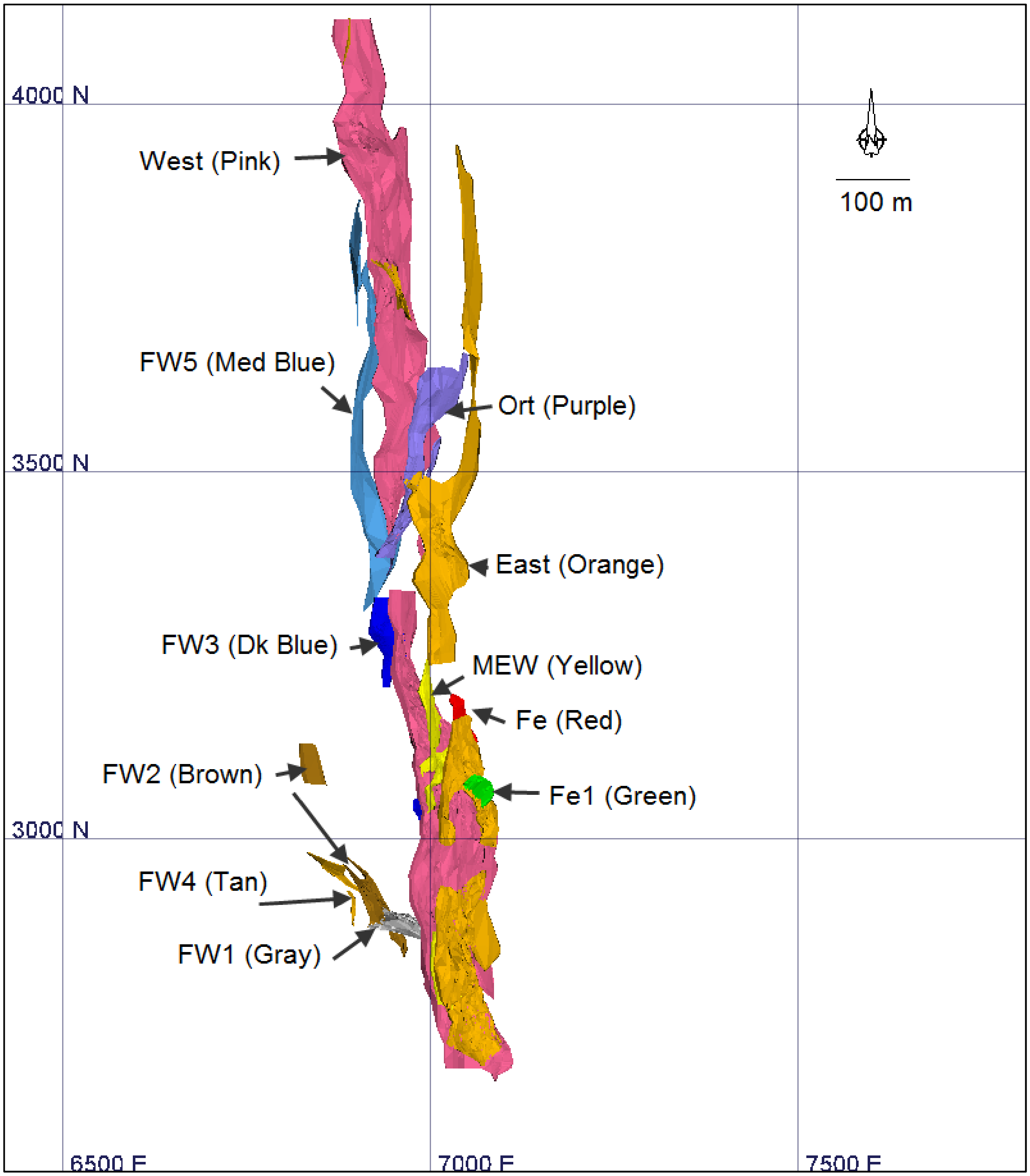


Figure 2.6.1.1: Mastra Vein Wireframes in Plan View

The wireframes representing the veins were constructed based on a 0.5 g/t Au cutoff. The Au grade tends to show a sharp break at vein boundaries and SRK concurs that 0.5 g/t is a reasonable cutoff for the veins.

The wireframes have a north-south (local grid) extent of 1400 m and an east-west extent of about 150 m, and a vertical extent of about 450 m. The individual veins range in thickness from less than 1 m to up to 10 m. The average thickness is about 3 m.

The Mastra deposit contains copper, lead and zinc values as well as gold and silver. The five metals were modeled by Koza in 2013.

Tables 2.6.1.1 and 2.6.1.2 contain statistics of the drillhole samples and grade control samples by domain, respectively. Au is higher in the grade control samples (underground and surface) except in Domains 2 and 7; the overall averages are 7.75 g/t in the drillholes and 10.34 g/t in the grade control samples. Ag is higher in the grade control samples except in Domains 2 and 8; the overall averages are 4.37 g/t in the drillholes and 5.89 g/t in the grade control samples.

Table 2.6.1.1: Mastra Statistics of Drillhole Assays within Veins

Metal	Domain	Samples	Min	Max	Mean	Std Dev	CV	% of Samples
Au Drillholes	All	4,253	0.01	6,877.55	7.75	51.12	6.59	
	1	1,366	0.01	6,877.55	9.26	77.40	8.36	32
	2	177	0.01	255.00	5.97	22.75	3.81	4
	3	126	0.01	164.00	6.00	18.53	3.09	3
	4	1,951	0.01	1,210.00	6.98	34.15	4.90	46
	5	211	0.01	364.20	6.98	26.02	3.73	5
	6	236	0.01	243.60	8.67	24.29	2.80	6
	7	18	0.09	71.77	17.12	20.82	1.22	0
	8	168	0.01	263.80	6.09	19.12	3.14	4
Ag Drillholes	All	4,234	0.01	1,441.95	4.37	13.99	3.20	
	1	1,361	0.01	1,441.95	3.45	15.20	4.40	32
	2	177	0.01	42.00	3.37	6.35	1.89	4
	3	126	0.19	33.30	2.25	4.02	1.79	3
	4	1,944	0.01	364.00	5.71	15.05	2.64	46
	5	206	0.01	162.83	2.13	9.44	4.44	5
	6	234	0.01	14.50	0.83	1.50	1.80	6
	7	18	0.28	102.70	8.43	23.99	2.85	0
	8	168	0.20	101.23	6.01	11.09	1.84	4

Table 2.6.1.2: Mastra Statistics of Grade Control Samples within Veins

Metal	Domain	Samples	Min	Max	Mean	Std Dev	CV	% of Samples
Au Grade Control	All	10,937	0.01	388.40	10.34	22.80	2.21	
	1	3,012	0.01	200.00	12.32	27.56	2.24	28
	2	86	0.01	51.33	2.45	6.33	2.58	1
	3	316	0.01	200.00	7.55	21.16	2.80	3
	4	6,178	0.01	388.40	9.24	19.96	2.16	56
	5	582	0.09	200.00	10.95	22.06	2.02	5
	6	575	0.09	205.00	14.31	25.49	1.78	5
	7	67	0.01	200.00	16.49	34.32	2.08	1
	8	121	0.09	79.65	6.78	12.61	1.86	1
Ag Grade Control	All	10,937	0.01	520.00	5.89	15.71	2.67	
	1	3,012	0.19	193.86	5.20	14.01	2.69	28
	2	86	0.20	45.15	2.86	5.76	2.01	1
	3	316	0.19	69.10	2.92	6.17	2.11	3
	4	6,178	0.01	520.00	6.79	16.31	2.40	56
	5	582	0.19	176.19	4.23	13.39	3.17	5
	6	575	0.19	172.44	2.65	12.72	4.80	5
	7	67	0.20	423.15	13.58	57.92	4.27	1
	8	121	0.51	56.67	5.78	8.18	1.42	1

2.6.2 Capping and Compositing

The drillhole assays were composited on 1 m intervals downhole with breaks at the contact between the vein and the host rock. This length was selected because 95% of the samples are equal to or less than 1 m in length. The grade control samples were composited into a single length within the vein, thus resulting in a range of interval lengths depending on the width of the vein. Statistics of the uncapped drill and grade control sample composites are shown in Tables 2.6.2.1 and 2.6.2.2. The gold coefficient of variation is high for the drillhole composites, with the largest domains, 1 and 4, having values greater than 4. The silver CV is lower, but still high at over 2 for the larger domains. The grade control samples have CVs between 1 and 2 for most domains, except silver domains 5,6 and 7 which are over 2.

Table 2.6.2.1: Mastra Uncapped Drill Composites

Metal	Domain	Samples	Min	Max	Mean	Std Dev	CV	% of Samples
Au Composites Drillholes	All	4,158	0.01	1,223.49	7.73	36.36	4.70	
	1	1,366	0.01	1,223.49	9.21	48.17	5.23	33
	2	164	0.01	233.26	6.11	22.17	3.63	4
	3	127	0.01	164.00	6.20	17.97	2.90	3
	4	1,905	0.01	1,149.92	7.00	32.22	4.61	46
	5	200	0.01	220.07	6.89	21.35	3.10	5
	6	217	0.01	193.39	8.46	20.16	2.38	5
	7	19	0.55	71.77	16.97	20.67	1.22	0
	8	160	0.09	150.98	5.81	15.04	2.59	4
Ag Composites Drillholes	All	4,137	0.01	345.88	4.36	11.46	2.63	
	1	1,362	0.01	146.05	3.43	8.71	2.54	33
	2	164	0.01	42.00	3.44	6.10	1.77	4
	3	127	0.19	33.30	2.23	3.97	1.79	3
	4	1,901	0.01	345.88	5.72	14.22	2.49	46
	5	189	0.01	98.65	2.13	7.50	3.53	5
	6	215	0.01	14.50	0.79	1.36	1.72	5
	7	19	0.28	102.70	8.36	23.86	2.86	0
	8	160	0.20	89.50	5.83	10.13	1.74	4

Table 2.6.2.2: Mastra Uncapped Grade Control Sample Composites

Metal	Domain	Samples	Min	Max	Mean	Std Dev	CV	% of Samples
Au Composites Grade Control	All	4,142	0.01	200.00	10.27	13.72	1.34	
	1	1,109	0.01	123.28	12.14	16.16	1.33	27
	2	64	0.09	22.16	3.24	5.34	1.65	2
	3	126	0.01	66.89	7.47	12.71	1.70	3
	4	2,130	0.01	110.02	9.26	11.38	1.23	51
	5	275	0.09	100.00	10.82	14.56	1.35	7
	6	315	0.09	200.00	14.30	20.09	1.41	8
	7	38	0.01	104.90	16.49	22.33	1.35	1
	8	85	0.09	45.82	6.78	10.63	1.57	2
Ag Composites Grade Control	All	4,142	0.10	212.55	5.86	10.56	1.80	
	1	1,109	0.19	91.68	5.05	7.66	1.52	27
	2	64	0.27	34.58	3.64	5.53	1.52	2
	3	126	0.19	36.01	2.92	4.37	1.50	3
	4	2,130	0.10	211.46	6.77	11.44	1.69	51
	5	275	0.19	73.92	4.19	9.33	2.23	7
	6	315	0.19	156.50	2.65	9.43	3.56	8
	7	38	0.20	212.55	13.58	37.84	2.79	1
	8	85	0.51	50.26	5.78	7.31	1.27	2

A quantile analysis of contained metal was conducted by Koza to determine the necessity for capping outliers. Gold was capped in the drill composites as shown in Table 2.6.2.3; silver was not capped in the drill composites. The grade control sample composites were not capped for gold or silver. Table 2.6.2.4 contains the statistics of the capped drill composites. The final grade control sample composites are the uncapped composites described in Table 2.6.2.2.

Table 2.6.2.3: Mastra Gold Capping Values in Drillhole Composites

Domain	Value	Number	Capping Value (g/t)
1	Au	15	107
2	Au	2	100
3	Au	3	50
4	Au	8	120
5	Au	2	100
6	Au	1	50
7	Au	0	None
8	Au	10	20

Table 2.6.2.4: Mastra Capped Drill Composites

Metal	Domain	Samples	Min	Max	Mean	Std Dev	CV	% of Samples
Capped Au Composites Drillholes	All	4158	0.01	120.00	6.23	14.35	2.30	
	1	1366	0.01	107.00	6.54	15.31	2.34	33%
	2	164	0.01	100.00	5.22	14.46	2.77	4%
	3	127	0.01	50.00	4.91	9.75	1.99	3%
	4	1905	0.01	120.00	6.11	13.91	2.28	46%
	5	200	0.01	108.03	6.11	15.23	2.49	5%
	6	217	0.01	109.68	7.86	16.44	2.09	5%
	7	19	0.55	71.77	16.97	20.67	1.22	0%
	8	160	0.09	20.00	3.88	5.73	1.48	4%
Capped Ag Composites Drillholes	All	4137	0.01	345.88	4.36	11.46	2.63	
	1	1362	0.01	146.05	3.43	8.71	2.54	33%
	2	164	0.01	42.00	3.44	6.10	1.77	4%
	3	127	0.19	33.30	2.23	3.97	1.79	3%
	4	1901	0.01	345.88	5.72	14.22	2.49	46%
	5	189	0.01	98.65	2.13	7.50	3.53	5%
	6	215	0.01	14.50	0.79	1.36	1.72	5%
	7	19	0.28	102.70	8.36	23.86	2.86	0%
	8	160	0.20	89.50	5.83	10.13	1.74	4%

The CV has been reduced in the drillhole composites by capping the high grade samples. It is still somewhat high at over 2 for most of the gold domains. The CV in the grade control samples has been reduced due to compositing the individual samples into a single length across the vein. This procedure has changed the sample support by introducing variable lengths with an average length about 3 times the length of the drillhole composites, however, the grade control samples are used as a separate population in the estimation, so this problem is alleviated somewhat.

2.6.3 Density

Bulk density was studied by Mehmet Kaplan in 1995. A total of 79 measurements were made using core samples with varying amounts of quartz veining and sulfide mineralization. The measurements varied from 2.25 t/m^3 to 3.10 t/m^3, with an average of 2.58 t/m^3. Density measurements were also done at Lycopodium in Australia on a composite sample of ore-grade material. The average was determined to be 2.80 t/m^3. Koza later tested 245 samples from 97 drillholes and arrived at an average density of 2.66 t/m^3, which was used by Koza in the resource model. The density is on a dry tonnage basis.

2.6.4 Variography

CAE (2010) conducted separate variogram studies for drill composites and grade control sample composites in the East and West Veins. There were not enough samples in MEW and Far West veins for valid variograms. The variogram parameters for the drillhole composites and the grade control sample composites are shown in Tables 2.6.4.1 and 2.6.4.2, respectively. SRK suggests that these variograms could be updated considering the number of grade control samples that have been generated since 2010.

Table 2.6.4.1: Mastra Drillhole Variogram Parameters

Domain	Axis	Orientation	Au					Ag				
			Nugget	Sill 1	Sill2	Range1 (m)	Range2 (m)	Nugget	Sill 1	Sill2	Range1 (m)	Range2 (m)
1	Major	00,000	67.15	38.62	148.61	75	250	7.85	33.44	37.2	148	362
	Semi-major	-75,090				21	50				46	90
	Minor	15,090				1	2.5				1	2.5
2	Major	00,090	27.59	144.22	84.95	9	45	158	89.69		51	
	Semi-major	-90,000				9	45				51	
	Minor	00,000				9	45				51	
3	Major	00,090	36.82	276.65		35		8.66	23.78		45	
	Semi-major	-90,000				35					45	
	Minor	00,000				35					45	
4	Major	00,090	10	81.02		60		2.08	18.75		55	
	Semi-major	-90,000				60					55	
	Minor	00,000				60					55	

Source: Koza, 2013

Table 2.6.4.2: Mastra Grade Control Sample Variogram Parameters

Domain	Axis	Orientation	Au				
			Nugget	Sill 1	Sill2	Range1 (m)	Range2 (m)
1	Major	00,090	26.12	137.19	97.86	19	50
	Semi-major	-90,000				19	50
	Minor	00,000				19	50
4	Major	00,090	80.53	34.09	37.93	10	35
	Semi-major	-90,000				10	35
	Minor	00,000				10	35

Source: Koza, 2013

2.6.5 Grade Estimation

A block model was created with a cell size of 5 m x 5 m x 5 m with sub-blocking allowed to 1 m x 0.5 m x 1 m. The block size is reasonable given the number of grade control samples used in the estimation and the density of those samples. Grades were estimated with drillhole composites and grade control composites separately. CAE observed that the grade control samples displayed higher average grades than the core samples when comparing the raw and capped data. It was decided that, so as not to extrapolate potentially higher grades from the grade control samples into the main part of the orebody, the estimation with grade control samples would be done using a smaller search ellipse with a restriction on samples to ensure a good local estimation while not affecting surrounding blocks and potentially exaggerating their grades. The grades from the estimation with the grade control composites were then superimposed onto the estimation with the drillhole composites and used in preference as they were deemed to provide better quality local estimates.

Gold and silver grade estimation with the drillhole composites was undertaken in three passes as shown in Table 2.6.5.1. The range of the first pass is approximately 2/3 of the variogram range. Gold and silver were estimated using Ordinary Kriging (OK), Inverse Distance Squared (ID2) and Nearest Neighbor (NN) for all domains except Domain 6 where OK was not used.

Table 2.6.5.1: Estimation Parameters for Drillhole Samples

Domain	Pass	Search Distance (m)			Search Orientation			Samples		Max/DH
		Major	Semi	Minor	Major	Semi	Minor	Min	Max	
1	1	138	33.5	10	00°,000°	Vertical	00°,090°	10	30	9
	2	1.5 X Pass 1						10	30	9
	3	5 X Pass 1						5	20	9
2	1	24	24	10	00°,000°	Vertical	00°,090°	10	30	9
	2	1.5 X Pass 1						10	30	9
	3	5 X Pass 1						5	20	9
3	1	40	40	10	00°,000°	Vertical	00°,090°	10	30	9
	2	1.5 X Pass 1						10	30	9
	3	5 X Pass 1						5	20	9
4	1	31	31	10	00°,000°	Vertical	00°,090°	10	30	9
	2	1.5 X Pass 1						10	30	9
	3	5 X Pass 1						5	20	9
5	1	24	24	10	00°,304°	75°,214°	15°,214°	10	30	9
	2	1.5 X Pass 1						10	30	9
	3	5 X Pass 1						5	20	9
6	1	24	24	10	00°,295°	85°,205°	05°,205°	10	30	9
	2	1.5 X Pass 1						10	30	9
	3	5 X Pass 1						5	20	9
7	1	24	24	10	00°,045°	-70°,135°	20°,135°	10	30	9
	2	1.5 X Pass 1						10	30	9
	3	5 X Pass 1						5	20	9
8	1	31	31	10	00°,010°	-75°,100°	15°,100°	10	30	9
	2	1.5 X Pass 1						10	30	9
	3	5 X Pass 1						5	20	9

The estimation with the grade control sample composites was done in one pass with the parameters shown in Table 2.6.5.2. An octant search was used which required a minimum of 4 octants with a maximum of 4 composites per octant. Gold and silver were estimated by ID2 and NN in all domains and with OK in Domains 1, 4 and 8.

Table 2.6.5.2: Estimation Parameters for Grade Control Sample Composites

Domain	Search Distance (m)			Search Orientation			Samples	
	Major	Semi	Minor	Major	Semi	Minor	Min	Max
1	50	50	10	00°,000°	Vertical	00°,090°	5	10
2	30	30	10	00°,000°	Vertical	00°,090°	5	10
3	30	30	10	00°,000°	Vertical	00°,090°	5	10
4	40	40	10	00°,000°	Vertical	00°,090°	5	10
5	30	30	10	00°,304°	75°,214°	15°,214°	5	10
6	30	30	10	00°,295°	85°,205°	05°,205°	5	10
7	30	30	10	00°,045°	-70°,135°	20°,135°	5	10
8	30	30	10	00°,010°	-75°,100°	15°,100°	5	10

2.6.6 Block Model Validation

Koza validated the block model through three methods:

- Visual comparison of block and composite grades on cross-sections;

- Comparison of the three estimation methods; and
- Comparison of block model and composite statistics.

Table 2.6.6.1 shows the comparison of the three estimation methods by domain and by composite type. In the grade control model, the results for the three methods are quite close. For the drillhole model, gold estimated with ID2 is significantly higher for Domains 2 and 5; gold estimated with OK is significantly higher in Domain 4. The NN and OK results are close, except for Domain 2 where NN is higher than OK.

Table 2.6.6.1: Comparison of Estimation Methods for Gold

Domain	Drillhole Model			Grade Control Model		
	Au_OK	Au_ID2	Au_NN	Au_OK	Au_ID2	Au-NN
1	7.79	8.06	7.57	11.22	11.43	11.27
2	4.89	5.71	5.40	-	4.64	4.00
3	9.21	7.70	9.15	-	7.46	7.30
4	7.91	8.06	8.06	8.89	9.01	9.08
5	5.51	6.22	5.67	-	10.37	10.45
6	-	8.39	8.04	-	15.42	15.03
7	-	15.94	15.78	-	11.05	6.49
8	3.25	3.35	3.15	6.42	6.70	6.65

Table 2.6.6.2 compares the block grades to the composite grades by domain and by composite type. The comparison is between OK and the composite grades except where noted. In the drillhole block model, the average block gold grade is significantly higher than the average composite grade in Domains 1, 3, 4 and 6; silver is significantly higher in Domains 1, 3, 4, 6, 7 and 8. In the grade control model, the block gold grade is significantly higher in Domains 2 and 6. The block model gold grades are significantly lower than the composite grade in Domain 7. The estimated grades in general, should not be higher than the composite grades. SRK strongly suggests that Koza investigate the cause of these differences, especially in Domains 1 and 4 which contain over 70% of the tonnage at Mastra.

Table 2.6.6.2: Comparison of Block Grades to Composite Grades

Domain	Drillhole Model				Domain	Grade Control Model (1)	
	Block Au	Comp Au	Block Ag	Comp Ag		Block Au	Comp Au
1	7.79	6.54	5.21	3.43	1	11.21	12.14
2	4.89	5.22	3.47	3.44	2(2)	4.64	3.24
3	9.21	4.91	4.02	2.23	3(2)	7.46	7.47
4	7.91	6.11	7.31	5.72	4	8.89	9.26
5	5.51	6.11	2.08	2.13	5(2)	10.37	10.82
6(2)	8.39	7.86	0.92	0.79	6(2)	15.42	14.30
7(2)	15.94	16.97	9.27	8.36	7(2)	11.05	16.49
8	3.25	3.88	6.31	5.83	8	6.42	6.78

(1) Grade control block model silver grades not provided to SRK
(2) Estimated by ID2

2.6.7 Reconciliation

Koza has compared the 2014 production tonnage and grade to the resource model. About three times as many tonnes were mined at about 60% of the grade as predicted by the block model. Koza attributes the difference to underground production techniques and additional zones which were not in the block model. It is SRK's opinion that it is difficult to reconcile the underground resource model to production because the block model does not contain the diluting blocks so the tonnage is not accounted for in the compilation of tonnes extracted from the asbuilts. SRK suggests that Koza should review the model carefully to determine where the model may be overstating grade in some domains as suggested in the comparison of the block grades to composite grades in Table 2.6.6.2.

Because the Mastra mine was shut down for much of 2014, it is not possible to compare milled tonnes and grade to production because a large tonnage from the stockpiles was run through the mill (Table 2.6.7.1).

Table 2.6.7.1: Reconciliation 2012 Block Model to 2013 Production

Mastra	Tonnes	Au (g/t)	Ounces
Resource Model	54,887	8.76	15,462
Production UG	147,390	5.23	24,771
Production OP	4,173	5.25	704
Total Production	**151,563**	**5.23**	**25,476**

2.6.8 Depletion

The block model is depleted for production using the wireframes for the underground as-builts and the open pit final topography. The mined out blocks are completely removed from the block model, which limits the ability to validate the block model with drill and grade control data. A better method is to use a variable denoting percentage depleted from, or percentage remaining in, the resource.

Koza should continue to remove remnant blocks that are outside the as-builts and are either too small for mine plans and that may not be mineralized. It is SRK's opinion that the tonnage in the resource may be overstated because of remnant blocks in the block model that do not meet the requirement of being potentially mineable.

2.6.9 Mineral Resource Classification

Blocks were classified as Measured if they were estimated with the grade control sample composites or in the first pass of the estimation using drillhole composites. Blocks were classified as Indicated if they were estimated in the second pass of the estimation using drillhole composites and the remainder of the blocks were classified as Inferred. SRK agrees that this method is reasonable given the drillhole and grade control sample spacing.

2.6.10 Mineral Resource Statement

The Mastra resources are all considered to be potentially mineable by underground methods. The cutoff grade was calculated from the costs shown in Table 2.6.10.1. The one year rolling average gold price is US$1,266; the two year average is US$1,339; and the three year average is US$1,449. The cutoff grade for the underground resource is 1.95 g/t Au which is significantly less than the reserve cutoff grade of 2.5 g/t Au as discussed in Section 2.9.

Table 2.6.10.1: Mastra Cutoff Grade Parameters

Prices and Costs	Units	UG
Gold Price	US$/oz	1,450
Gold Recovery	%	0.94
Gold Refining	US$/oz	3.44
Royalty	%	0
Government Right	%	1
Process Cost	US$/t	25.00
Mining Cost	US$/t	45.00
G&A Cost	US$/t	15.00
Final Cutoff grade	g/t	1.95

Source: Koza, 2014

Table 2.6.10.2 lists the underground resources at a cutoff grade of 1.95 g/t Au. The Mineral Resources are inclusive of Ore Reserves and are based on the assumptions of a mill operating at Mastra. The Measured and Indicated resource also contains about 0.13% copper, 0.20% lead and 0.28% zinc, which are not recovered metallurgically.

Table 2.6.10.2: Mastra Mineral Resources, Inclusive of Ore Reserves, at December 31, 2014

Classification	kt	g/t Au	g/t Ag	koz Au	koz Ag
Measured	372	6.13	6.6	73	79
Indicated	399	5.49	9.0	70	115
Measured and Indicated	**771**	**5.80**	**7.8**	**144**	**194**
Inferred	527	7.00	5.9	119	100

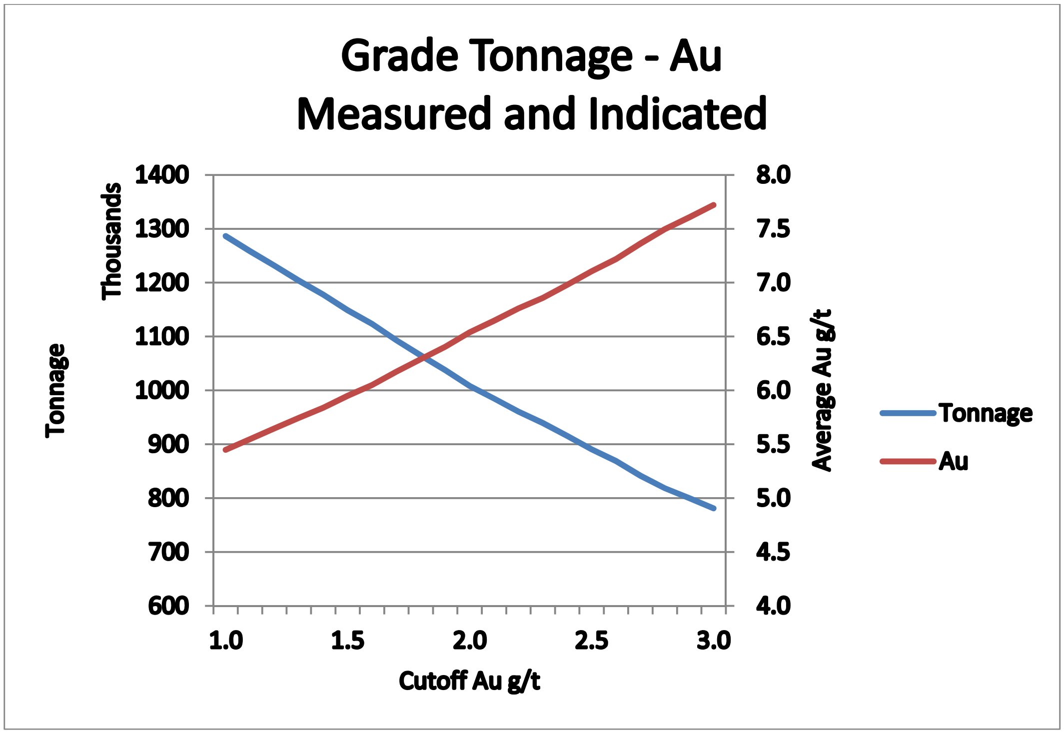
Tonnages and grade are rounded to reflect approximation
Resources are stated at a cutoff grade of 1.95 g/t Au for underground
Mineral Resources are reported inclusive of Mineral Reserves

2.6.11 Mineral Resource Sensitivity

Figure 2.6.11.1 presents grade tonnage curves for Measured and Indicated Resources and also for Inferred Resources. Cutoff grades for the Mastra resource at various gold prices are shown in Table 2.6.11.1.

Table 2.6.11.1: Mastra Underground Cutoff Grades vs. Gold Price

Gold Price	Cutoff Grade
1600	1.78
1550	1.84
1500	1.90
1450	1.96
1400	2.03
1350	2.11
1300	2.19
1250	2.28
1200	2.37



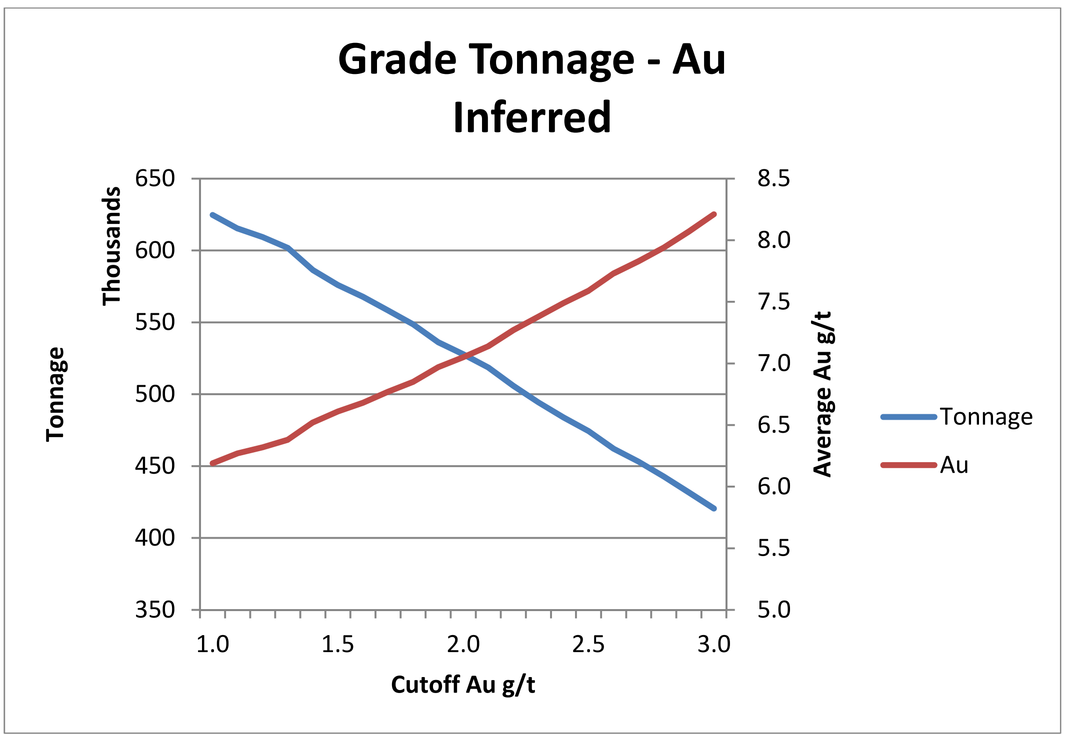


Figure 2.6.11.1: Grade Tonnage Curves for Mastra Resource

2.7 Mineral Resources Mastra North

The Mastra North resources were estimated in 2012 by Koza. No additional drilling has been done and the block model has not been modified.

The Mastra North resource model is in UTM ED1950 Zone 37 coordinates.

2.7.1 Geological Modeling and Assay Statistics

Eight wireframe grade shell solids have been constructed from the drillhole and trench data based on a 0.5 g/t Au cutoff. The Au grades tend to show a sharp break at vein boundaries. The wireframes cover an area of 300 m east-west, 200 m north-south and 85 m vertically. The wireframes are shallowly dipping to the north-northeast and are individually between 1 and 6 m in thickness, averaging about 2.5 m.

Table 2.7.1.1 presents basic statistics of the drillhole and trench samples within the wireframes. The drillholes and wireframes are shown in plan view in Figure 2.7.1.1 and in oblique view in Figure 2.7.1.2.

Table 2.7.1.1: Mastra North Statistics of Drillhole Assays within Veins

Value	Samples	Min	Max	Mean	Std Dev	CV
Au	436	0.001	40.90	1.99	3.48	1.75
Ag	436	0.001	113.50	6.11	10.52	1.72

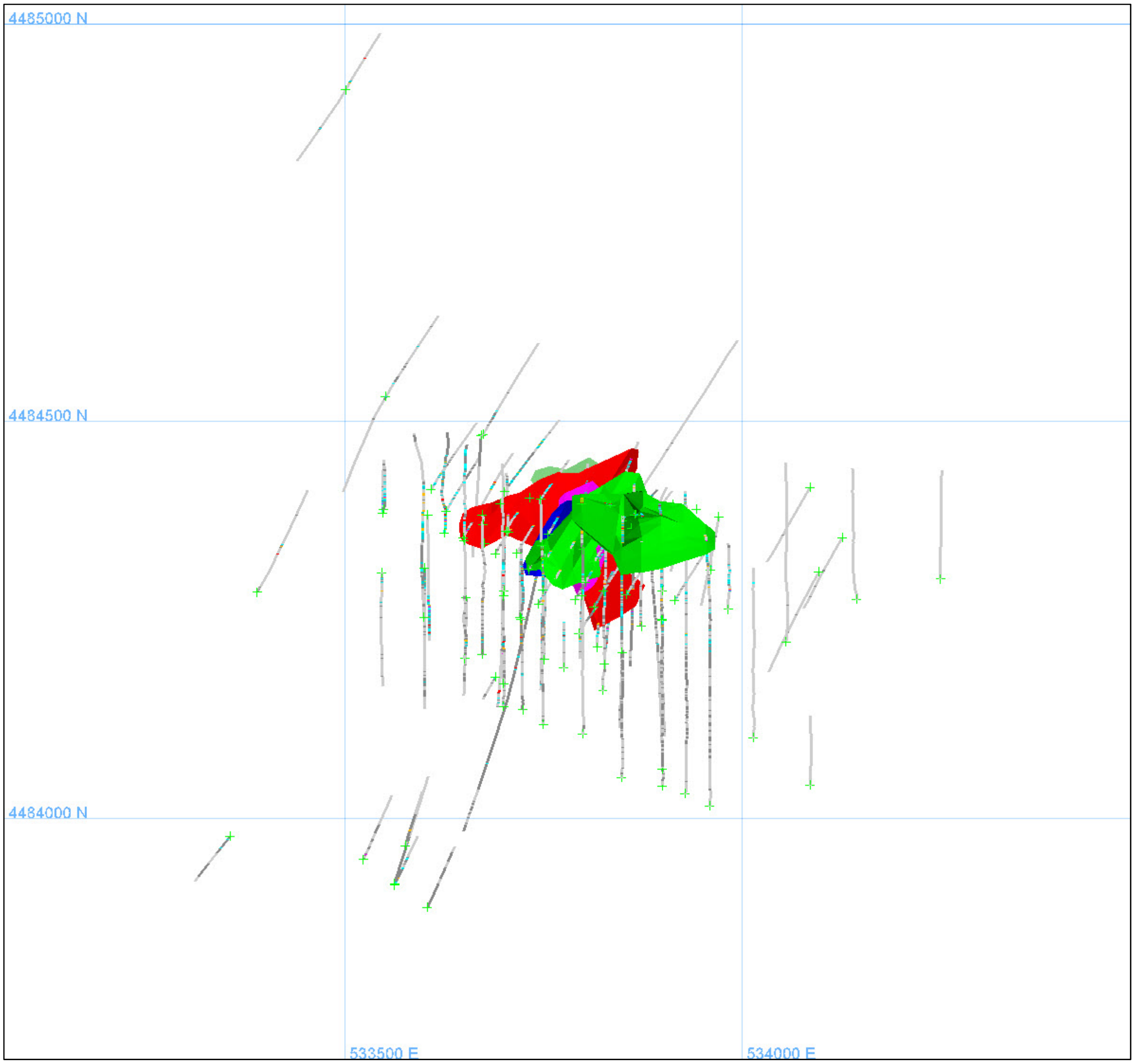


Figure 2.7.1.1: Mastra North Drillholes and Wireframes in Plan View

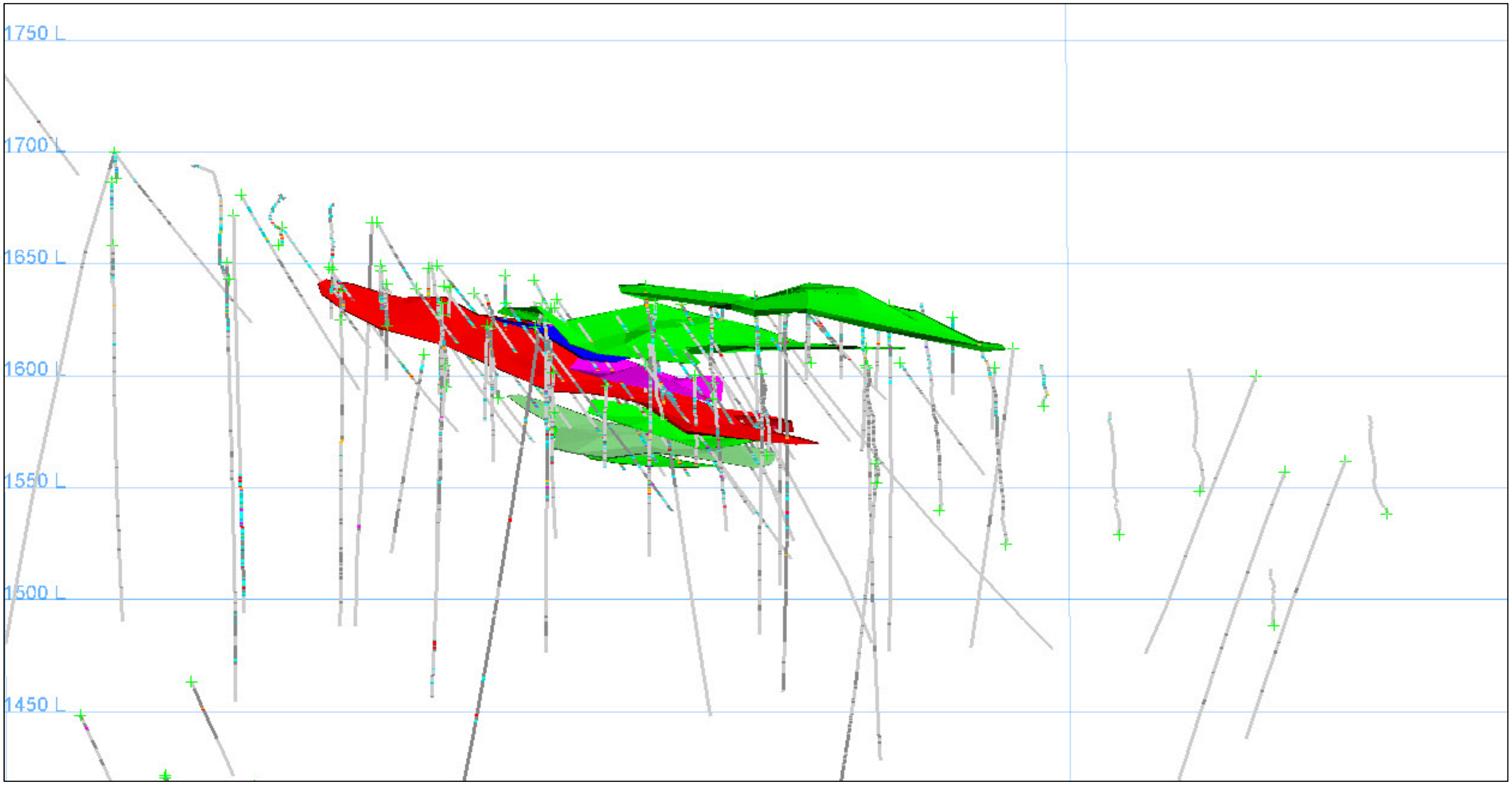
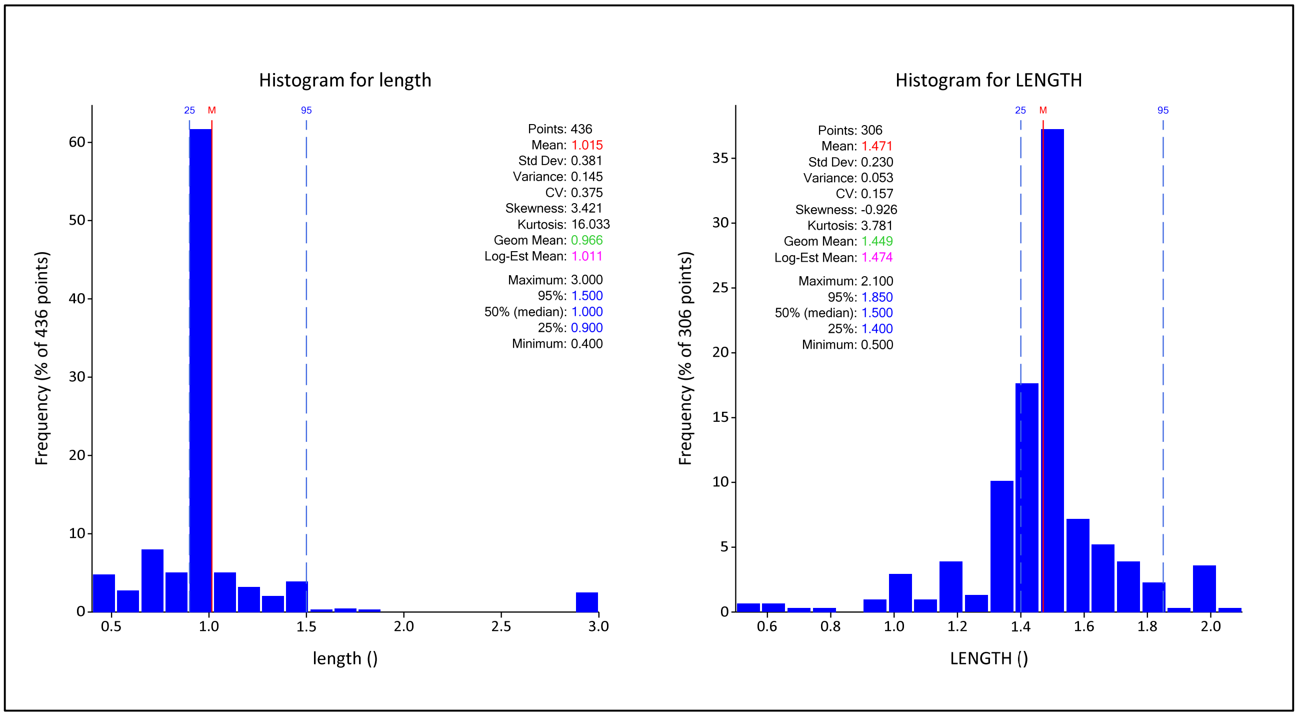


Figure 2.7.1.2: Mastra North Drillholes and Wireframes in Oblique View, Looking North

2.7.2 Capping and Compositing

The drillhole assays were composited on 1.5 m intervals downhole with breaks at the vein contacts with the host rock. This length was selected because 96% of the samples are equal to or less than 1.5 m in length. Koza used the distribution method in the compositing which divides the drillhole into equal lengths across the wireframe. The purpose of compositing is to standardize the sample length for use in estimation. The distribution method has actually created more variability in the sample lengths than in the original raw database as seen in Figure 2.7.2.1. SRK suggests that Koza use a standard 1.5 m in compositing in the future.



Source: SRK

Figure 2.7.2.1: Comparison of Raw Data Sample Lengths (left) and Composite Lengths (right)

A quantile analysis of contained metal was conducted by Koza to determine the necessity for capping outliers. Koza selected 10.5 g/t for gold and 35 g/t for silver (Table 2.7.2.1). SRK agrees with this capping value.

Table 2.7.2.1: Mastra North Statistics of Uncapped and Capped Composites

Value	Samples	Min	Max	Mean	Std Dev	Skewness	CV
Au	310	0.001	23.09	1.97	2.57	4.16	1.30
Ag	310	0.001	113.50	6.27	10.29	5.10	1.64
CutAu	310	0.001	10.50	1.88	2.05	2.46	1.09
CutAg	310	0.001	35.00	5.86	7.83	2.55	1.34

2.7.3 Density

A total 333 HQ sized samples were collected covering a geographical range of Mastra North. The samples were collected from 48 drillholes. Samples were grouped according to rock type, alteration, degree of breakage and nature of ore. Initial determinations using Archimedes method were made. Core was covered with wax to preserve pore space and the samples were weighed in water and air. The average value is 2.48 g/cm^3 for mineralized samples and 2.45 g/cm^3 for waste samples. The density is on a dry tonnage basis.

2.7.4 Variography

Koza did not conduct variography because of the relatively few number of samples.

2.7.5 Grade Estimation

A block model was created with a cell size of 5 m x 5 m x 5 m with sub-blocking allowed to 2.5 m x 2.5 m x 0.5 m. The cell size is about 25% of the drill spacing. Gold and silver grade estimation was undertaken with ID2 in three passes as follows:

- First: Minimum of 8 and maximum of 20 composites and a maximum of 4 composites per drillhole within a search ellipsoid equal to 50 m x 50 m x 10 m, with an octant search requiring a minimum of 2 per octant and a maximum of 4 composites per octant, thus requiring a minimum of two drillholes;
- Second: Minimum of 6 and maximum of 20 composites within a search ellipsoid with axes twice the first search and a maximum of 4 composites per drillhole; and
- Third: Minimum of 4 and maximum of 12 composite within a search ellipsoid with axes equal to four times the original search and a maximum of 4 composites per drillhole.

The blocks were also estimated with ID3 and NN approaches for comparison.

Koza validated the block model by comparing assay grades to block grades section by section visually on the computer screen. The three different methods of estimation, ID2, ID3 and NN were also compared to the composite grades (Table 2.7.5.1). The silver estimation compares well to the estimated grades. The gold estimation is higher than the composite grade which is generally not acceptable. SRK suggests that Koza review the model more closely to see where the discrepancy is occurring. The use of swath plots may help with this procedure.

Table 2.7.5.1: Comparison of Block Grades to Composites

Variable	Volume (km^3)	ID2	ID3	NN	Composite
Au g/t	128.5	1.99	2.09	2.14	1.88
Ag g/t	128.5	5.62	5.68	6.10	5.86

2.7.6 Mineral Resource Classification

Blocks were classified as follows:

- Indicated: Estimated in first pass with 3 or more drillholes or in second pass with 3 or more drillholes and within 60% of the search distances; and
- Inferred: All remaining blocks estimated in the three passes.

2.7.7 Mineral Resource Statement

The cutoff grades were calculated from the parameters shown in Table 2.7.7.1. The one year rolling average gold price is US$1,266; the two year average is US$1,339 and the three year average is US$1,449. The cutoff grade for Mastra North is 0.90 g/t Au which is significantly less than the reserve cutoff grade of 1.35 g/t as discussed in Section 2.9.

Table 2.7.7.1: Mastra North Cutoff Grade Parameters

Prices and Costs	Units	OP
Gold Price	US$/oz	1,450
Gold Recovery	%	0.94
Gold Refining	US$/oz	3.44
Royalty	%	0
Government Right	%	1
Process Cost	US$/t	25.00
Mining Cost	US$/t	0.00
G&A Cost	US$/t	15.00
Calculated Cutoff grade	g/t	0.89
Final Cutoff grade	g/t	0.90

Source: Koza 2014

It is becoming an industry practice to state mineral resources within a pit optimization shell. Koza conducted a pit optimization using the parameters in Table 2.7.7.1. Approximately 75% of the Indicated resources and 45% of the Inferred resources fall within the pit optimization shell. The resources stated in this report are not constrained by the pit shell. The resource contains 19,000 oz of gold in Indicated and 2,000 oz of gold Inferred resources whereas the reserve contains 7,000 oz of Probable reserves. This is a low conversion rate of Indicated resources to Probable reserves and indicates that more than half of the resource does not meet the criterion of being potentially mineable.

Table 2.7.7.2 lists the resources at a cutoff grade of 0.90 g/t Au. The Mineral Resources are based on the assumption of transporting mined material to the mill at Mastra and are not constrained by a pit shell.

Table 2.7.7.2: Mastra North Mineral Resources, Including Ore Reserves, at December 31, 2014

Classification	kt	g/t Au	g/t Ag	koz Au	koz Ag
Indicated	291	2.05	5.8	19	54
Inferred	24	2.39	5.5	2	4

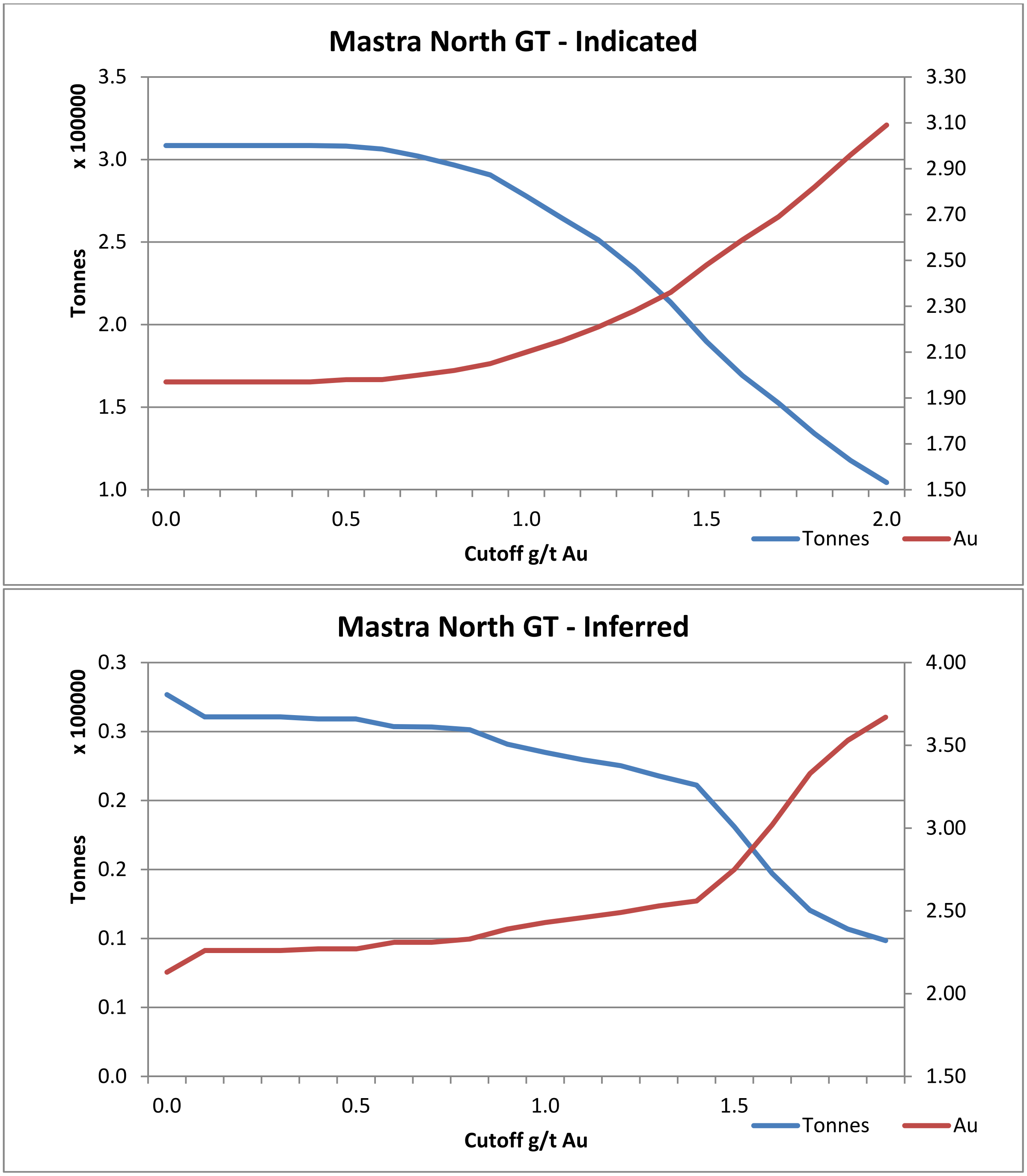
Tonnages and grade are rounded to reflect approximation;
Resources are stated at a cutoff grade 0.90 g/t Au;
Mineral Resources are contained within grade shells but are not constrained by a pit optimization shell; and
Mineral Resources are reported inclusive of Mineral Reserves.

2.7.8 Mineral Resource Sensitivity

Figure 2.7.8.1 presents grade tonnage curves for Indicated and Inferred Resources. Cutoff grades for the Mastra resource at various gold prices are shown in Table 2.7.8.1.

Table 2.7.8.1: Mastra North Open Pit Cutoff Grades vs. Gold Price

Gold Price	Cutoff Grade
1,600	0.84
1,550	0.86
1,500	0.89
1,450	0.92
1,400	0.96
1,350	0.99
1,300	1.03
1,250	1.07
1,200	1.12



Source: SRK, 2013

Figure 2.7.8.1: Grade Tonnage Curves for the Mastra North Resource

2.8 Mastra Mine Reserves

The Mastra reserves are a combination of two underground mines named Mastra Main and Mastra West that are accessed by separate portals but mine the same orebody. Mastra North is a small open pit outside the immediate Mastra processing area from a different orebody. At this stage Mastra will be operated by a skeleton crew to exploit the remaining reserves. The long term future of the project will require additional resources and management of unfavourable site infrastructure limitations for the tailings dam and waste dump areas.

Operations at Mastra during 2014 were curtailed due to lack of permitsto disturb forestry land and build additional tailings storage facility as the existing tailings dam was nearing capacity. There was also no permit to mine Mastra North or dispose of waste there. As a result, mining operations were suspended in February of 2014 along with ore processing.

Late in 2014, Koza began legal proceedings to accelerate the permitting process controlled by the Prime Ministers office for access to forestry land. Koza belive this will facilitate the release of the forestry permit so they can begin construction of a new TSF and begin processing in June of 2015.

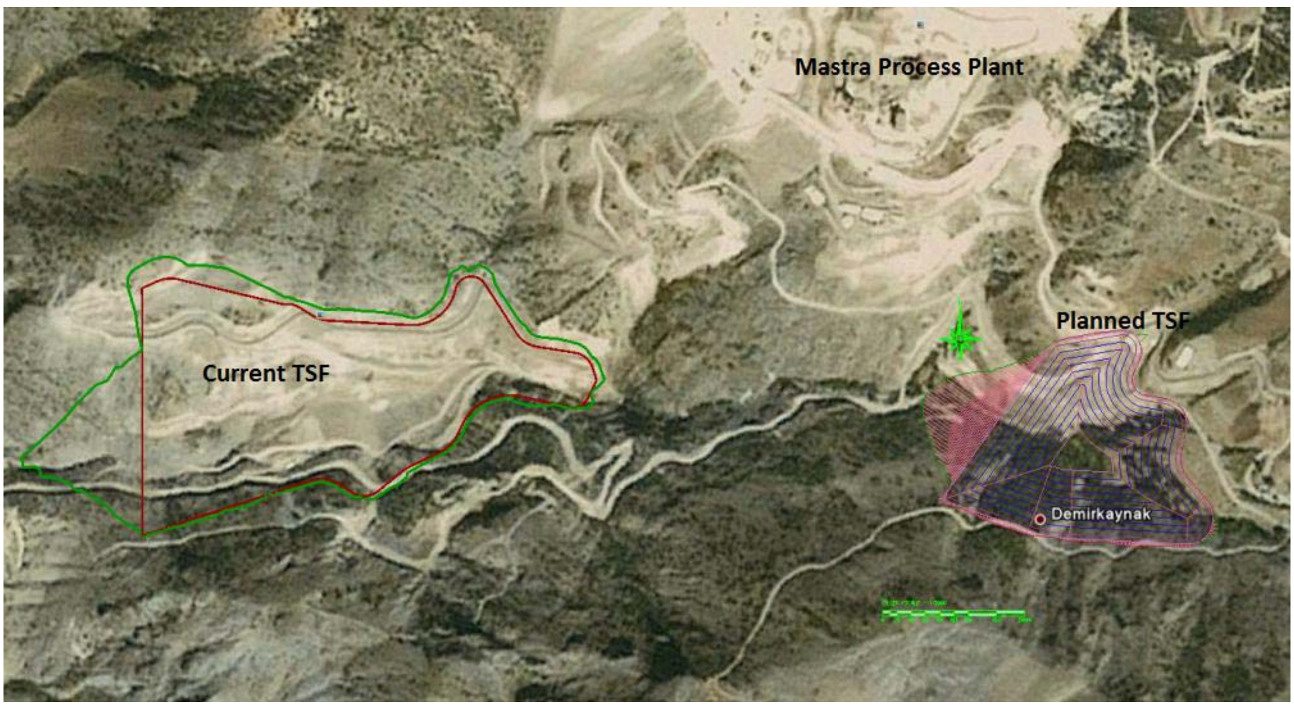


Figure 2.8.1: Mastra Tailings Storage Facility Plan

Koza is planning on operating the process plant during the latter half of 2015 and then stop the processing of ore at Mastra at the end of the year. From 2016, ore will be mined at a very low production rate with ore stockpiled and ready for toll milling at the Mastra processing facility when mining operations finish in 2018. It is planned that 27,000 t will be available for processing or half a month of processing capacity at the end of the mine life.

Table 2.8.1 details the Mastra open pit and underground mine production for 2014 compared to that forecast in the technical economic model (TEM) in 2013. Because operations were disrupted for the year the reconciliation is only valid for January and February. The main takeaway from the production numbers is the grade was higher than predicted as tonnage and ounce figures are invalid because of the permitting issue.

Table 2.8.1: 2014 Open Pit Mastra Mine Production vs. 2013 Economic Model Estimate

2014 Production	Mastra Production				Mastra 2013 TEM				Reconciliation (Predicted vs. Achieved)		
	Ore Tonne	Au g/t	Ag g/t	Gold Ounces	Ore Tonne	Au g/t	Ag g/t	Au Ounces	Tonnage	AU Grade	Au Ounce
Total	151,563	5.23	5.30	25,489	373,255	4.18	4.46	50,162	146%	-20%	97%

Source: Koza/SRK, 2014

2.9 Ore Reserve Estimation

LoM plans and resulting reserves are determined based on a gold price of US$1,250/oz for the underground and open pit mines. Reserves stated in this report are as of December 31, 2014.

The ore at Mastra is to be extracted using primarily underground mining methods and a small open pit. The ore material is converted from resource to reserve based primarily on positive cash flow, pit optimization results, pit and underground mine design and geological classification of measured and indicated resources. The in-situ value is derived from the estimated grade and various modifying factors. The previous section discusses the procedures used to estimate gold grade. The modifying factors include the metal value and recovery.

Modifying Factors

Ore reserves are based on the economic balance between the value per tonne of rock and the cost to mine and process each tonne of rock. The value is based on estimated metal concentration, estimated metal value and milling recovery. The costs include development, mining, processing, transportation and operating overhead.

To define the value per tonne of rock, the estimated concentration of gold is factored by an estimated long-term value. The long-term gold price used by Koza in the cutoff grade calculation is US$1,250/oz. In the opinion of SRK, this gold value is reasonable and appropriate for ore reserve estimation.

The second factor is the process recovery, which is based on mill head grade, recovered metal and tail grade. The Ore Reserve uses a mill recovery value of 94% at Mastra. The final factor is based on a varying royalty of 1% and government rights of 1%.

The main modifying factors for conversion of resources to reserves involve open pit transportation costs of ore from Mastra North to the mill and underground design.

Open Pit

Tables 2.9.1 and 2.9.2 present the cost inputs used as the basis for pit optimization, cutoff grade and pit design at Mastra.

Table 2.9.1: Mastra North Open Pit Cost Inputs

Parameter	Unit	Amount
Mining Cost	US$/t	1.49
Rehabilitation Cost	US$/t waste	0.20
Milling Cost	US$t/ore	27.00
Selling Cost	US$/oz	3.44
Grade Control	US$t/ore	0.50
Administration	US$t/ore	20.81
Ore Rehandle+Transport	US$t/ore	2.60
Gold Price	US$/oz	1,250
Silver Price	US$/oz	20
Gold Recovery	%	94
Silver Recovery	%	75
Royalty	% Revenue	2
Cutoff Grade	g/t Au	1.37

Source: Koza, 2014

Mining from the Mastra North pit incurs an “Ore Rehandle+Transport” charge of US$2.00/t due to the length of haul to the main Mastra stockpiles.

Underground

The costs used for calculating the underground mining reserves are based on current Mastra underground mining operations. The underground mining cost is US$52.00/t, similar to the cost at Ovacık.

Tables 2.9.2 summarizes the cutoff grade calculation for the Mastra underground orebody.

Table 2.9.2: Mastra West Underground Cutoff Grade Calculation

Parameter	Unit	Cut and Fill
Mining cost	US$/t ore	52.00
Milling cost	US$/t ore	27.00
Administration	US$/t ore	20.81
Total cost	**US$/t**	**99.81**
Gold price	US$/oz	1,250
Gold recovery	%	93
Royalty	% Revenue	2
Selling Cost	US$/oz	3.44
Cutoff Grade	**g/t Au**	**2.73**

Source: Koza, 2014

SRK has reviewed these costs and agrees with the projections.

Open Pit Reserve Classification

Ore tonnes which lie within the final pit design shape are classified as proven or probable reserves based on the geological classification for measured and indicated resources. Proven reserves are measured resources within the design pit shape and probable reserves are indicated resources within the design pit shape. Inferred material which lies within the pit design is not included in the reserve statement and is treated as waste in the economic model.

Ore stockpiles are calculated on survey volumes and stockpile balances accumulated through December 31, 2014. The quantity of high copper ore is not tracked and assumed to be blended into normal ore feed.

Stockpiles available for processing are considered proven if they achieve a RoM grade and probable if Au grade nears the calculated cutoff grade. For low-grade, the removal of administration and grade control costs lower the break-even cutoff grade making processing profitable at the end of mine life. The open pit and stockpile reserves are listed in Tables 2.9.3 through 2.9.6.

Table 2.9.3: Mastra North Open Pit Mineral Reserve, at December 31, 2014

Category	kt	g/t Au	g/t Ag	koz Au	koz Ag
Probable Reserve	90	2.27	7.0	7	20
Total Proven and Probable Reserves	**90**	**2.27**	**7.0**	**7**	**20**

Metal price US$1,250/oz-Au, US$20/oz-Ag, Au Recovery 94%, Ag Recovery 75%, Au cutoff grade 1.37 g/t.
Source: Koza, 2014

Table 2.9.4: Mastra LG Stockpile Reserve, at December 31, 2014

Category	kt	g/t Au	g/t Ag	koz Au	koz Ag
Probable Reserve	310	1.18	3.2	12	32
Total Proven and Probable Reserves	310	1.18	3.2	12	32

Reserves based on stockpile balance on December 31, 2014 survey. Au Recovery 94%, Ag Recovery 75%.
Source: Koza, 2014

Table 2.9.5: Mastra Emergency Stockpile Reserve, at December 31, 2014

Category	kt	g/t Au	g/t Ag	koz Au	koz Ag
Proven Reserve	18	4.74	5.3	3	3
Total Proven and Probable Reserves	18	4.74	5.3	3	3

Reserves based on stockpile balance on December 31, 2014 survey. Au Recovery 94%, Ag Recovery 75%.
Source: Koza, 2014

Table 2.9.6: Mastra ROM Stockpile Reserve, at December 31, 2014

Category	kt	kt	g/t Au	g/t Ag	koz Au
Proven Reserve	79	5.91	5.8	15	15
Total Proven and Probable Reserves	79	5.91	5.8	15	15

Reserves based on stockpile balance on December 31, 2014 survey. Au Recovery 94%, Ag Recovery 75%.
Source: Koza, 2014

Underground

The underground mine design process at Mastra entails filtering the geological model for measured and indicated resources above the 2.73 g/t Au cutoff grade and then designing cut and fill stopes based on the orebody wireframes. Mining dilution is added during the design process by ensuring that the designed stope shapes are consistent with expected final excavation sizes. Where cut and fill designs contain inferred resource material, the inferred metal content is removed from the design but the tonnage is retained. Where the cut and fill designs contain material that is outside the geological wireframe, this material is included as dilution at zero grade.

Proven and Probable reserve categories are determined directly from the Measured and Indicated categories. SRK is of the opinion that the reserve classification used by Koza is valid for the Mastra underground mine.

Table 2.9.6 presents the mineral reserve for the Mastra underground mine as of December 31, 2014.

Table 2.9.6: Mastra Underground Mineral Reserve, at December 31, 2014

Category	kt	g/t Au	g/t Ag	koz Au	koz Ag
Proven Reserve	134	5.31	4.9	23	21
Probable Reserve	128	4.98	5.2	20	21
Total Proven and Probable Reserve	262	5.15	5.1	43	43

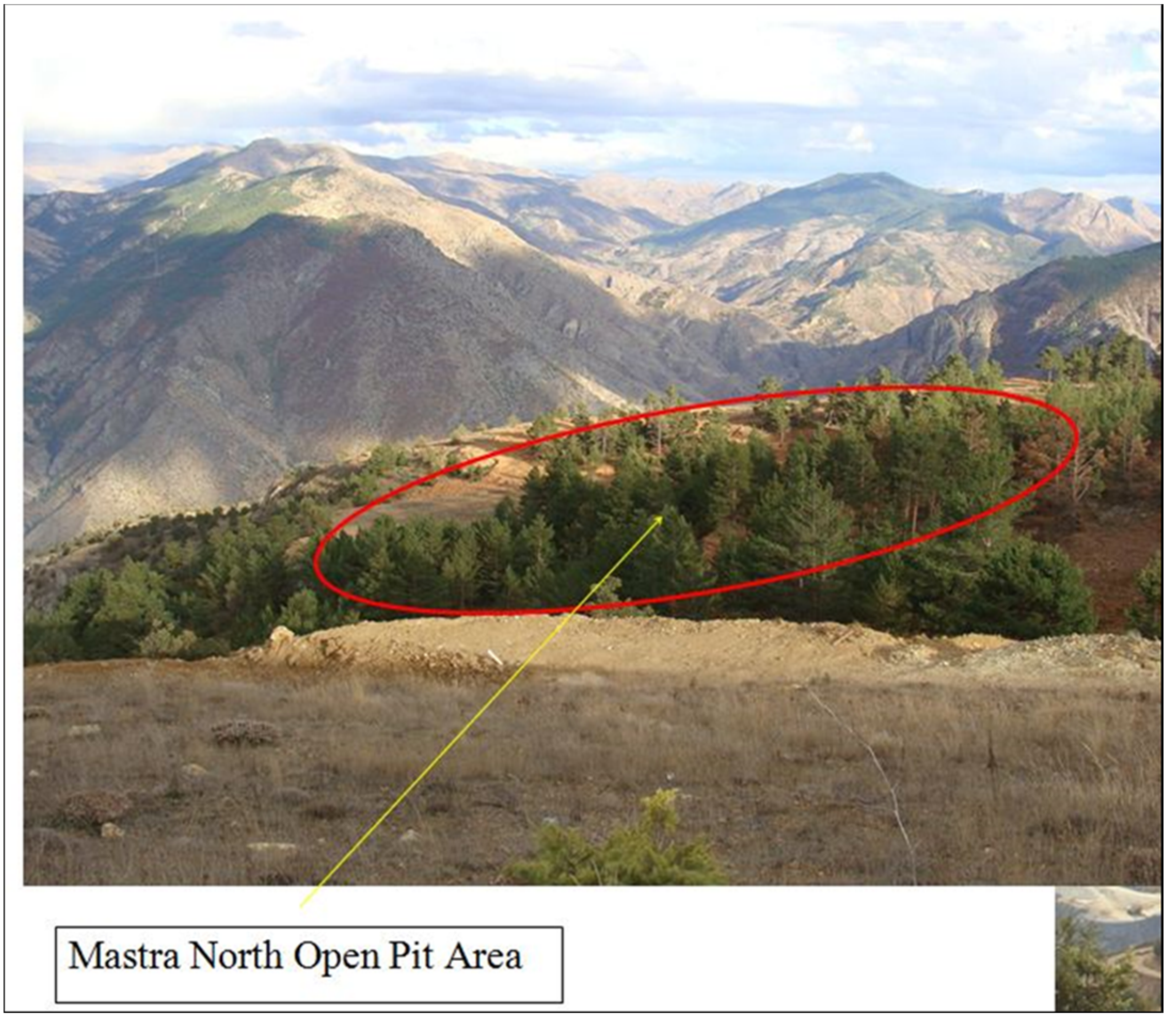
Reserves based on December 31, 2014, Metal Price US$1,250/oz-Au, Au Recovery 94%, Au cutoff grade 2.73 g/t
Source: Koza, 2014

2.10 Mining Engineering

Mining Method - Open Pit

Mastra North is located north of the Mastra pit. It is expected to be a small operation with ore stockpiled near the pit and relocated on an as-needed basis to the Mastra mill (except winter months). Depending on exact mine sequence it is possible that progressive backfilling of the pit may reduce the required waste dump storage area which is limited.

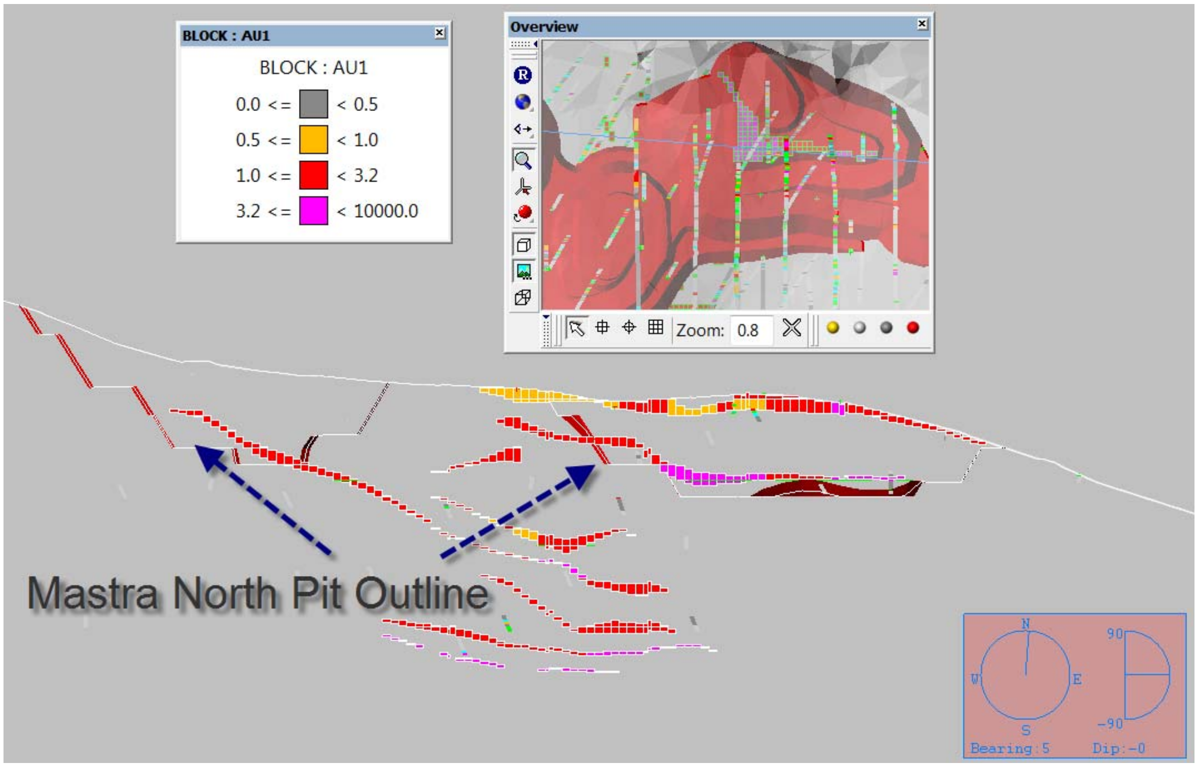
Mastra North will commence operation in 2015 and an additional transportation cost of US$2.00/t has been included to haul ore to the Mastra stockpiles. Ore production is accelerated in the summer months when weather issues are not as common. Please refer to Figure 2.10.1 for site photo of the Mastra north area.



Source: SRK 2011

Figure 2.10.1: Mastra North

Figure 2.10.2 show a cross section through the geology, block and pit design for Mastra North. As of 2013 Koza were waiting on a permit to extract from Mastra North.



Source: SRK, 2013

Figure 2.10.2: Mastra North Pit Section

Underground

Underground mining at Mastra commenced in July 2008 with the development of a surface access ramp and a portal located just outside the final pit limits, close to the mill and the waste dump. Ore production started in January 2009 with a production ramp-up period completed by April 2009.

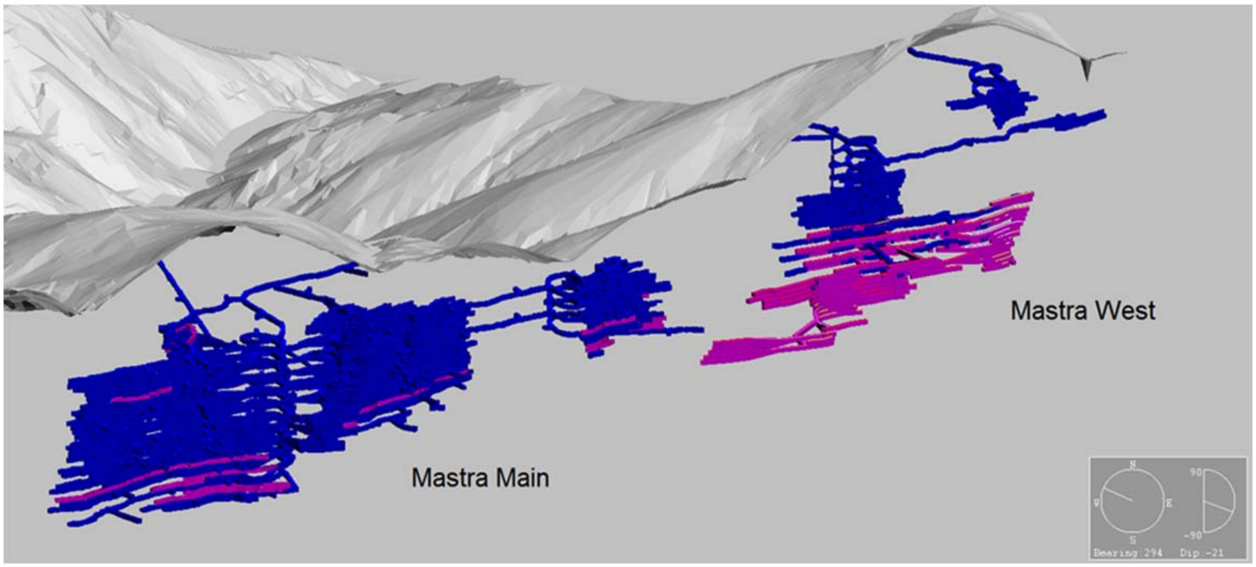
Underground operations are split between Mastra Main which lies directly below the mined out open pit and Mastra West that lies under the Mastra West Open pit to the West of the main operations along strike.

Mastra West underground employs two access drifts and a ventilation access. One adit and one ventilation drift is located at a pre-prepared pad location below the final pit limits and another to the east of the main vein.

The two underground operations and layout are similar to the Ovacık and Çukuralan underground mines and utilize cut and fill mining methods. The vein system at Mastra is made up of 4 domains categorized by vein dip. Several splays have been identified from the main veins, so short longhole drilling occurs on ore drifts to help locate additional mineralized material.

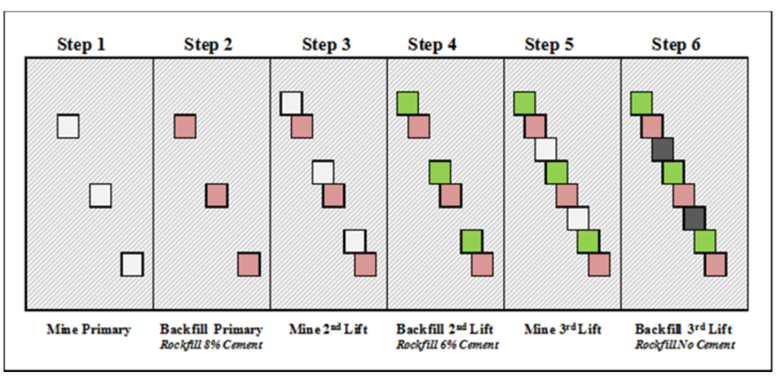
Mining Method

Figure 2.10.3 shows an isometric view of the Mastra underground development (blue) and planned extraction (red). The Mastra main orebody access ramp is located in the footwall of the East and West Zones and additional access at Mastra West. Primary cuts are driven 5 m high at a spacing of 10 m back to floor, allowing three cuts to be mined between the primaries. Figure 2.10.4 shows an idealized mining and backfill sequence for a stope block with a 10 m separation between primary stopes. Primary stopes are mined and filled with rockfill containing an 8% cement binder. This high cement content is required as these stopes will be undercut by the third lift at a later date. The second lift is mined over the first and filled with development waste, unless a parallel drift is being mined on the same horizon in which case backfill with 6% cement binder is installed. This percentage of cement is required so that equipment mining the third cut has a stable working platform and to provide increased strength for wider stope areas. The final lift is mined in an undercut fashion with the backfill from the primary cut forming the stope back. This final cut is generally left open.



Source: SRK, 2013

Figure 2.10.3: Mastra Underground Long Section View Looking North-West



Source: Koza, 2012

Figure 2.10.4: Mining and Backfill Sequence

In wide orebody areas the cuts are still mined as 5 m x 5 m but in this case multiple cuts are mined side by side with each lift. Some areas of the orebody mine multiple side-by-side 5 m drifts giving a total cut span of greater than 15 m. In this situation, the quality of the backfill and the strength obtained by using a 6% cement binder is more important.

Waste development and cut and fill stoping are drilled using twin boom jumbos. Faces are mucked out using LHD's and primary support in the form of 10 cm of polypropylene fiber reinforced shotcrete is applied. Split set tendon support is installed in the back and upper walls using a bolting rig.

Backfill is produced using crushed material brought from a quarry outside the mine site mixed with cement and water. A conveyor feeds the waste into an overhead batch mixer that discharges directly into mine trucks. The trucks then back-haul the fill to the stopes where a modified LHD is used to push the backfill tight to the back of the stope.

Shotcrete material is produced on-site using the same conveyor and mixing arrangement discharging into a shotcrete Transmixer (underground truck with a rotating mixer drum attached) that moves the material to the face where it is applied using a Spraymec (remote controlled, robot arm, shotcrete application unit). The Spraymec operator controls the boom and applies shotcrete to the back and walls of the excavation from a safe location away from the unsupported ground.

Mining Equipment

The mining equipment used for the Mastra underground mine is shown in Table 2.10.1.

Table 2.10.1: 2012 Mastra (Main) Underground Mining Equipment

Task	Equipment	Quantity	Supplier
Truck Haulage	MT2010	4	Atlas Copco Wagner
	MT 416	1	Atlas Copco Wagner
Mucking	ST 710	3	Atlas Copco Wagner
	ST3.5	1	Atlas Copco Wagner
Shotcrete	Meyco Cobra	1	BASF shotcrete sprayer
	Mixer	1	Normet Utimec 1500 shotcrete trans-mixer truck
	Mixer	1	Normet Utimec 1600 shotcrete trans-mixer truck
Drilling	Jumbo	2	Atlas Copco 2 twin boom H282
Bolting	Jumbo bolter	1	Tamrock DS310
Service	ITC	1	CAT IT14G (integrated tool carrier),
	432D	1	CAT
	Front end loader	1	Bobcat T40140
	TD65	2	NewHolland
	GENSET S.P.A	1	MPM 15/400 I-KA
	Pick-up	3	Ford Ranger 4x4
Borehole	Diamec 232	1	Atlas Capco
Trimming	HMK 102 S	1	Hidromek
Total		27	

Source: Koza, 2014

Underground Geotechnical Design

The underground mine was visited in October 2009 and again in 2011 by SRK mining engineers accompanied by Koza engineers.

The ground support plan was prepared in 2009 using data collected from development and production areas. The plan is generally similar to that used at the Ovacık underground mine. The side walls and roof are fibercreted (70 mm minimum thickness) with systematic bolts installed on a regular pattern. In development, resin bolts and rebar are used as systematic bolting, whereas split sets are used in production. In areas of poor ground the shotcrete and split sets (or resin bolts + rebars) are supplemented with wire screen installed under the shotcrete and held in place by the split sets/resin bolts.

Based on the work carried out by Golder in 1995 and the fact that development has been successfully carried out in both veins over the past three years, it is SRK's opinion that the geotechnical risk is low based on the level of ground support implementation and backfilling practices on site.

Mine Planning

Mine planning is carried out by the Ankara based engineering department and is of a high quality. There is good communication between the site operations departments and technical staff. Regular operational meetings and discussions are held to ensure that both short and long-term planning issues are addressed and that the short medium and long term plans are understood by all parties.

The engineering department uses Datamine for mine design and Mine2-4D for development and stope scheduling. SRK is of the opinion that the scheduling process carried out in Mine2-4D is efficient and effective. This package links directly to Datamine and provides an integrated, graphical design and scheduling interface that removes much of the tedious and error prone spreadsheet work.

The mine design process is as follows:

- Obtain updated ore wireframes and block model information from geology;
- Identify areas of the orebody above cutoff grade;
- Based on the ore location and characteristics, decide on the mining method;
- In cut and fill areas, each 5 m high primary cut and subsequent lift is designed according to the vein profile and block model grade at that elevation. The cuts are broken down into 10 m long segments for ore reserve evaluation purposes. Wireframes are created for the 10 m drift segments and these are evaluated against the block model for tonnage, grade and resource category;
- The results of the evaluation are exported to a spreadsheet and sorted by stope name;
- In order to report the reserve, the inferred category metal content is removed and the results are reported according to reserve category; and
- To produce the LoM plan the extraction sequence of the ore drives and stopes are scheduled based on the average historical development advance rate at the Ovacık site. The development is balanced between the production areas while keeping in mind the overall mining sequence. Waste access and ramp extension development is added to the schedule to support the opening up of new cut and fill and stope access drifts.

The schedule is modified to include changes in geological understanding and actual development performance on an as required basis. Short term plans are generated monthly based on the long-term plan. In this manner the operation keeps a direct relationship between short and long-term plans and ensures that the strategic direction is followed.

Ventilation

For the Mastra West UG mine there are two surface fans each rated at 160 kW. The ventilation system is a duplicate of that commissioned at the Mastra Main UG mine. When the two fans are in operation, air flow capacity is estimated at 160 m^3/s. Currently (2013) the ventilation requirements are supported by a single fan operating at 80 m^3/s for Mastra West UG.

The Mastra main mine has a ventilation system with a design flow capacity of 130 m^3/s based on a demand requirement of 115 m^3/s using an exhaust configuration. There are two 132 kW surface fans located on the exploration audit to draw air from the mine with the primary ramp acting as the fresh air intake. Auxiliary fans and vent raises between levels direct air to the exhaust fans as mining develops.

Ventilation surveys are being conducted by the mine engineer on a weekly and monthly basis and the schematic ventilation plan is updated frequently. The ventilation system is modeled using Ventsim software to define deficiencies in the ventilation plans and to simulate proposed modification to the system.

2.11 Metallurgy, Process Plant and Infrastructure

The Mastra process plant initiated operations during March 2009 and continued production until it was shutdown in February 2014. As such, the Mastra process plant reported production for only January and February during 2014.

The Mastra process plant flowsheet incorporated two-stage crushing, two-stage grinding (rod mill and ball mill), hydrocyclone classification, thickening, cyanide leaching, carbon adsorption, stripping and smelting to produce a final doré product. The tails were detoxified for the destruction of cyanide prior to discharge by gravity to the lined tailings storage facility. Following initial plant commissioning it was found that cyanide soluble minerals in the ore (such as chalcocite) were creating significant process problems including:

- Excessive cyanide consumption;
- High copper contamination of the final doré product; and
- Inability to detoxify the final tailings to required cyanide levels.

To remedy this problem was the installation of a sulfidization, acidification, recycling, and thickening (SART) circuit. The circuit was designed to remove cyanide soluble copper from the process, which is precipitated and recovered as a marketable product, and regenerate cyanide for reuse in the leach circuit. The successful incorporation of the SART circuit enabled the processing of ores with higher levels of cyanide soluble copper without significant penalty.

During 2014, ore from the Mastra mine averaged about 6.0 g/t Au and 5.6 g/t Ag. Overall gold recovery averaged 91.0% and overall silver recovery averaged 50.9%.

2.11.1 Mineralogy

The Mastra ore is a quartz vein type polymetallic ore containing significant levels of base metals. In the primary ore the base metals occur mainly as sulfides including pyrite, chalcopyrite, sphalerite and galena. Secondary minerals include chalcocite and covellite as the main copper mineral, which are soluble in cyanide.

2.11.2 Process Plant Flowsheet, Design and Operations

The Mastra process flowsheet is, in principle, the same as that operated at Ovacık. Only minor changes, related mainly to equipment size and selection, are incorporated. In addition, the SART circuit was retrofitted into the process after initial start up. The flowsheet for the Mastra process plant is shown in Figure 2.11.2.1 and list of major process is provided in Table 2.11.2.1.

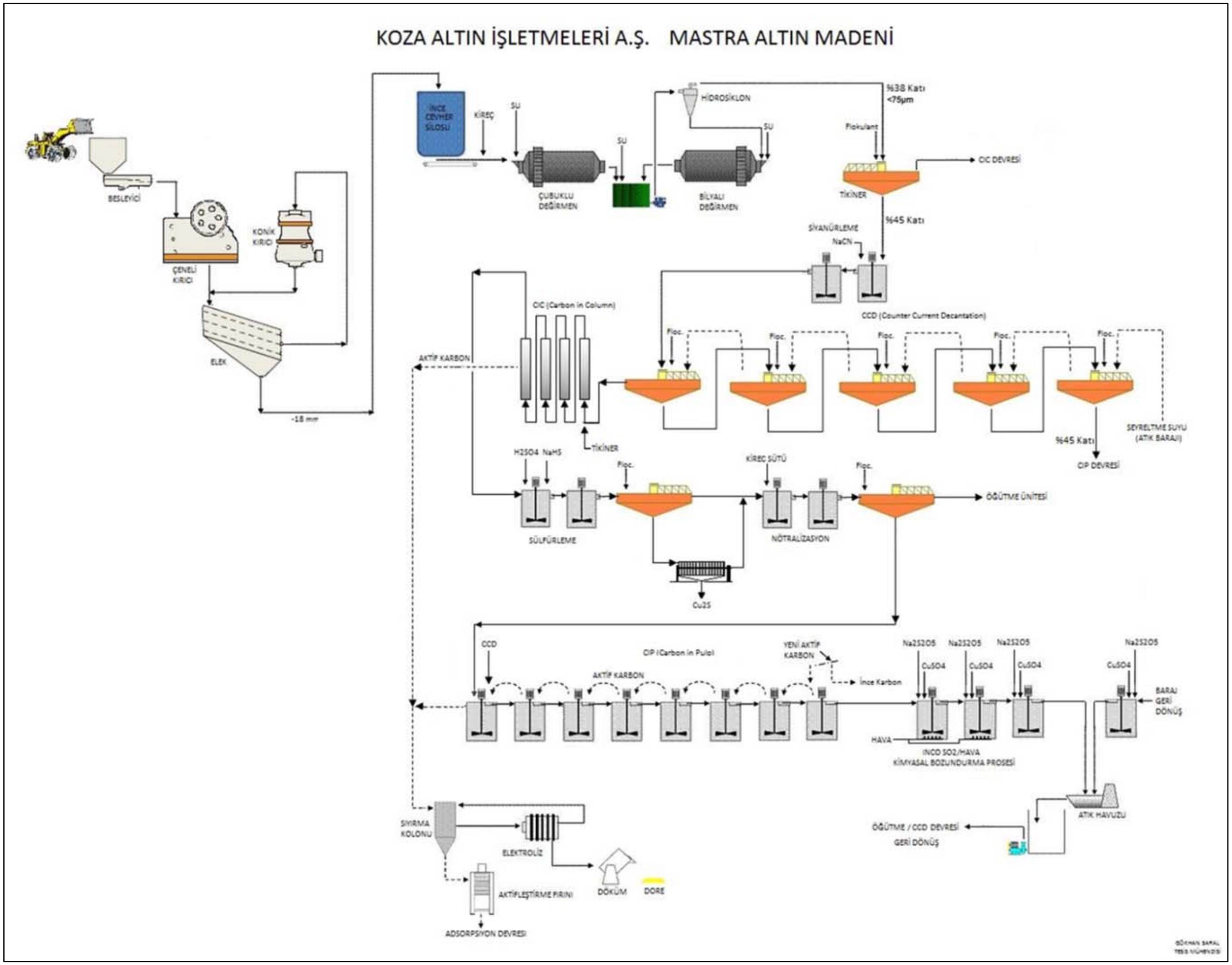
Ore processing at Mastra included:

- Truck haulage from the underground mining operations to the stockpile area;
- Primary open circuit jaw crusher feeding to a closed circuit double deck vibrating screen;
- Secondary crushing in closed circuit with a vibrating screen to produce a 100% -20 mm product;
- Two stage grinding with a primary rod mill in open circuit and a secondary ball mill operated in closed circuit with a cluster of 250 mm hydrocyclones to produce a final grind of about P_{80} 75 microns;
- Thickening of the hydrocyclone overflow in a high rate thickener to about 45% solids for feed to the cyanidation circuit;
- Cyanidation in two 720 m^3 mechanically agitated tanks with oxygen and cyanide added to the leach tanks to maintain a dissolved oxygen level of 20 to 25 ppm and cyanide concentration at 650 to 750 ppm;
- Counter-current decantation (CCD) of the leached slurry in five stages of thickening to recover the majority of the dissolved gold and copper into a clear solution;
- Eight-stage CIP adsorption on the washed slurry from the CCD circuit with counter-current transfer of carbon. Carbon loadings of around 3,000 to 4,000 g/t Au, were achieved from a solution tenor of 6 to 8 g/t Au;
- Four stage carbon-in-column (CIC) recovery of dissolved gold onto carbon from the CCD circuit and grinding thickener overflows. Carbon loadings of 6,000 g/t to 8000 g/t Au were achieved,
- Precipitation of copper from the CIC circuit discharge (after gold adsorption onto carbon) using sodium hydrosulfide (NaHS) and sulfuric acid to pH 4 with recovery of the precipitated copper by thickening and filtration;
- Neutralization of the spent solution after copper precipitation with lime to pH 11.5 followed by precipitation and removal of the resulting gypsum ($CaSO_4$) as a thickener underflow product. Recycling of the cyanide-bearing thickener overflow solution to the milling circuit;
- Detoxification of the CIP plant tailing with copper sulfate and sodium metabisulfite;
- Acid washing and elution of loaded carbon from the CIP and CIC circuits in 4 t batches;
- Thermal regeneration of eluted carbon in a gas fired rotary kiln at 700°C and hydraulic return of carbon to the last CIP and CIC stages; and
- Electrowinning of gold and silver onto stainless steel cathodes which are pressure washed calcined and smelted to doré in an induction furnace.

Table 2.11.2.1: Major Equipment Details

Equipment Item	Units	Details	Motor Size kW
Primary Jaw Crusher	1	1.10 m x 0.88 m Double toggle (Metso C110)	150
Secondary Crusher	1	Metso GP550 Cone	315
Crushing Circuit Screen	1	7.3 m x 3.0 m Double deck (rubber) 50 mm and 20 mm	30
Crushed Ore Silo	1	1,500 t capacity	
Rod Mill	1	2.7 m dia x 4.5 m long	315
Ball Mill	1	3.8 m dia x 5.7 m long	1,300
Classifying Hydrocyclones	8	250 mm diameter	
Preleach Thickener	1	10 m diameter Outotec High Rate	
Leach /CIL Tanks	2	9.4 m dia x 11 m high 720 m^3 nominal capacity	37
CCD Thickeners	5	12 m diameter	
Adsorption/CIP Tanks	8	6.5 m dia x 8 m high 245 m^3 nominal capacity	18.5
Carbon in Solution Tanks	4	1.9 m dia x 2.9 m high	
Copper Reactor	1	3.3 m dia x 3.7 m high 30 m^3	
Copper Clarifier	1	7 m dia x 2.5 m high	
SART Neutralization Tanks	2	4.5 m dia x 4.8 m high 34 m^3	
Gypsum Thickener	1	11.2 m dia x 2.5 m high	
Elution Column (AARL)	1	4 t capacity	
Electrowinning Cells	2	24 cathodes/26 anodes	1,000A 3-5V
Regeneration Kilns	1	200 to 250 kg/h Rotary Kiln	
Smelting Furnace	1	Induction Furnace 125 kg	125

Source: Koza, 2014



Source: Koza, 2014

Figure 2.11.2.1: Mastra Process Plant Flowsheet

2.11.3 Plant Monitoring and Accounting

Plant monitoring and accounting was similar to Ovacık. Feed to the plant was controlled and monitored by a weightometer on the mill feed conveyor. Mill feed samples were taken every hour and the feed moisture level was checked on a 12 hour composite sample.

Since the Mastra process plant ground ore in a cyanide solution, and some gold and silver leaching occurred during grinding, the plant feed grade was determined by assay of both the solids and liquid phases in the cyclone overflow and thickener underflow streams. The plant tailings, after detoxification, were sampled using an automatic cutter with samples taken every 15 minutes and prepared into 12 hour shift composites for analysis. Tailing samples were also taken and analyzed every two hours to monitor WAD (weak acid dissociable) cyanide levels.

Plant accounting assays were based on aqua regia digestions and atomic adsorption spectrophotometer (AAS) analysis for solids and AAS for solutions on both gold and silver. Carbon samples were roasted and digested prior to AAS.

Plant Performance and Recoverability

Table 2.11.3.1 provides a summary of the Mastra process plant performance for the years 2010 to 2013. Plant throughput increased from an average of about 38,900 t/m during 2010 to about 43,000 t/m during 2012 and 2013. Gold recoveries during 2013 averaged almost 94% and silver recoveries averaged almost 48%. Poured gold production during 2013 declined significantly to 80,871 oz. However, poured silver production increased significantly to 41,504 oz. Table 2.11.3.2 provides a summary of plant performance during January and February 2014.

Table 2.11.3.1: Summary of Mastra Process Plant Annual Performance

Year	Ore Tonnes	Average TPM	Head Grade		Recovery %		Poured Ounces	
			Au, g/t	Ag, g/t	Au	Ag	Au	Ag
2010	466,698	38,892	9.51	4.10	94.6	46.6	132,782	30,756
2011	528,516	44,043	10.12	3.77	94.9	38.6	163,755	24,407
2012	519,339	43,278	6.65	3.83	93.8	43.9	107,522	28,719
2013	512,756	42,730	5.31	5.30	93.5	47.9	80,871	41,504
2014	60,844	30,422	5.99	5.60	91.0	50.9	12,986	7,535

Source: Koza, 2014

Table 2.11.3.2: Summary of Mastra Process Plant Monthly Performance – 2014

Month	Feed	Ore Grade		Recovery %		Poured Ounce[(1)]	
	Tonnes	Au, g/t	Ag, g/t	Au	Ag	Au	Ag
January	26,747	5.71	5.50	90.1	51.7	4,867	3,059
February	34,097	6.21	5.68	91.9	50.1	8,119	4,476
Total	**60,844**	**5.99**	**5.60**	**91.0**	**50.9**	**12,986**	**7,535**

Source: Koza 2014
[(1)]Includes inventory ounces poured in March

2.11.4 Operating Costs

Process plant operating costs for 2013 and 2014 are summarized in Table 2.11.4.1. Operating costs averaged US$28.15/t in 2013 and US$31.70 during 2014 (Jan to Feb).

Table 2.11.4.1: Mastra Process Plant Operating Costs 2013 and 2014

Cost Area	US$/t	
	2013	2014
Chemicals	6.03	8.89
Materials	3.77	2.99
Hourly Labor	2.03	2.01
Salaries	0.89	0.64
Energy	5.83	5.90
Maintenance	3.15	1.89
Contractors	2.77	3.93
Other	3.68	5.45
Total	**28.15**	**31.70**
Exchange Rate (TL:US$)	1.78	2.21

Source: Koza, 2014

2.11.5 Infrastructure and Services

Electrical Power

Electrical power supply at 34.5 kV was provided to site from the main state power line between Torul and Gümüşhane. The power line to site is rated at 6,300 kVA.

The voltage was initially stepped down to 6.6 kV for distribution on site with further 6.6 kV:400 V transformers servicing the crushing building (1,600 kVA) and process plant areas (2 x 2,000 kVA). The demand on site was approximately 3,000 kVA.

Emergency generators were available for the offices (400 kVA), plant (900 kVA) and portal (900 kVA) areas.

Water

The majority of the process water used on the plant was recovered from the thickener overflow and from the TSF and is stored in a 700 m^3 process water tank. Raw water was received from underground and is stored in a 400 m^3 tank. Additional make up water was received from two bore-wells located 2 km from the plant site.

Buildings

The following service buildings were provided at the Mastra site: administration office, plant mechanical and electrical workshop, chemical store including a secure cyanide storage building, warehouse, canteen, change house and ablutions and laboratory.

2.12 Tailings Storage Facility

The Mastra Mine has three Tailings Storage Facilities (TSF):

- The first TSF was built in May 2009 with a capacity of 2.0 million m^3 (Mm^3);
- The second TSF was designed with a capacity of 1.2 Mm^3; and
- The third TSF was designed with a capacity of 0.75 Mm^3.

The first TSF has the following design parameters:

- Located at the southwest corner of the mine site in a mountain valley setting;
- Approximately 47 m at the crest;

- Area of about 10 ha;
- Designed for 100-year 24-hour storm event plus the average snow melt; and
- The bottom liner system includes 50 cm gravel, 50 cm compacted clay, and 1.5 mm high density polythene (HDPE) geomembrane.

The second TSF is located in the southeast corner of the mine site in a mountain valley configuration. The first and second TSFs have reached capacity and the third is required for futue production. The third TSF will be located in the depleted open pit.

2.12.1 Permits

Environmental Impact Assessment (EIA) permit is the first environmental permit required for new mining operations, as well as for major mine operation modifications. The EIA permit acts as a construction permit. Following the EIA permit several other environmental permits have to be obtained during the operation of the mine. The EIA permit for the Mastra Mine was obtained on July 25, 2007. This EIA permit covered the underground mine, the main open pit, the processing facilities, and the first TSF. The underground mine was started in 2008 and the processing plant started operation in May 2009. Exploration carried out on the license between 2007 and 2010 resulted in identification of additional resources and reserves. A second EIA permit was obtained on March 7, 2012 for the west open pit (now complete) and the North open pit, an additional underground mine, expansion of the current underground mine, and construction of the second TSF. EIA permitting process for the third TSF is currently underway. The environmental operation permit was obtained on January 11, 2013 and is valid for 5 years. All environmental permits for the Mastra mine are complete with the exception of the forestry land use permit for second TSF and the EIA permit (on-going) for the third TSF. Currently there is no anticipated date for the forestry permit.

2.12.2 Mine Closure

The Mastra Mine practices progressive mine closure/rehabilitation during the mine operation phase. Certain mine units are already closed or being closed.

The main waste rock dump (WRD) has already been completed and covered with top soil. However, this waste rock has high Acid Rock Drainage (ARD) generation potential. Therefore, ARD generation has already started on this WRD and the current closure methods are insufficient to counteract the effects of the ARD being generated. Further measures will have to be implemented at closure which may result in additional mine closure costs. The western pit is currently being backfilled with waste rock blended with limestone.

A formal mine reclamation and closure plan for the Mastra mine does not exist. Koza has made some preliminary estimates for the Mastra mine closure costs. The total cost is estimated at US$6.0 million and includes provisions for capping of the TSFs, surface contouring for WRDs and open pit slopes, demolition and removal of the processing facility, and blocking of underground mine entrance. However, this is likely underestimating the actual mine closure costs as it does not take into account:

- ARD treatment at the main WRD;
- Adjustment of the main WRD slope to the angle of repose;
- Decontamination of certain processing units; and
- Severance package of some 400 workers

Based on the legal commitments, Koza will be responsible for the Mastra Mine site for 30 years after closure.

3 Conclusions and Recommendations

3.1.1 Geology and Resources

QA/QC

Koza monitors QA/QC of the laboratory analyses by inserting internal control samples into the sample stream. Reference materials, blanks and preparation duplicates are systematically inserted to ensure reliability and accuracy of the laboratory. Should there be a QA/QC sample failure during a drilling program, Koza investigates the failure to determine why it occurred and takes appropriate action. If the failure is due to laboratory error, then Koza requests that the entire batch be reanalyzed. This is industry best practice.

SRK has the following recommendations:

- Ag results for the RMs and duplicates should be monitored;
- Plot the standards against time to determine if the laboratory had trouble during a certain period;
- MA04 and MA05 RMs should undergo a round robin analysis for certification;
- Include additional RMs with grades that represent a wider range of the resource grade;
- Continue inserting blanks so that a more statistically valid number of data becomes available and insert the blanks into the mineralized zone; and
- Koza should monitor the internal pulp duplicates prepared and analyzed by ALS.

If the site-specific RMs are not certified, SRK recommends that Koza have a company specializing in the production of site specific Certified Reference Materials (CRMs) generate some for Mastra using Mastra minerlization or that Koza purchase CRMs that are appropriate for the deposit.

Overall the laboratory is performing within acceptable limits and the QA/QC program is sufficiently monitoring laboratory accuracy and reliability.

Resource Estimation

At Mastra, in the drillhole model, the estimated block grades are significantly higher than the composite grades for half of the domains. SRK recommends that Koza investigate the reasons for the significant differences between block and composite grades. This could be done through swath plots or careful review on cross-sections. The fact that the mined to model reconciliation shows a lower gold grade also indicates that there could be a problem with the estimation.

SRK suggests that the Mastra variograms be updated considering the number of grade control samples that have been generated since 2010.

Koza should continue depleting the block model to remove remnant blocks that either do not have sufficient grade, or which are too small on which to develop a mine plan. The inclusion of these blocks in the resource statement results in an overstatement of tonnage.

SRK recommends that Koza use a pit optimization shell to constrain resources at Mastra North. This is becoming an industry standard for resource reporting. The resource contains 19,000 oz of gold in Indicated and 2,000 oz of gold Inferred resources whereas the reserve contains 7,000 oz of Probable reserves. This is low a conversion rate of Indicated resources to Probable reserves and indicates that more than half of the resource does not meet the criterion of being potentially mineable.

3.1.2 Mining and Reserves

Koza is planning on operating the process plant during the latter half of 2015 and then stop the processing of ore at Mastra at the end of the year. From 2016, ore will be mined at a very low production rate with ore stockpiled and ready for toll milling at the Mastra processing facility when mining operations finish in 2018. It is planned that 27,000 t will be available for processing or half a month of processing capacity at the end of the mine life.

SRK would recommend Koza begin detailed mine closure planning and enough resources be allocated to the plan. Special attention to the waste dump and the need to cap or not cap the dump should be investigated.

3.1.3 Metallurgy and Process

The following conclusions are made regarding the Mastra process plant and facilities:

- The Mastra plant operated successfully at an average production rate of 43,000 t/m to 44,000 t/m with gold recoveries consistently at about 94% to 95%. However, production declined during the last two months of operation (Jan and Feb, 2014) with gold recovery declining to 91% and silver recovery at 50.9%; and
- Process plant operating costs during 2014 increased to US$31.70/t processed. Some of the reported higher unit cost can be attributed to an increased exchange rate (TL:US$).

3.1.4 Environmental

Geochemical studies indicate that ARD and Metal Leaching (ML) will be important environmental issues for the Mastra Mine (main and western open pit and WRDs) at closure. A Mine Reclamation and Closure Plan (MRCP) will be prepared based on the results from the existing studies. Based on these results, the closure plan should include preventative methods and techniques (limestone lay out, lower step height, etc.) against the ARD and ML potential. Closure and reclamation work has already been started according to these plans. This should be done as soon as possible since the Mastra mine has relatively short life span.

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5 Glossary

5.1 Mineral Resources and Reserves

The JORC Code 2012 was used in this report to define resources and reserves.

A ‘Mineral Resource’ is a concentration or occurrence of material of intrinsic economic interest in or on the Earth’s crust in such form, quality and quantity that there are reasonable prospects for eventual economic extraction. The location, quantity, grade, geological characteristics and continuity of a Mineral Resource are known, estimated or interpreted from specific geological evidence and knowledge. Mineral Resources are sub-divided, in order of increasing geological confidence, into Inferred, Indicated and Measured categories.

An ‘Inferred Mineral Resource’ is that part of a Mineral Resource for which tonnage, grade and mineral content can be estimated with a low level of confidence. It is inferred from geological evidence and assumed but not verified geological and/or grade continuity. It is based on information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drillholes which may be limited or of uncertain quality and reliability.

An ‘Indicated Mineral Resource’ is that part of a Mineral Resource for which tonnage, densities, shape, physical characteristics, grade and mineral content can be estimated with a reasonable level of confidence. It is based on exploration, sampling and testing information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drillholes. The locations are too widely or inappropriately spaced to confirm geological and/or grade continuity but are spaced closely enough for continuity to be assumed.

A ‘Measured Mineral Resource’ is that part of a Mineral Resource for which tonnage, densities, shape, physical characteristics, grade and mineral content can be estimated with a high level of confidence. It is based on detailed and reliable exploration, sampling and testing information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drillholes. The locations are spaced closely enough to confirm geological and grade continuity.

5.2 Glossary of Terms

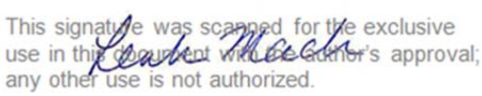
Table 5.2.1: Glossary

Term	Definition
Assay	The chemical analysis of mineral samples to determine the metal content.
Capital Expenditure	All other expenditures not classified as operating costs.
Composite	Combining more than one sample result to give an average result over a larger distance.
Concentrate	A metal-rich product resulting from a mineral enrichment process such as gravity concentration or flotation, in which most of the desired mineral has been separated from the waste material in the ore.
Crushing	Initial process of reducing ore particle size to render it more amenable for further processing.
Cutoff Grade	The grade of mineralized rock, which determines as to whether or not it is economic to recover its gold content by further concentration.
Dilution	Waste, which is unavoidably mined with ore.
Dip	Angle of inclination of a geological feature/rock from the horizontal.
Fault	The surface of a fracture along which movement has occurred.
Flitch	Mining horizon within a bench. Basis of Selective Mining Unit and excavator dig depth.
Footwall	The underlying side of an orebody or stope.
Grade	The measure of concentration of gold within mineralized rock.
Haulage	A horizontal underground excavation which is used to transport mined ore.
Igneous	Primary crystalline rock formed by the solidification of magma.
Kriging	An interpolation method of assigning values from samples to blocks that minimizes the estimation error.
Level	Horizontal tunnel the primary purpose is the transportation of personnel and materials.
Milling	A general term used to describe the process in which the ore is crushed and ground and subjected to physical or chemical treatment to extract the valuable metals to a concentrate or finished product.
Mining Assets	The Material Properties and Significant Exploration Properties.
SAG Mill	Semi-autogenous grinding mill, a rotating mill similar to a ball mill that utilizes the feed rock material as the primary grinding media.
Sedimentary	Pertaining to rocks formed by the accumulation of sediments, formed by the erosion of other rocks.
Sill	A thin, tabular, horizontal to sub-horizontal body of igneous rock formed by the injection of magma into planar zones of weakness.
Smelting	A high temperature pyrometallurgical operation conducted in a furnace, in which the valuable metal is collected to a molten matte or doré phase and separated from the gangue components that accumulate in a less dense molten slag phase.
Spigotted	Tap/valve for controlling the release of tailings.
Stope	Underground void created by mining.
Strike	Direction of line formed by the intersection of strata surfaces with the horizontal plane, always perpendicular to the dip direction.
Sulfide	A sulfur bearing mineral.
Tailings	Finely ground waste rock from which valuable minerals or metals have been extracted.
Thickening	The process of concentrating solid particles in suspension.
Variogram	A statistical representation of the characteristics (usually grade).

6 Date and Signature Page

Signed on this XX Day of XX 20xx.

Endorsed by CPs:



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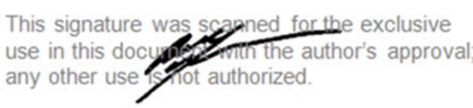

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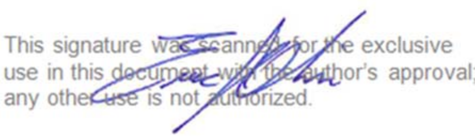

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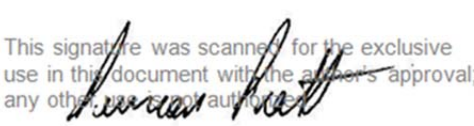

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All data used as source material plus the text, tables, figures, and attachments of this document have been reviewed and prepared in accordance with generally accepted industry practices.

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