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# TABLE OF CONTENTS

# Page

1. SUMMARY	1
2. INTRODUCTION AND TERMS OF REFERENCE	7
2.1 INTRODUCTION	7
2.2 TERMS OF REFERENCE	7
2.3 SOURCES OF INFORMATION	7
2.4 UNITS AND CURRENCY	8
3. RELIANCE ON OTHER EXPERTS	9
4. PROPERTY DESCRIPTION AND LOCATION	10
5. ACCESS, CLIMATE, LOCAL RESOURCES, INFRAS	STRUCTURE AND
PHYSIOGRAPHY	
5.1 ACCESS	
5.2 CLIMATE	
5.5 LUCAL RESOURCES AND INFRASTRUCTURE.	
5.4 FH15IOORAFH1	10
6. HISTORY	17
7. GEOLOGICAL SETTING	
7.1 REGIONAL SETTING	
7.2 LOCAL SETTING	21
8. DEPOSIT TYPES	
9. MINERALIZATION	
10. EXPLORATION AND DISCLOSURES REQUIRED.	
10.1 EXPLORATION 1983-1990	
10.2 EXPLORATION 2010	
11. DRILLING	40
12. SAMPLING METHOD AND APPROACH,	



### TABLE OF CONTENTS (continued)

13. SAMPLE PREPARATION, ANALYSES AND SECURITY	43
14. DATA VERIFICATION	44
15. ADJACENT PROPERTIES	45
16. MINERAL PROCESSING AND METALLURGICAL TESTING	49
17. MINERAL RESOURCE AND MINERAL RESERVE ESTIMATES	49
18. OTHER RELEVANT DATA AND ADDITIONAL INFORMATION	49
19. INTERPRETATION AND CONCLUSIONS	50
20. RECOMMENDATIONS	51
21. SIGNATURE PAGE	53
CERTIFICATE	54
REFERENCES	56

## LIST OF TABLES

1.	Concessions in good order	10
2.	Concessions pending final approval	13
3.	Average of rock chip samples, LasPircas area	35
4.	Estimated budget for initial program	52
••	Louinated eudget for initial program	

# LIST OF FIGURES

1.	Location map	11
2.	Concession map	12
3.	Regional geology	19
4.	Property Exploration Areas and AAC's Alteration zones	20



# TABLE OF CONTENTS (continued)

# Page

5.	Satellite Imagery	22
6.	Generalized Porphyry model	26
7.	Geology, drill hole locations and proposed drilling by MSC	28
8.	2010 MMI Survey - Traverse lines and gold RR ratios	29



#### 1. SUMMARY

Watts, Griffis and McOuat Limited ("**WGM**") was commissioned by South American Gold and Copper Company Limited ("**SAGC**") to prepare this National Instrument 43-101 ("NI 43-101") compliant report in a letter agreement dated July 22, 2010. The purpose of the report is to provide support for the proposed merger of SAGC with Minera Santa Cecilia ("**MSC**"), a private company that owns the Santa Cecilia project.

Santa Cecilia is an exploration project for hydrothermal gold, silver and copper in the high western Cordillera of Chile's "Third Region". Targeted alteration and mineralization occur over an area of approximately 10 km<sup>2</sup> at elevations of 3,600 to 4,600 m. The project is located in the Maricunga Belt, an established mining district that includes, together with many prospects, the year-round Maricunga (formerly Refugio) gold mine owned by Kinross Gold Corporation. From the mountain centre at Santa Cecilia, workings at the Maricunga mine are visible approximately 16 km to the northeast while drill sites for the recently reported Caspiche gold-copper resources (owned by Exeter Resources Ltd. ("**Exeter**")) are only 500 m east of the property boundary.

The large old mining town of Copiapo lies 180 km by good dirt road to the west. Copiapo is served by an airport 55 km, by paved road, to the west of the town. From Santiago it takes about one hour by jet and a further two and a half hours by road to the project site. The port of Caldera lies 20 km by paved highway to the west of the airport. Electric power is available from the Chilean national grid at Copiapo and reaches the Maricunga area. Water for mining operations is a major problem and may have to be resolved by treating sea water, a solution increasingly discussed for the multiple future projects in the region.

MSC holds 3,251 ha of measured or surveyed exploitation concessions in good order. It acquired the original concessions covering Santa Cecilia in 1983 and carried out preliminary prospecting in 1984-85. Between 1986 and 1990, Minera Anglo American Corporation ("AAC") under an option agreement, geologically mapped the 10 km<sup>2</sup> area of hydrothermal alteration at a scale of 1:5,000. They completed 12 diamond drill holes, 33 percussion drill holes and 1,103 m of drifts and crosscuts. AAC also constructed 15,500 m of access roads, collected numerous geochemical soil samples, rock-chip samples and drill hole samples. While the work by AAC comprises the bulk of exploration completed, work by MSC in 2010 has added significantly and encourages consideration of drilling several deep holes.

Topography at Santa Cecilia is dominated by the 4,600 m Cerro Del Medio summit which is exposed to the west over a vertical distance of 1,000 m. To the ESE the summit connects to a



four kilometres long ridge, 4,400 to 4,500 m in elevation, which extends beyond the property boundary onto that of Exeter.

Localized hydrothermal alteration, which has affected all the rocks at Santa Cecilia, comprises a peripheral propylitic zone with an inner shell of quartz-alunite-sericite-chloriteclay-pyrite. Intensity is indicative of mineralization that includes stockworks, porphyry-type intrusives and structures tied to silicification. Alteration is centered on Cerro Del Medio where the zone is three kilometres wide, and extends along the ridge to the ESE where it narrows to approximately one kilometre. Oldest rocks at Santa Cecilia are folded Upper-Triassic Caspiche Formation volcanics and sediments. These are unconformably overlain by Oligocene to Lower-Miocene Aguas Blancas and Rio Nevado Formations comprising tuffs, tuff breccias, conglomerates, sandstones and shales, all of which dip gently to the southwest. Porphyry intrusives with multiple apophyses occur on the north slope of Cerro Del Medio and on the ridge to the ESE. Quartz-diorite and later microdiorite, with quartz veinlets and magnetite, are found as float and in drill holes on Cerro Del Medio, and may be contemporaneous with gold and/or copper mineralization. Local names for parts of the project include Quebrada Del Medio, and Flanco Norte which are respectively on the west and north flanks of Cerro Del Medio. Along the ridge ESE from Cerro Del Medio are successively the Las Pircas and Los Gemelos sectors.

Brief descriptions based on the work by AAC are as follows:

#### Quebrada Del Medio

At Quebrada Del Medio, along the western base of Cerro Del Medio, there is strong alteration on the surface between 3,800 and 4,200 m elevation and over a north-south length of 1,200 m. There is also abnormal geochemistry over two ignimbrite-tuff horizons of the Aguas Blancas Formation (the Upper and Lower Mantos) and more particularly in the lower unit. AAC drove an adit on the 3,881 m level to explore the Lower Manto and encountered sericitised and argillized tuff with quartz-pyrite veinlets that, along the north wall, assayed 4.70 g Au/t and 171.60 g Ag/t for 14.0 m. Although further intended work was not done, AAC completed one diamond drill hole at -50° near the portal. From 111 to 123 m (8 m true width), the average grade was 11.5 g Au/t and 98.0 g Ag/t. The intercept included 2.0 m assaying 55 g Au/t.

#### **Cerro Del Medio Central**

The summit occupies a circular area 1,500 m in diameter where alunite-sericite-chlorite-pyrite alteration is widespread, and strong quartz-sericite-clay alteration is developed adjacent to numerous siliceous structures that trend generally northeast to east to southeast. Within the



area, drilling has explored a mineralized area measuring 300 by 350 m with open dimensions. Largely oxidized to 100 m depth, mineralization is hosted by coarse-grained quartz-diorite and later invasive microdiorite. Hydrothermal breccias contain localized stockworks of quartz veinlets carrying pyrite, rare chalcopyrite, magnetite and tourmaline. Average grade in these stockworks is 0.02 to 0.04 g Au/t. Within them, irregular siliceous veins, which are up to several metres wide, carry pyrite and energite, but values are generally <2.0 g Au/t and <2% copper.

East of the summit, the drilled Anillo and Anillo Sur sections contain a stockwork of steeply dipping veins that trend at  $40^{\circ}$  to  $70^{\circ}$  E of N. The veins typically are of vuggy quartz with alunite, jarosite and limonite. Widths vary from 20 to 50 cm and visible lengths are 50 to 100 m. At one epithermal vein site opened by local miners, visible gold reportedly yielded individual samples of 44.0 g Au/t and 150.0 g Au/t. Rock-chip samples of veins and stockwork from road-cuts, outcrop and trenches reported 0.5 to 3.3 g Au/t from lengths of 0.3 to 3.0 m.

At elevation 4,331 m, AAC cut a drift for 150 m and a crosscut for a further 220 m. Three east striking veins were intersected with ill-defined widths of two to seven metres. The quartz was reportedly massive with local vuggy and limonitized sections. Assays representing 2 m lengths included one sample with 15.20 g Au/t, but were otherwise in the 0.4 to 0.8 g/t range. Three samples reported >1% copper, but others were varied and did not correlate with gold.

#### **Flanco Norte**

At the base of Cerro Del Medio, towards the northwest over a north-south distance of 1,400 m by 800 m east-west, between altitudes 4,150 and 4,250 m, there are numerous siliceous veins trending east to southeast. They range from a few cm to several metres in width and are up to 500 m long. Assayed samples are nearly all from surface exposures and are at least partially leached. Results range from 0.23 to 10.20 g Au/t, 4.00 to 156.00 g Ag/t and 0.004 to 1.42% Cu.

#### Las Pircas

Intrusives at Las Pircas carry geochemically abnormal silver and arsenic with subordinate copper, lead, and gold. The abnormal geochemistry is best defined by anomalous lead as the other metals are erratically distributed. As interpreted by AAC, the Upper Manto is present at an elevation of approximately 4,400 m, compared to approximately 4,100 m in the Cerro Del Medio sector. As a result, the Las Pircas sector is believed to have been up-faulted by about 300 m and it may contain feeders for higher levels of alteration and mineralization. The sector extends for 1,400 m from Cerro Del Medio to Los Gemelos as a broad ridge with



scattered rock outcrops over a width of 800 m, and appears to be bound at each end by northeasterly trending normal faults

#### Los Gemelos

At Los Gemelos, alteration is strong with flat and steeply inclined masses of silicification associated with argillization, and common disseminated native sulphur, alunite and disseminated pyrite relics. Gold, silver, and copper values in rock-chip samples, geochemical soil samples and in samples from seven (604 m) percussion drill holes were weak. AAC interpreted this area as representing the upper part of the Santa Cecilia hydrothermal system, down-faulted by north-easterly trending normal faults.

Work commissioned by MSC in 2010 included a detailed magnetic study over the entire Santa Cecilia altered zone. With east-west traverse lines 100 m apart and readings every 10 m, it was run by Quantec Geophysics. The Reduced to the Magnetic Pole results, which are the most meaningful at Santa Cecilia's latitude, show a broad arc of lower values closely outlining the Santa Cecilia alteration zone, probably reflecting magnetite destruction. Within the large mineralized area of Cerro Del Medio there is a weak anomaly of 1,000 m length which coincides with quartz-diorite-microdiorite that contains magnetite and tourmaline. This intrusive does not outcrop. At the eastern end of the Santa Cecilia property there is the western part of a strong magnetic anomaly stretching 1,100 m north-south which may be related to CSAMT-MMI anomalies.

Mobile Metal Ion ("MMI") sampling results which defined the neighbouring Caspiche mineralization, provided an orientation study for applying the method to Santa Cecilia. In 2010, MSC ran nine traverses of MMI geochemical sampling at a bearing of N40°E, on lines 500 m apart and with 100 m between samples. The survey, which covered all of the Santa Cecilia altered area, showed consistent grouping of gold, copper and silver values along the traverses and between the traverse lines. There are definite MMI anomalies for gold-copper with the most prospective target at the Cerro Del Medio summit. Other targets include two incompletely defined anomalies which are open towards the west.

Quantec Geophysics ran Controlled Source Audio-MagnetotelluricSurvey ("CSAMT") lines along the four western most MMI traverse lines plus traverse line 2 to the east. A strong 2,300 m long by 350 to 700 m wide anomaly was identified on the western traverses. It is U-shaped with open ends of the U pointing to the east. This CSAMT anomaly starts 200 to 400 m below the surface and Quantec speculates that it extends in depth to at least 700 m. This anomaly shows a close relationship to the gold MMI anomaly on Cerro Del Medio mentioned above.



A second and much smaller CSAMT anomaly detected on the eastern traverse starts within 500 m of the Caspiche deposit on the adjoining property. It correlates with anomalous gold and copper MMI responses. This anomaly extends north-south for over 1,000 m and has a potential width of 400 m.

#### Conclusions

The Santa Cecilia Project hosts a very large system of hydrothermally altered volcanic and sedimentary rocks that in WGM's opinion has significant potential for discovery of gold-copper mineralization similar to that at known deposits in the Maricunga belt of Chile.

Mineralization at Santa Cecilia occurs within the outer envelopes of alteration and is interpreted by WGM to be related to porphyry-type nuclei at depth. Pyrite accompanies gold and copper values, and is widespread but sparse. It occurs in veins and veinlets, and also is disseminated within siliceous structures. Although no nuclei of primary K-Sil alteration and associated mineralization have yet been identified at Santa Cecilia, they are expected to occur within the outer envelopes and at greater depth than has been explored to date.

Past drilling within the central Cerro Del Medio area encountered a few gold-copper vein intersections up to several metres wide and veinlets with low-grade siliceous stockworks carrying 0.02-0.40 g Au/t, together with varying amounts of disseminated pyrite, down to the 4,200 m elevation. One hole, DDH SC-02, reached down to the 3,950 m level encountering quartz- diorite invaded by microdiorite together with brecciation, disseminated pyrite, heavy silicification and magnetite, and had it gone deeper, might have added significantly to knowledge of the geology of the mountain.

With the exception of an adit at 3,881 m elevation, which did not extend far enough to adequately explore targets that might exit in its intended path, past exploration work has not been deep enough to encounter the targets responsible for the alteration seen on the surface or identified by the recent MMI and CSAMT surveys.

In early 2010, strong MMI gold and copper values, plus deep CSAMT anomalies, were identified. These together indicate a deep drill target to the immediate north of Cerro Del Medio and additional targets that require additional sampling and lines of CSAMT for better definition prior to drilling.



WGM concludes that there is significant potential for finding very large, probably low-grade, gold, silver and copper resources at Santa Cecilia. It is unlikely that these will be near surface, but given the mountain topography, future open-pit consideration is not ruled out. Of concern is the predicated lack of access to water. The exploration and development at the adjoining Caspiche property is, and will be, a useful model on which to base activities at Santa Cecilia.

#### Recommendations

WGM has concluded that more MMI sampling and CSAMT data are required to define drill targets with a precision of no greater in area than 400 by 400 m in an elevation range of 3,800 to 4,200 m. Once a target is drilled successfully, further definition drilling would be expected. WGM recommends that MMI sampling to delimit the open anomaly in the west of the property above be carried out together with sufficient additional sampling between lines, and with additional CSAMT lines, so as to provide a high degree of confidence that the targets meet WGM's specifications. Considering that the Cerro Del Medio target already meets the specifications, WGM would endorse drilling one hole approximately midway between the MSC recommended holes 2 and 4.

WGM suggests the following budget:

An initial program of:	
Detailed and expanded MMI/ CSAMT	\$120,000
1500 m drilling at Cerro Del Medio (including down hole geophysics)	\$750,000
and a subsequent program:	
6,000 m drilling at Cerro Del Medio	\$3,000,000
2,200 m for MMI targets	\$1,000,000
Contingency ~15%	<u>\$730,000</u>
Total (approximate)	\$5,600,000

An advantage of this approach is that if the MMI and geophysics are started immediately and the drilling by next spring, the survey results will be in hand by the time the first hole is finished. This will allow the drill to be relocated to the MMI target sites while the results from the first hole are assayed and reviewed, and prior to deciding the best location for the next series of holes.

In addition to the above, WGM suggests that the possibilities of drilling from the 3,881 m adit and of deepening the former drill hole DDH SC-02 be investigated. Should the 3,881 m adit be rehabilitated it should be re-mapped with the objective of identifying any evidence of structural control and alteration that might guide the deep drilling program.

### 2. INTRODUCTION AND TERMS OF REFERENCE

#### 2.1 INTRODUCTION

Watts, Griffis and McOuat Limited ("**WGM**") was commissioned by South American Gold and Copper Company Limited ("**SAGC**") to prepare this National Instrument NI 43-101 ("NI 43-101") compliant report in a letter agreement dated July 22, 2010.

#### 2.2 TERMS OF REFERENCE

The purpose of the report is to provide support for proposed merger of SAGC with Minera Santa Cecilia ("**MSC**"), a private company that owns the Santa Cecilia project.

#### 2.3 SOURCES OF INFORMATION

Much of the exploration work described in this report was done by Minera Anglo American Corporation ("**AAC**") between 1986 and 1990. Liberal use was made by WGM of a 2010 summary report by Thomson, a principal of MSC, director of SAGC and a major shareholder of both companies. Although not written by an independent qualified person, WGM is satisfied that the descriptions, numerous maps and interpretative drawings, and results of work by AAC and the owners, were accurately duplicated, translated from Spanish to English and/or portrayed, for our use. Information was also sought and obtained from other employees of SAGC some of whom are not qualified persons,

Additional information was obtained from published data on the Maricunga Belt.

Reports are listed in the References section of this report. However, there is a very large data bank that includes logs, assay data and sections for the many short holes drilled on the property, as well as for the adits; and geochemical and geophysical surveys. These data were examined as necessary to competently review past exploration and to complete this report, but not in such detail that the author can attest to complete analysis thereof.

An inspection of the property was made by the author on November 10, 2010 under excellent weather conditions. Data were reviewed with MSC personnel over several days subsequent to the site visit.

#### 2.4 UNITS AND CURRENCY

Metric units are used throughout this report unless specified otherwise, and recorded as: centimetres ("cm"), metres ("m"), kilometres ("km"), grams ("g") and metric tonnes ("t"); one million metric tonnes is designated as "1 Mt". Areas are reported in square kilometres ("km<sup>2</sup>") or hectares ("ha") (1 km<sup>2</sup> = 100 ha). Metal contents are reported using percent ("%"), "g/t" and parts per million ("ppm") (1 g/t = 1 ppm)

Currencies used in this report are quoted in US\$.

#### **3. RELIANCE ON OTHER EXPERTS**

WGM is a Canadian consulting firm without specialized exposure to legal, political, environmental and possibly some technical issues in Chile. We have relied on government documents examined and information provided by employees of SAGC, as to the political, legal, and environmental aspects of the project.

The author has placed considerable reliance on information provided, and in some cases interpreted, by Thomson (Reference: Thomson D., 2010; Santa Cecilia Project - Geology, Geophysics and Geochemistry, 1985 to 1990 and 2010; report for Minera Santa Cecilia). Thomson is a principal of MSC and a director of SAGC. In the opinion of WGM, the reliance on Thomson is justified because he is a Qualified Person in all respects except that of independence. In addition, this report could not have been written without his full cooperation in sharing his authoritative knowledge of porphyry copper deposits in South America and the Santa Cecelia property in particular.

Although WGM and the author, have conducted their due diligence thoroughly and have no reason to doubt the verity of the information, and the data provided, both written and orally and their translations we cannot accept liability for the underlying data or omissions there from and do not accept responsibility for the interpretations and representation made in this report where they were a result of erroneous, false, or misrepresented data.



#### 4. PROPERTY DESCRIPTION AND LOCATION

In Chile mining rights may be acquired through two forms of concessions: exploration and exploitation (or mining). Exploration concessions are favoured at an early stage because they require payment of only \$1.10/ha/yr. An exploration concession is valid for two years by the end of which it must either be "measured" (or surveyed) for conversion to an exploitation concession, or be reduced by 50%. The retained portion is then valid for a further two years while the renounced portion is either relinquished, or submitted to the process of conversion to an exploitation concession. An exploitation concession may be obtained without first being an exploration concession. It is obtained through a process of survey, notarization, court recognition, and publication, and is retained indefinitely by payment to government of \$5.80/ha/yr.

It is not unusual for exploration concessions to overlap. Sometimes this is done by the owners to protect their rights in the event that errors occurred previously, resulting, for example, in fractions or lapse of rights. It is done by competitors in the hope or belief that errors were made by the original titleholder. If there are no errors, the title is granted to the original titleholder (i.e. the earliest dated exploitation concession).

Santa Cecilia is an exploration property covered by 3,251 ha of exploitation and exploration concessions held in the name of MSC. They are located at approximate latitude 27°35'S and longitude 69°20'W. The concessions are contiguous, but enclose an 81 ha rectangular property owned by AAC and included within the option agreement that Exeter has with AAC.

TADIE 1

The following exploitation concessions are measured and in good order:

IADLE I.				
<b>CONCESSIONS IN GOOD ORDER</b>				
Properties Date of approval Hectares				
Santa Cecilia	1 to 200	10-08-1984	997	
Los Caciques	1 to 50	30-07-1986	250	
Quebrada 1	1 to 24	29-05-2007	90	
Quebrada 11	1 to 40	29-05-2007	200	
Quebrada 111	1 to 60	15-11-2006	300	
Quebrada 1V	1 to 40	15-11-2006	200	
Quebrada V	1 to 50	15-03-2007	250	
Total			2,287	







The concessions listed below have been measured and are waiting for final approval: WGM has confirmed that in existing documentation for these areas, all overlapping concessions post-date MSC's applications for approval. WGM has relied on information available in government files and that provided by the client, but has not carried out and is not qualified to confirm the legal mineral title to these properties.

TADIE 2

CONCESSIONS PENDING FINAL APPROVAL				
Properties	Date of application	Hectares		
Hielo 1.1 to 40	15-10-2008	200		
Hielo 2.1 to 50	15-10-2008	250		
Hielo 3.1 to 40	15-10-2008	200		
Hielo 4.1 to 33	15-10-2008	165		
Hielo 5.1 to 10	15-10-2008	29		
Hielo 9.1 to 24	15-10-2008	<u>120</u>		
Total		964		

One concession, Parina 1 to 40, (200 ha, date of application 20-05-2010), has been measured and is waiting for final approval. It is still in the name of M. Hernandez prior to being transferred to corporate ownership. The concession overlaps Quebrada 111, Hielo 9 and three other competitor concessions, all of which have documented earlier dates of application for final approval. Based on the existing documentation, WGM concludes that approximately 30 ha will be approved.

The concessions cover exploration and exploitation rights. They do not automatically include surface rights, but do include occupation and easement rights that allow exploration and exploitation. They include rights to water encountered in mining, but permitted water usage from surface is expected to be very limited or non-existent.

WGM understands that the majority of the surface rights are owned by the Chilean government. The Ministry of Public Land of the Chilean government (Bienes Nacionales) may lease or sell the rights to the owner.

Mineralization on the property includes gold, silver and copper in relation to hydrothermal alteration centred on Cerro Del Medio. There are no mineral resources or reserves.

Should mining be considered, the owners will be responsible for conducting an Environmental Impact Assessment ("EIS") and obtaining approval and permitting. While these obligations may be onerous, WGM knows of no environmental liabilities peculiar to this project.



When ownership is approved on all the concessions, annual payments to maintain the property will be approximately \$19,000.

MSC originally acquired the concessions by application in 1983 and, other than the annual property payments and any associated mining taxes and future production royalties to the government of Chile, has no third party obligations. MSC is a private company registered in Chile and shares one or more common directors with SAGC. Directors include Messrs. Hernandez, Thomson and others.



# 5. ACCESS, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

#### 5.1 ACCESS

There is daily jet airline service from Santiago to an airport near the port of Caldera. Caldera is 75 km west and the airport 55 km by road to the west of Copiapo, the capital of the Province of Copiapo in the Region III of Northern Chile.

From Copiapo to Santa Cecilia is 180 km. The first 22 km are over paved highway to just beyond the small town of Tierra Amarillo. This is followed by 98 km of good dirt road to the east up the Carrizalillo Valley to La Guardia. From there, a further 60 km of dirt road runs to Santa Cecilia and continues eastward to the Exeter property. Travel time from Copiapo is approximately two hours.

#### 5.2 CLIMATE

The property has an arid climate typical of that for the Andean Cordillera of central Chile. From early November to end of May, the weather is sunny with day temperatures reaching  $15^{\circ}$ C, but dropping at night to near freezing. Windy periods are frequent. During the remainder of the year, temperatures are nearer freezing during the day and drop to  $-10^{\circ}$  at night and to  $-30^{\circ}$  during storms. High winds and snow accompany the storms and drifting snow can be troublesome on roads. However the overall precipitation is small. Mining operations at Maricunga mine take place year-round at 3,800 to 4,500 m elevations. When periodic El Nino conditions prevail, winter operations may be affected for a few days at a time.

#### 5.3 LOCAL RESOURCES AND INFRASTRUCTURE

There are no significant local resources. The lack of water is a factor for serious consideration in any future mining scenario. Water rights are difficult to obtain in the Maricunga district on account of demand. Water may be available from Argentina. In view of the number of large projects materializing within the district there is also speculation on using treated sea water. In that regard, a Spanish company that provides fresh water from the sea to the City of Barcelona (Spain), has recently expressed interest in installing a fresh water facility at Copiapo that may supply new mining projects.



Copiapo is an old mining town with ample semi-skilled and skilled labour available to be bussed in to mining projects. Power for the Maricunga mine, approximately 16 km north of Santa Cecilia, was installed via a line from the existing grid near Copiapo. If and when required, similar installation could be expected at Santa Cecilia.

Developments at Exeter's property will impact on Santa Cecilia. Many aspects will need to be addressed and it is inevitable that Exeter will seek and will need cooperation from the owners of the Santa Cecilia property.

### 5.4 PHYSIOGRAPHY

At Santa Cecilia the terrain to 4,600 m elevation is dominated by the mass of Cerro Del Medio. This mountain has an exposure of 1,000 m at its western end and connects in an ESE direction to a four kilometres ridge with elevations between 4,350 and 4,500 m. Slopes on Cerro Del Medio exceed 35° in places; but generally are between 5° and 10°. There is frequent outcrop, particularly of siliceous rock, but few cliffs. Between outcropping areas there is abundant talus and thin veneers of soil.

Vegetation is short tough grass and small thorny scrub in the valleys. On the hillsides there is very little vegetation. Marsh with associated vegetation occurs locally in valleys which in the wider parts supports small live-stock farms. Wildlife is rarely seen, but is reported to include foxes, vicuna, guanaco, ground squirrels, rabbits, small lizards, hawks, condors and various small birds.

Although no studies have been made for this purpose, WGM believes that leach pads, plant site and dumps can be accommodated in or near Santa Cecilia should they be required.



#### 6. HISTORY

Using a helicopter, the Santa Cecilia property was first examined in early 1983 by Mario Hernandez and David Thomson following up on prospector's information. Together with other participants, they formed MSC, a private company, which acquired and continues to hold the concessions. Geological reconnaissance, sampling and geochemical work was carried out during the summers of 1984 and 1985, and in 1986 a three year option agreement was signed with AAC to buy Santa Cecilia.

Between 1986 and 1990, AAC geologically mapped the 10 km<sup>2</sup> area of hydrothermal alteration at a scale of 1:5,000. AAC also constructed 15,500 m of access roads, took 3,089 geochemical soil samples, 5,010 rock chip samples and 4,084 drill hole samples. AAC completed 3,478 m of diamond drilling in twelve holes, 6,540 m of reverse circulation drilling in twenty six holes, 604 m of straight percussion drilling in seven holes, and completed 1,103 m of drifts and crosscuts. AAC assayed samples from drill holes and the underground workings, determined the age of mineralization and made petrographic studies. The bulk of AAC's exploration results were provided to MSC.

Since the option terminated with AAC, MSC maintained the concessions in good standing but did no exploration until 2010. During this year, MSC contracted with Quantec Geophysics who completed a magnetic survey covering Santa Cecilia as well as five Controlled Source Audio-Magnetotelluric Survey ("CSAMT") traverses over two selected areas. In addition, a systematic Mobile Metal Ion ("MMI") geochemical sampling program has been completed over the entire Santa Cecilia alteration zone by MSC.

#### 7. GEOLOGICAL SETTING

#### 7.1 REGIONAL SETTING

The Maricunga metallogenic belt is a north-trending linear unit related to Oligocene to late-Miocene extinct volcanoes. Volcanic rocks of that period are now generally restricted to north trending grabens with Paleozoic to Triassic basement rocks exposed in the intervening horsts. The volcanic activity started in the late-Oligocene, lasted to early Miocene, and was followed by a second pulse in mid-Miocene. These first two stages produced various stratovolcanoes and dome fields over the 200 km length of the Maricunga belt. Third and fourth stages in late-Miocene and in late Miocene to early-Pliocene, produced volcanoes which can be seen today such as Copiapo (6,030 m), Jotabeche (5,750 m), and Ojos de Salado (6,500 m).

The stages of vulcanicity were separated by periods of tectonic activity that included folding and faulting and erosion producing overlaps and unconformities. The dominant structural trend is northerly and is related to high-angle reverse faults, but northwest alignment is also exhibited prominently in zones of alteration and mineralization, normal faults and intrusions.

The volcanic rocks are intruded by isolated porphyry stocks that vary in texture and dioritetype composition, and in the impact on the intruded volcanics. Economically associated with these intrusions are large to very large hydrothermally altered areas. Often there is early development of a wide area of secondary biotite that gives the rock a distinctive brownish colour. Ideally, mineralization is present centrally and is accompanied by potassic alteration represented by secondary biotite and potassium feldspar. Outward, 'shells' may be present of cream or green quartz and sericite (phyllic), and then greenish chlorite, epidote, sodic plagioclase and carbonate (propylitic) alteration. In some cases white, chalky clay (argillic) alteration occurs.

In addition to recognizing alteration patterns that may lead to finding economic deposits, veins are sometimes recognized by type. A-type veins, for example, occur in the intrusive porphyry, are high-temperature and behaved plastically. Of pure quartz, they generally have diffuse boundaries and may or may or may not be mineralized. WGM understands that B-and C-type veins are the more common copper (and copper-gold) mineralized and mineralizing veins. They may have selvages (B) or centres (C) of sulphide minerals and both accompanying and peripheral to potassic alteration. D-type veins are considered to be "late" and relatively low-temperature. Quartz may be grey-white, sulphidation may be high with all or any of pyrite, alunite, gypsum and sulphur, and gold/silver may be anomalous to economically significant.



SAG SCC / SAG\_03\_SC\_Prop\_Geol.cdr Last revision date: Monday 20 December 2010

![](_page_23_Figure_1.jpeg)

Watts, Griffis and McOuat

#### 7.2 LOCAL SETTING

In the area of the Santa Cecilia Project, tuffs and breccias of dacite to andesite composition occur together with interbedded lacustrine sedimentary rocks. Drilling has encountered quartz diorite porphyry and microdiorite of unknown extent. Andesitic dykes and sills and small felsic intrusive plugs are present.

Three stratigraphic formations have been recognized at Santa Cecilia. The two younger units are separated by a mild unconformity and dip  $10^{\circ}$  to  $15^{\circ}$  to the southwest. The older Triassic unit has been folded and is separated from the younger rocks by a distinct unconformity. All of the units are affected by faulting and the lithologies by alteration. Brief summaries of the formations are as follows:

Correlated with the Quebrada Carrizo Formation of Oligocene-Lower Miocene age:

- **Rio Nevado Formation or Unit:** Grey to pink andesite-dacite crystal tuffs and tuff breccias with grey pink andesite-porphyry flows. Lenticular intercalations of grey green conglomerate, sandstone and grey shale; and
- Aguas Blancas Formation or Unit: At the base and top of this sequence there are pink ignimbrite tuffs, named the Lower and Upper Mantos. Between the two Mantos there are grey conglomerates with subordinate andesitic breccia.

Correlated with the La Ternera Formation of Upper Triassic age.

• **Caspiche Formation:** Green coloured volcanic breccias and agglomerates with interbedded sandstone and red conglomerate.

The conspicuous altered area at Santa Cecilia trends ESE and covers approximately 10 km<sup>2</sup>. It is three kilometres wide near its western end, narrowing to one kilometre in the east and west. While all the lithologies show pervasive hydrothermal alteration, intensity is greatest in tuffs, perhaps due to greater porosity. The hydrothermal event is represented by widespread propylitic alteration that forms an outer shell with characteristic saussuritization of plagioclase and decomposition of mafic minerals to epidote, chlorite and iron oxides. On the satellite imagery (see Figure 5) this alteration is readily visible on the north part of Flanco Norte and along the south boundaries of all the sectors. Within the shell, alteration is variably argillic, phyllic and silicifying believed to overprint the propylitic assemblages and to be most intense in the vicinity of fractures. In and proximal to conduits, the rocks are bleached, leached and replaced with vuggy quartz, and quartz-alunite-sericite-chlorite-clay-pyrite assemblages. Away from these conduits the propylitic assemblage is altered to sericite and clay minerals.

#### SAG SCC / SAG\_08\_SC\_SAT\_Prop\_DH.cdr Last revision date: Thursday 16 December 2010

![](_page_25_Figure_1.jpeg)

# SWatts, Griffis and McOuat

![](_page_26_Picture_0.jpeg)

Several northeast trending faults were postulated by AAC within the altered area including two bounding the Los Pircas sector. Satellite imagery is supportive. In addition the satellite imagery provides strong evidence of northwest trending faults, and, in particular a pair of faults that join north of Cerro Del Medio. The wedge shaped block between the faults contains the Caspiche Porphyry deposit east of the property. None of these faults are thought to be conduits for mineralization. By contrast, the recent MMI geochemical survey indicates anomalous gold in elongated zones that trend north-south, north-northwest and east-west, and may be both conduits and zones of multiple fracturing and stockworks.

East of the project the mineralized Caspiche porphyry has been reported to measure 300 by 400 m in plan and does not vary appreciably from those dimensions through 1,200 m of explored depth. Published maps indicate that the longer dimension trends approximately north-northwest. It is surrounded by volcano-sedimentary host rocks and is overlain by 500 to 750 m of volcanic breccia of uncertain origin. The porphyry system has been described as an "intermediate sulphidation" event consisting of two main intrusive phases namely Early Diorite Porphyry and Early Inter-Mineral Diorite Porphyry. The early intrusive features a multi-directional vein stockwork extending downwards from approximately 4,200 m elevation. Weaker veining occurs in the second phase which cuts the earlier phase and extends beyond the limits of the early intrusive. Various styles of alteration are recognized with both vertical and proximal zoning in relation to the porphyry intrusions. Since these may be compared to patterns observed at Santa Cecilia the following are noted:

- Porphyry and mineralization associated alteration. Not present at surface, potassic (feldspar/biotite) alteration accompanies A-type vein stockworks plus disseminated magnetite (unless affected by later alteration);
- Propyllitic. Only seen to-date on the western side of the system, the alteration is characterized by epidote-chlorite-pyrite, and occurs within approximately one kilometre of the potassic zone. Between the two zones, there is variable argillic alteration;
- Argillic-phyllic. Alteration shell as well as intense retrograde alteration of earlier mineralogy. Variable clay and sericite alteration affects the potassic mineral assemblages plus martitization of magnetite;
- High sulphidation epithermal alteration with characteristic siliceous ridges (silica cap) that outcrop around the periphery of the Caspiche Porphyry mineralization. Characterized by vuggy quartz with kaolin-alunite-quartz-pyrophylite-dickite alteration assemblages. Late stage D-type veins cut the early vein system and extend into the periphery; and
- Supergene leaching and oxidation. Within 100 to 200 m of surface, oxidation of sulphides and kaolinization of feldspars occurs without enrichment.

![](_page_27_Picture_0.jpeg)

At Santa Cecilia, porphyry intrusives with multiple apophyses occur on the north slope of Cerro Del Medio and on the ridge to the ESE. Quartz-diorite and later microdiorite, with quartz veinlets and magnetite, are found as float and in drill holes on Cerro Del Medio, and may be contemporaneous with gold and/or copper mineralization. While none of the intrusives appear to match the early mineralizing event at Caspiche it seems likely that the later intrusive and veining event may be represented.

Local names for parts of the Santa Cecilia project include Quebrada Del Medio, and Flanco Norte which are respectively on the west and north flanks of Cerro Del Medio. Along the ridge ESE from Cerro Del Medio are successively the Las Pircas and Los Gemelos sectors. Additional description is in the Exploration Section of this report.

![](_page_28_Picture_0.jpeg)

#### 8. DEPOSIT TYPES

The hydrothermal systems identified within the Maricunga Belt contain veins and stockworks, variously classified as porphyry-type gold-copper to high sulphidation epithermal gold-silver types. Examples of porphyry deposits are reported to be Maricunga, Marte, Lobo, Cerro Casale, Caspiche and Volcan. High sulphidation examples are Pepa and Coipa. The belt is authoritatively discussed in a paper by Vila and Sillitoe (1991) from which the model in Figure 6 is taken.

Exploration to date at Santa Cecilia indicates that mineralization occurred in an intermediate sulphidation environment with localized high-sulphidation in epithermal situations. The presence of copper and gold suggests that the mineral deposits are porphyry-type and that they may occur in a structurally controlled (stockwork) setting. One or several northerly trending intrusions could be present at depth, but the near-surface structural control appears to be east to southeast in orientation from its western boundary right across the Santa Cecilia property to link with the Caspiche deposit east of the property. By analogy with Caspiche the targeted deposit type is likely to measure several hundred m in any direction and to penetrate deeply from an elevation of approximately 4,200 m.

# 🔗 Watts, Griffis and McOuat

![](_page_29_Figure_2.jpeg)

![](_page_30_Picture_0.jpeg)

#### 9. MINERALIZATION

Porphyry-type gold-copper mineralization in the Maricunga belt is documented as having been generated from sub-volcanic intrusions beneath andesitic to dacitic strato-volcanoes, and been introduced into the upper crust together with isolated porphyry stocks and K-Sil alteration. Surrounding these nuclei are shells of hydrothermal to geothermal alteration that may contain weak mineralization depending on circumstances of structural control and porosity.

Mineralization at Santa Cecilia occurs within the outer envelopes of alteration and is interpreted by WGM to be related to porphyry-type nuclei at depth. Pyrite accompanies gold and copper values, and is widespread but sparse. It occurs in veins and veinlets, and also is disseminated within siliceous structures. Although no nuclei of primary K-Sil alteration and associated mineralization have yet been identified at Santa Cecilia, they are expected to occur within the outer envelopes and at greater depth than has been explored to date.

Previous authors believed that at least three types of veins are present and that they have different mineralization, different alteration patterns, and different ages. Oldest are those with barite and sulphides, principally pyrite with lesser chalcopyrite. Alteration is quartz-jarosite-clay-alunite and there may be up to 4.0 g Au/t. Of intermediate age, and the most frequent, are veins that have quartz-alunite-clay-jarosite-pyrite alteration and low values of around 0.05 g Au/t. Youngest are thin quartz-tourmaline veins with quartz-chlorite-jarosite-hematite/pyrite alteration and Au in the 20 g/t range.

Considered to range between intermediate and high-sulphidation environments, concentrations of precious metals accompany pyrite, chalcopyrite, tennantite and enargite/scorodite in vein stockworks and as disseminated grains in porphyry. Weaker mineralization also occurs in late veins that both cut the older veins and are present in siliceous alteration zones.

At Cerro Del Medio rare free gold was reported by AAC in goethite, with pyrite and enargite near-by. At one epithermal vein location there is a historical report of local miners opening up a 70 cm wide vein that carried visible gold and jarosite that assayed up to 140 g Au/t. According to AAC, gold precipitation is apparently late-stage and believed to be restricted to the close vicinity of fracture-related conduits. These are likely to be economically insignificant except where there are multiple fractures or stockworks.

![](_page_31_Figure_1.jpeg)

# Watts, Griffis and McOuat

SAG SCC / SAG\_04\_SC\_Gold\_RR\_Factor.cdr Last revision date: Wednesday 1 December 2010

![](_page_32_Figure_1.jpeg)

Watts, Griffis and McOuat

![](_page_33_Picture_0.jpeg)

Magnetite occurs as disseminated crystals and in association with pyrite in quartz veins within quartz diorite and microdiorite. Hematite after magnetite is common on the surface of Cerro Del Medio. Galena, sphalerite and barite occur in siliceous veins near the northwest periphery of the Cerro Del Medio alteration zone and Ba-Cu silicate occurs at surface in the southwest.

Along the ridge to the ESE of Cerro Del Medio in both the Las Pircas and Los Gemelos sectors, mineralization is identified with east-west trending siliceous structures. These structures carry alunite, barite, native sulphur, gypsum and pyrite (oxidized at surface), and are similar to those in the peripheral alteration zone at the near-by Caspiche deposit. Since other similarities to Caspiche may be found at depth, it is noteworthy that the porphyry stockwork mineralization at Caspiche is not observed at surface, but has been intersected extensively in drill holes. Also not found at surface, this mineralization is accompanied by an inner potassic alteration zone of K-feldspar and biotite. Where unaffected by later alteration, magnetite as disseminations and hairline veinlets accompanies the potassic alteration. At deeper levels A- and B-style porphyry stockwork veining is observed with late-stage sulphidic D-veins cutting both the earlier quartz veining and extending into the overlying units. Outcropping on the periphery of the Caspiche deposit is a high-sulphidation epithermal zone which is characterized by siliceous ridges and is interpreted as a high-level advanced argillic-altered silica cap. The ridges comprise strongly silicified crystal-lithic tuff and quartz-feldspar porphyry. These units exhibit typical vuggy residual silica textures with rectangular cavities where feldspar phenocrysts have been leached.

![](_page_34_Picture_0.jpeg)

#### **10. EXPLORATION AND DISCLOSURES REQUIRED**

There have been three phases of exploration at Santa Cecilia: prospecting by the owners from 1983 to 1985; extensive exploration by AAC from 1986 to 1990; and renewed exploration in 2010 by MSC and contractors working for them. There is considerable detailed information that is summarized in this section.

#### **10.1 EXPLORATION 1983-1990**

Geological mapping: Approximately 10 km<sup>2</sup> of mapping by AAC (scale 1:5,000) focused on alteration and identification of structures that are believed to be the most significant guides to locating economic mineralization. Relatively porous tuffs identified as the Upper and Lower Mantos (ignimbrites) within the Aguas Blancas Formation also received special attention.

Sampling: AAC collected 3,089 soil samples for geochemical analysis, 5,010 rock-chip samples and 4,084 drill hole samples (detailed in Sections 14 and 15).

Drilling: AAC completed twelve diamond drill holes and 33 percussion holes (detailed in Section 11).

Underground: AAC completed 1,103 m of drifting and crosscuts (detailed in Section 10.1.3 Cerro Del Medio).

The property has been subdivided during previous exploration into five main sectors as follows:

- Flanco Norte comprising the mid and lower north and northwest slopes of Cerro Del Media;
- Quebrada Del Medio comprising the lower west and southwest slopes;
- Cerro Del Medio which comprises the main mountain mass. It is further sub-divided from west to east into Flanco Oeste, Veta Condor, Cerro Del Medio central, and Anillo. The top part of the ridge extending ESE is known as Anillo Sur;
- Las Pircas: continuing from Anillo Sur along the ridge for approximately 1,500 m to the ESE; and
- Los Gemelos: adjoining Las Pircas along the ridge to the ESE, and continuing for a further one kilometre to the property boundary.

#### 10.1.1 FLANCO NORTE

On the northwestern slopes of Cerro Del Medio, folded Caspiche Formation rocks are uncomformably overlain by the Aguas Blancas Formation dipping gently towards the southwest.

The volcanics and sediments of the Caspiche Formation show chlorite and epidote veinlet alteration especially affecting ferromagnesian minerals in the volcanics. Here, over an area of 800 m east-west by 400 m north-south, there is a group of surface silicified structures striking east to ESE, measuring from 0.20-2.00 m wide and up to 500 m long. They are identified with anomalous gold, silver, and copper; contain quartz, calcite, barite and clay with Cu and Fe oxides and sulphides; and are surrounded by haloes of moderate to intense argillization. Assayed samples are nearly all from surface exposures and are at least partially leached. Results range from 0.23 to 10.20 g Au/t, 4.00 to 156.00 g Ag/t and 0.004 to 1.42% Cu. Other vein structures carrying chalcopyrite-pyrite-galena-sphalerite have been identified that are 0.20 to 0.40 m wide with lengths of up to 150 m.

The tuffs and ignimbrites of the Aguas Blancas Formation show intermediate argillic alteration with sericite and are cut by narrow one to ten cm wide siliceous structures with haloes of brown limonite.

Geochemical analysis of 263 samples revealed anomalies (Au, Ag, Cu, Pb, Zn and As), related to the sub-horizontal tuff horizons as well as the veins in an area measuring 800 x 350 m. There are three isolated Au values over 1.0 ppm with the highest 1.65 ppm. The 70 ppm Cu contour encloses an area of approximately 150,000 m<sup>2</sup> but only 3.4% of the values range between 100 to 500 ppm and only five values exceed 500 ppm with a maximum of 3,900 ppm.

#### 10.1.2 QUEBRADA DEL MEDIO

At the base of Cerro Del Medio to the west, there is strong alteration on the surface between 3,800 and 4,200 m elevation and over a north-south length of 1,200 m. In particular, the Upper Manto of the Aguas Blancas Formation exhibits quartz-alunite-limonite alteration and the Lower Manto stronger argillic (quartz, sericite, clay, alunite) alteration, while intervening conglomerate has only patchy alteration. The unusual Ba-Cu silicate duomortiorite is found in porous outcrops and talus, in a yet-to-be understood zone. Abnormal geochemistry (Au, Ag, Cu, Pb, Zn, As and Sb) is concentrated over the two Manto horizons, and more particularly in

![](_page_36_Picture_0.jpeg)

the lower unit. There are also indications of mineralization in the MMI survey not necessarily related to the near surface Mantos.

Geochemical testing of 430 samples yielded four values >1.0 ppm Au including a maximum of 7.4 ppm. Anomalous values of the other metals coincide generally with gold and lend themselves more readily to contouring and identification with the Mantos.

AAC drove an adit on the 3,881 m level to explore the Lower Manto and encountered sericitized and argillized tuff with quartz-pyrite veinlets that, along the north wall, assayed 4.70 g Au/t and 171.60 g Ag/t for 14.0 m. To further explore this structure (believed to strike ENE and dip near vertically), AAC drifted 215 m parallel to the structure, apparently with the idea of crosscutting and/or drilling, but this was not done. The two walls of the drift were sampled horizontally on two m centres, returning 126 m of 0.29 g Au/t and 16.38 g Ag/t for the NE wall; and 142 m of 0.66 g Au/t and 18.68 g Ag/t for the SW wall. AAC also completed one diamond drill hole at -50° near the portal. From a depth of 111 m, twelve m (8 m true width) assayed 11.5 g Au/t and 98.0 g Ag/t. The intercept included 2.0 m assaying 55 g Au/t.

From the end of the 215 m drift mentioned above, a further 510 m were driven due east largely within the Lower Ignimbrite horizon. The intention was to use the porosity of the tuff and its affinity for mineralization as a guide and to penetrate beneath the copper and gold soil geochemical anomalies of Cerro Del Medio. This objective had not been realized when AAC terminated their option.

#### 10.1.3 CERRO DEL MEDIO

The summit occupies a circular area 1,500 m in diameter where alunite-sericite-chlorite-pyrite alteration is widespread and stronger quartz-sericite-clay alteration is developed adjacent to numerous siliceous structures that trend generally northeast to east to southeast.

A total of 660 geochemical soil samples defined a weak but definite copper anomaly above 70 ppm extending ESE for 1,700 m with a very variable width of <100 m to over one kilometre. Within this copper anomaly there are several scattered irregular gold anomalies accompanied by much smaller and more erratic silver and arsenic values. Three gold values exceeded 1.0 ppm and the maximum reported was 3.29 ppm. The copper anomaly centre is defined by the 200 ppm contour.

![](_page_37_Picture_0.jpeg)

Within the area, drilling has explored a mineralized area measuring 300 by 350 m with open dimensions. Largely oxidized to 100 m depth, mineralization is hosted by coarse-grained quartz-diorite and later invasive microdiorite. Hydrothermal breccias contain localized stockworks of quartz veinlets carrying pyrite, rare chalcopyrite, magnetite and tourmaline. Average grade in these stockworks is 0.02 to 0.04 g Au/t. Within them are irregular siliceous veins, which are up to several metres wide, carry pyrite and energite, but values are generally less than 2.0 g Au/t and <2% Cu.

East of the summit, the drilled Anillo section, measures approximately 200 by 100 m. It contains a stockwork of steeply dipping veins that trend at 40 to  $70^{\circ}E$  of N. The veins typically are of vuggy quartz with alunite, jarosite and limonite. Widths vary from 20 to 50 cm and visible lengths 50 to 100 m. At one, a site previously opened up by local miners, visible gold was reported and individual samples reportedly yielded 44.0 g/t and 150.0 g Au/t. Rock-chip samples of veins and stockwork from road-cuts, outcrop and trenches reported 0.5 to 2.5 g Au/t from lengths of 0.3 to 2.1 m.

To the south of Anillo, the stockwork continues into the Anillo Sur section with gypsum becoming common in fractures. Rock chip samples reported 0.5 to 3.3 g Au/t from lengths of 0.5 to 3.0 m. At elevation 4,331 m, AAC cut a drift for 150 m and a crosscut for a further 220 m. Three east striking veins were intersected with ill-defined widths of two to 7 m. The quartz was reportedly massive with local vuggy and limonitized sections. Assays representing 2 m lengths included one sample with 15.20 g Au/t, but were otherwise in the 0.4 to 0.8 g/t range. Three samples reported >1% copper, but others were very varied and did not correlate with gold.

#### 10.1.4 LAS PIRCAS

Intrusives, at Las Pircas, carrying strong silver and arsenic with subordinate copper, lead, and gold geochemistry, were thought by AAC to have provided feeders for higher levels of alteration and mineralization. The sector extends for 1,400 m from Cerro Del Medio to Los Gemelos as a broad ridge with scattered rock outcrops over a width of 800 m and appears to be bound by NE-trending normal faults.

In the central part on the ridge, there is a sub-horizontal siliceous mass, interpreted by AAC to correspond to the Upper Manto of the Aguas Blancas Formation, which is 200 by 300 m in extent. It occurs at an elevation of approximately 4,400 m, compared to approximately 4,100 m in the Cerro Del Medio sector. As a result, the Las Pircas sector is believed to have been up-faulted by about 300 m. The Upper Manto contains nodules and/or segregations of

quartz accompanied by abundant barite and alunite. Surrounding the siliceous body is a halo of advanced argillic alteration with quartz alunite and pyrophyllite within possible Caspiche volcanics. Extending to the west, there are east-west trending structures with varying amounts of silica with disseminated native sulphur, gypsum, oxidized pyrite, and alunite. In the southern part of the sector, there are narrow banded siliceous sub-horizontal structures with disseminated pyrite and red limonite, correlated with the Lower Manto of the Aguas Blancas Formation. To the south and east, there are apophyses of propylitized post-alteration monzodiorite.

TABLE 3. AVERAGE OF ROCK CHIP SAMPLES, LAS PIRCAS AREA									
		Number of	Av	Max	Av	Max	Av	Max	Av
		samples	Au	Au	Ag	Ag	Cu	Cu	Width
			(ppb)	(ppb)	(ppm)	(ppm)	(ppm)	(ppm)	(m)
Lower Manto:	Wall rock	18	20	120	1.0	25	10	60	1.00
	Mineralized	12	80	420	17	60	30	140	0.30
Upper Manto:	Wall rock	38	20	260	0.6	2.8	10	40	3.00
	Mineralized	8	50	300	2.6	6.2	40	80	2.00
Wide structure		18	28	2,000	87	536	10	60	1.50
West Las Pirca	s structure	82	20	120	1.0	3.0	20	170	1.50

From the Las Pircas area, 184 rock chip samples returned the following averages:

In addition to the rock-chips, 397 geochemical soil samples established three lead anomalies each over 90,000  $\text{m}^2$  in extent oriented approximately east-west with subordinate and locally coincident silver-gold-zinc and arsenic values. These were explored by five percussion holes without intersecting promising grades of economic minerals.

#### 10.1.5 LOS GEMELOS

Characterized by sulphates and native sulphur, with a good geochemical soil response for lead and silver and subordinate gold, zinc and arsenic, the hydrothermal system at Los Gemelos was interpreted by AAC as being down-faulted and representative of the top of the Santa Cecilia hydrothermal system.

The eastern-most area coincides with a ridge running SSE for 700 m of Rio Nevado volcanics topped by an isolated exposure of Jotabeche andesite. Both a pre-mineral intrusive of dacite-porphyry with quartz eyes, and the Rio Nevada volcanics have been affected by intermediate argillization. Rock outcrops are confined to the ridge where they are cut by steep siliceous-

![](_page_39_Picture_0.jpeg)

clay structures up to several metres wide, which are frequently sygmoidal and which carry disseminated pyrite-chalcopyrite with oxidized haloes of wavellite, kroenkite, chalcantite and alunite. Thin (mm to cm) veins carry pyrite together with yellow and orange limonite, native sulphur and disseminated tourmaline. There are vertical veins of quartz-tourmaline breccia with minor chalcopyrite, pyrite, and jarosite. Large areas are capped by gypsum-cemented argillized fines described as "gypcrete" which partially or totally covers the underlying altered rocks.

From 89 samples, the strongest geochemical response is for lead followed by copper, with very weak erratic silver, gold, arsenic and zinc; all of which show a close connection with gypcrete.

#### 10.2 EXPLORATION 2010

In 1997, Newcrest used magnetic, induced polarization, CSAMT, MMI geochemistry and other studies to explore the property adjoining Santa Cecilia to the east. Drilling was ultimately successful in using that data to find the Caspiche porphyry deposit. Thomson studied published data and observed coincidence of anomalous MMI geochemistry with the Caspiche deposit outlined by drilling. Considering the proximity of Caspiche to Santa Cecilia, the neighbouring MMI, magnetic and CSAMT data effectively provided an orientation study for use at Santa Cecilia.

#### 10.2.1 MOBILE METAL ION GEOCHEMISTRY

In 2010, Santa Cecilia carried out a MMI geochemical survey over the entire Santa Cecilia altered zone. This was done by means of nine traverse lines 500 m apart oriented at 40°E of N, with sample stations 100 m apart. A total of 299 samples were taken corresponding to 29.9 km of total traverse. Stations were located by hand-held GPS. Assay returns were for 45 elements but response ratios ("RRs") have only been determined for gold, silver, copper, lead, zinc, molybdenum, arsenic and antimony. The RRs were expressed as multiples of background, and were calculated taking 25% of the lowest determinations for each element, obtaining the average, and then dividing it into each assay for the RR for each element.

Gold RR results show grouping and continuity between traverse lines which leads to the conclusion the RR values, in spite of traverse lines being 500 m apart, can be contoured in a general sense to bring out where values are concentrated. Five times background has been taken to be anomalous. Values exceeding ten times background have also been contoured to emphasize areas of stronger gold RRs. Copper RR anomalies, while somewhat smaller than

![](_page_40_Picture_0.jpeg)

those of gold, show good grouping and association with the gold RR anomalies with some minor displacement.

Anomalous gold RR values (see Figure 7) follow the general pattern of alteration but have concentrations that may be considered to follow east-west, north-south and north-north-westerly directions. The main concentration is centred near the summit of Cerro Del Medio where it coincides with the crossing of north-south and east-west trends. A second strong concentration occurs on the westernmost line 9, approximately on the same east-west trend as the main anomaly. In WGM's opinion, MMI sampling may be very specific in identifying targets and, considering (a) that line spacing is 500 m, and (b) that targets may measure a few hundred m across, more sampling is desirable to define targets prior to drilling.

Copper and silver RR values duplicate the gold values in part. While useful in grading the anomalous gold results, they are not the prime targets identified.

The gold and copper RR anomalies at Cerro del Medio coincide with AAC's past geochemical soil anomalies for gold and copper, but the RR anomalies are much better defined and continuous while the earlier AAC soil sample determinations are weak and patchy.

#### 10.2.2 MAGNETIC SURVEY

Quantec Geoscience Chile Ltda ("Quantec") was contracted to conduct a magnetic survey over the entire property. The survey covered 41 east-west traverses 100 m apart with stations every 10 m for a total of 176 line-km. GEM Systems GSM-19 versions 5 and 4 magnetometers were used. Diurnal correction was accomplished with a base station synchronized to the mobile magnetometers. Base-station sampling was at 3-second intervals allowing diurnal correction with interpolation if needed. Traverse lines and stations were controlled by GPS.

Data processing and correction of the data were done in the following steps:

- 1. Preparation of the data and import into Geosoft OASIS MONTAJ.
- 2. Correction for daily drift (diurnal correction) of the magnetic data.
- 3. Apply a projection to the data, in this case UTM zone 19 Datum PSAD56.
- 4. Manual elimination of spikes and poor data caused by culture or noise.

![](_page_41_Picture_0.jpeg)

- 5. Application of non-linear filter to the diurnal corrected channel to eliminate incorrect data caused by high frequency data (i.e. spikes).
- 6. De corrugation filters were applied (Butterworth and directional cosine) to carry out micro-levelling.
- 7. The micro-levelling correction was subtracted from the diurnally corrected data to obtain the final levelled magnetic data.
- 8. Data were reduced to the pole with respect to the magnetic declination and inclination of the project area.

As the Santa Cecilia geology becomes better understood, the magnetic survey will provide additional insights. It may be significant that in the "Reduced-to-the-pole Magnetic Map" the outline of the altered area is closely mirrored by lower intensity magnetics probably reflecting hydrothermal magnetite destruction (as at Caspiche).

There is a pronounced magnetic high along the eastern limit of the property which may bear investigation in relation to Caspiche.

#### 10.2.3 CONTROLLED SOURCE AUDIO-MAGNETOTELLURIC SURVEY

Quantec was contracted to conduct a preliminary CSMT survey on the property. The CSAMT technique records audio-band magnetotelluric (AMT) resistivity data from a controlled source signal at a bi-pole located in this instance approximately 7 km from the survey area. Using a transmitter manufactured by Zonge Engineering, resistivity was measured to depths of 750 m or more. Data were collected over 53 frequencies, were quality controlled using Quantec's in-house software, were processed using Geotools, and plotted in Geosoft Oasis Montaj. Like other electrical methods, CSAMT does not distinguish between conductivity related to metals and that related to porosity.

CSAMT data were collected on five of the traverses (13.8 line-km total) used for MMI sampling, traverses 6, 7, 8 and 9 in one area, and traverse 2 in another. The two areas for CSAMT data collection were selected because of abnormal Au-Cu-Ag geochemical RR results.

Within the area corresponding to the north side of Cerro Del Medio, starting at 200 to 400 m below the surface, a distinct CSAMT anomaly coincides closely with the main MMI gold RR anomaly. The anomaly is U shaped with the ends of the U open towards the east. The length of the anomaly at elevation 3,900 m, following around the U shape, is in the order of 2,300 m with a width varying from 350 to 700 m. The extension in depth is open; with interpreted

![](_page_42_Picture_0.jpeg)

closure thought to represent change in physical conditions rather than a change in mineralization.

CSAMT on traverse line 2 encountered a pronounced anomaly 400 m wide starting 100 m below the surface and coinciding closely with the MMI gold RR anomaly (see Figure 7) near the eastern limit of the Santa Cecilia property.

#### 10.2.4 DISCUSSION OF 2010 EXPLORATION RESULTS

In general, the alteration at Santa Cecilia is closely followed by anomalous gold RR values but with marked concentrations within three areas.

At the largest gold RR anomaly, the southern limit is centered 100 m north of the summit of Cerro Del Medio. The 5X contour stretches east-west for 2,800 m and is up to 1,100 m wide, while the 10X contour extends east-west for over 1,600 m and is up to 1,000 m wide. Anomalous gold is largely duplicated by silver. Extensions to the north, south, and east are well defined by the sample traverses and to the west the anomaly is both strong and open. Localized groups of high values may represent separate nuclei or may be elongated extensions from strong centres. The MMI anomaly is associated with a distinct, but weak, east-west magnetic anomaly extending for 1,000 m. This may reflect extension of a porphyritic microdiorite (observed in drill holes), that is mineralized with disseminated and veinlet magnetite, related to the 0.20-0.40 g Au/t-bearing stockwork.

Gold RR values in the eastern part of the Santa Cecilia property (Los Gemelos sector) indicate a mineralized structure trending north-south for over 1,500 m and with a width of up to 700 m. Above the 10X gold contour the anomaly width varies from 60 to 300 m. Proximity and its apparent parallel alignment with Caspiche make it a target that should be explored. A weaker response on the Las Pircas sector should also be delineated.

While special attention is drawn to the main anomaly, the two anomalies on the westernmost line which are open, and the eastern anomaly, in WGM's opinion, all of the anomalies need additional sampling to delineate them with greater accuracy.

In the CSAMT anomalous areas, high CSAMT values coincide with known surface silicification and argillization, with minor disseminated and vein pyrite from 100 to 500 m below the surface. The silicified cap overlies low CSAMT values interpreted as indicating conductivity and possible increased sulphides. At Cerro Del Medio the low CSAMT values start roughly below the 4,100 m level.

![](_page_43_Picture_0.jpeg)

#### 11. DRILLING

Twenty-six reverse circulation drill holes (6,540 m), seven (604 m) straight percussion holes and twelve diamond drill holes, (3,478 m) were completed by AAC in the period 1986-1990. Most of the drilling explored the Cerro Del Medio sector

#### Flanco Oeste/Vita Condor

On the western slope of the Cerro Del Medio area, altogether nine percussion drill holes explored beneath alteration and along the intersection of the large siliceous east-west Vita Condor structure with the Lower Ignimbrite Manto in the hope of finding intersection-controlled mineralization, but no significant mineralization was found.

#### **Cerro Del Medio central**

Drilling on the northwestern slope of Cerro Del Medio was to explore a system of veins that trend ENE and are 0.5 to 2.0 m wide and 80-100 m long. Both an initial percussion drill hole and a diamond drill hole cut 20 to 30 m lengths of weak mineralization containing 0.1 to 0.5% Cu. Four percussion holes were drilled to check the extent of enrichment. The first three found only isolated lengths of 0.1 to 0.2 g Au/t and 0.1 to 0.4% Cu. The fourth drill hole (SP-SC-22) cut a quartz-alunite-jarosite vein from 170 to 174 m that had an average grade of 4.4 g Au/t and 0.8% Cu.

#### Anillo

At Anillo, two initial percussion holes encountered several intersections of 4 to 8 m assaying up to 6.0 g Au/t and 2.0% Cu as well as a stockwork zone with veinlets of quartz and quartz-pyrite-(chlorite)-(magnetite) and minor gold values associated with microdiorite. Four other percussion holes and four diamond drill holes explored for extensions of the stockwork. An open 250 by 350 m area of stockwork mineralization was outlined containing between 0.2 and 0.4 g Au/t. Within the zone individual veins are higher grade as for example in SP-SC-09 where two intercepts of quartz-alunite-pyrite-(enargite) assayed 5.7 g Au/t over 2.0 m and 3.40 g Au/t over 4.0 m.

#### Annilo Sur

At Anilo Sur, an initial percussion hole intersected 12.0 m of energite/covellite mineralization that averaged 1.5 g Au/t and 2.7% Cu. Two other percussion holes and four diamond drill holes explored the vein mineral potential in the area. There were 1.0 to 2.0 m irregular intercepts of silica-alunite with chalcopyrite, enargite and pyrite disseminated and in veinlets. Assays from these intercepts ranged between 1.0 to 4.0 g Au/t and up to 3.0% Cu.

![](_page_44_Picture_0.jpeg)

#### **Deeper Drilling at Cerro Del Medio**

The first of two deeper drill holes was located on the northwest slope and was completed at 454 m. It cut the Upper Manto between 196.5 and 224.5 m which contained weak mineralization of between 0.10 and 0.36 g Au/t, 1.0 to 2.2 g Ag/t and 0.01 to 0.035% Cu. The Lower Manto was cut between 403.6 and 447.2 m. A 2.0 m sample contained 0.12g Au/t but all the other assays for Au, Ag and Cu were below the limits of detection. Elsewhere there are veins, veinlets and thin siliceous breccias that individually carry gold and silver values while anomalous copper extends from the surface to a depth of 227 m.

The second hole was located 380 m SSE of the Cerro Del Medio summit. Drilled in a northerly direction at -59° it reached 525 m, the deepest hole so far drilled at Santa Cecilia. The purpose of the hole was to check extensions at depth of weakly mineralized microdiorite porphyry found by the shallower drilling in the Anillo sector. It encountered weak gold-copper mineralization in coarse quartz-diorite and invasive microdiorite porphyry together with very siliceous hydrothermal breccias. The mineralization occurs with pyrite, tourmaline and magnetite, both disseminated and in veinlets. The evidence from the 2010 CSAMT survey indicates that the hole stopped short of entering the conductive rock formations.

#### Las Picas and Los Gemelos Sectors

AAC drilled seven percussion holes at Los Gemelos and Las Pircas. Gold, silver and copper values were reported to be weak.

#### 12. SAMPLING METHOD AND APPROACH,

Although WGM has not been provided with details of AAC's sampling protocols, there is no reason to suspect that they were other than those of a well-renowned major company. Most of the altered area was geochemically soil sampled using an 80 by 40 m grid totalling 3,089 samples. Drill hole and rock samples were assayed by GEOLAB SA in Copiapo between 1986 and 1990.

Mobile Metal Ion ("MMI") sampling is a modern geochemical tool for finding deeply buried metal deposits by detecting ions that are released and travel upward to surface where they can be detected in soil samples. The technique, which involves the laboratory use of sophisticated chemical processes and instrumentation, may locate buried metal deposits that had previously escaped detection.

![](_page_46_Picture_0.jpeg)

#### **13. SAMPLE PREPARATION, ANALYSES AND SECURITY**

As stated above, WGM does not have access to detailed records of AAC's sampling preparation and analytical methods.

For the 2010 MMI sampling, extreme care was taken to avoid contamination of the samples. Handlers removed finger rings, plastic shovels were used and each sample was taken after the collecting bowl had been cleaned previously with the same material that was to make up the actual sample. Samples were double bagged with zip-lock bags, 300 to 400 g per sample. Samples were air shipped to the SGS Laboratory in Lima, Peru for processing.

No special security measures were undertaken.

![](_page_47_Picture_0.jpeg)

#### **14. DATA VERIFICATION**

McGregor visited the property on November 10, 2010 in order to visually verify data reported by the owners. Given that no mineralization of direct economic significance has been identified, he did not collect samples of mineralized rock to verify estimates of grade. Adits, the former working by a local miner, drill sites and a variety of outcrops were examined. Cuttings from certain AAC percussion holes were found to be laid out in still good condition near the holes, but WGM did not determine whether AAC's drill cores, and/or sampling duplicates and/or rejects are still obtainable for examination. Numerous drawings depicting work on the project were examined independently and in discussion with the owners. In every respect, WGM is satisfied that the data provided and used in this report can be relied upon.

![](_page_48_Picture_0.jpeg)

#### **15. ADJACENT PROPERTIES**

The Maricunga Belt is a linear metallogenic province defined by at least fourteen zones of gold and/or silver and/or copper mineralization. Of many deposits within the belt, four (Maricunga, Cerro Casale, Pantanillo and Caspiche) are within reasonable proximity to Santa Cecilia, and are summarized in the following paragraphs. Reserves and resources quoted for these deposits are included to demonstrate the type and size of deposits that are considered by their owners to be economic or of economic interest. WGM does not imply support for any economic suppositions or representations of reserves and resources quoted.

#### Maricunga (Formerly Refugio Mine). Owned by Kinross Gold Corp.

The Maricunga open pit gold mine is approximately 16 km north of Santa Cecilia. It is similarly located in the Maricunga mining district and has similar history of discovery and early exploration. It was discovered by Messrs Hernandez and Thomson in 1984, concessions were acquired and, with other participants, explored within a new private company – Compañia Minera Maricunga. An option was granted to AAC who did much of the original exploration, but then dropped their option. Kinross acquired its original 50% interest and became operator of the mine in 1998. In February 2007, Kinross acquired the remaining 50% through the acquisition of Bema Gold Corporation. The property is approximately 120 km east of Copiapó and is between 4,200 and 4,500 m above sea level.

Commercial production began on October 1, 1996. Five years later, mining activities were suspended and the operation was placed on care and maintenance due to low gold prices. In late-2002, a multi-phase exploration program commenced and in 2003 it was determined that the mine would be re-commissioned.

The mine returned to commercial production in the fourth quarter of 2005 and achieved its average targeted production rate of 40,000 t/day in November 2005. The mine is a three-stage crushing and heap-leach operation with a capacity of 11 Mt/year.

Facilities include a permanent camp with access to the site from Copiapó provided by road. Power is supplied by the main power grid. Gold mineralization is related to porphyry-type intrusions and is found in stockworks and sheeted veins. Proven and Probable reserves (as reported on the Kinross website at December 31, 2009) total 281 million t at a grade of 0.71 g Au/t. WGM does not imply support for any economic suppositions or representations of reserves and resources quoted.

![](_page_49_Picture_0.jpeg)

#### Cerro Casale. Owned by Barrick Gold (75%) and Kinross Gold Corp (25%).

Discovered in 1996 and explored extensively by Placer Dome, AAC, Bema, Arizona Star and the present owners, Cerro Casale (formerly known as Aldebaren) is located 145 km southeast of Copiapó, and is approximately 12 km southeast of Santa Cecilia. The deposit, which is reputedly one of the largest undeveloped gold/copper deposits in the world, occurs at elevations between 3,500 and 5,800 m. The mineralization occurs in quartz-sulphide and quartz-magnetite-specularite veinlet stockworks that are developed in dioritic and granodioritic intrusives and adjacent volcanic wall-rocks. The mineralization extends at least 1,450 m vertically, 850 m along the strike of a WNW-trending fault/fracture zone, and is 150 to 700 m wide. It is accompanied by intense potassic alteration of the host rocks.

For the estimation of resources a total of 350 drill holes (149,703 m) were used. Open pit proven and probable reserves were defined in 2010 from within the resource envelope. Proven and Probable reserves (as reported on the Kinross website at December 31, 2009) total 606 million t at a grade of 0.59 g Au/t, 1.5 g Ag/t and 0.22% Cu. The reserves include heap-leachable oxide ore and sulphide ore that is expected to be processed by flotation. WGM does not imply support for any economic suppositions or representations of reserves and resources quoted.

A final feasibility study for Cerro Casale has been approved. Pre-production capital is expected to be about \$4.2 billion with a construction period of approximately 3 years following the receipt of key permits. Additional permitting requirements are being considered before making the final construction decision. Engineering contractors have been selected and basic engineering has commenced.

#### Pantanillo. Owned by Orosur Mining Inc. (Formerly Uruguay Mineral Exploration)

The Pantanillo property is located 125 km east of Copiapo and covers 11,750 ha. Exploration has focused on the Pantanillo Norte porphyry target. The Pantanillo Norte deposit is a gold porphyry system similar to others in the Maricunga District. The bulk of the mineralization consists of sheeted quartz/sulphide/±magnetite vein swarms, minor stockwork veining, and intrusive breccias, all of which are hosted in andesite porphyry of high-level intrusive origin.

The area of defined resources is approximately 800 m long by 500 m wide. The 2010 resource estimate is based on 78 diamond and RC drill holes by AAC (1986-19998) and Kinross (2005-2008), for a total of 14,892 m, and 30 holes drilled by Orosur in 2010, for an additional 5,638 m. According to a news release dated September 1, 2010 (on Orosur's website) total measured and indicated resources amount to 47.1 Mt at a grade of 0.69 g Au/t. It includes oxide, mixed and sulphide resources.

![](_page_50_Picture_0.jpeg)

The resource estimate, which was made by AMEC, utilized ordinary kriging for grade interpolation, and was designed to provide reasonable prospects of economic extraction by open pit. Assumptions included a gold price of \$1,035/oz; mining cost of \$1.65/t; processing cost of \$4.0/t; general and administration cost of \$1.0/t. Assumed recoveries were 75% for leached and oxide resources, 65% for mixed, and 50% for sulphide resources. WGM does not imply support for any economic suppositions or representations of reserves and resources quoted.

#### Caspiche. Owned by Exeter Resources Ltd.

The Caspiche advanced exploration project adjoins Santa Cecilia to the east. Following prior exploration and drilling of the property by AAC in the 1980s, it was explored by Newcrest from 1996 to 1998. It was then dormant until optioned by Exeter in 2005. Exeter has now met all the required commitments to exercise the option and proposes to do so in 2011. The Caspiche property has an area of 1,262 ha, within a total property holding of 3,311 ha. Exeter has identified a number of drill targets on the property, of which the most advanced is the Caspiche Porphyry.

In 1997, Newcrest completed geophysical and MMI surveys and commenced drilling with some success. Building on detailed mapping and geophysics, Exeter's final hole of the 2006/2007 season, and the first Exeter drill hole to explore the Caspiche Porphyry, intersected 304 m grading 0.9 g Au/t. Additional drilling has confirmed the existence of a well-mineralized stock which measures roughly 300 by 400 m in plan, with a vertical extent of over 1,200 m. The mineralized porphyry is blind, being concealed beneath an average of 100 m of volcanic breccia.

Mineralization at the Caspiche Porphyry is described as comprising gold and copper in a dense stockwork of grey veins. Potassic alteration characterizes the stockwork, but is overprinted by argillic alteration with which magnetite is converted to hematite (martitization). Due to this overprinting, the porphyry mineralization is non-magnetic to depths of around 400-500 m. Gold is associated with sulphides within the veins and locally disseminated in the wall-rocks. Copper has been almost totally leached from the relatively flat lying oxide zone making the gold suitable for heap leaching. At depth, there is a variety of copper sulphide minerals but no significant enrichment at the oxide-sulphide interface.

![](_page_51_Picture_0.jpeg)

The nominal drill spacing at Caspiche is in the order of 200 by 200 m for inferred resources and 100 m line spacing for indicated resources. In 2010, updated resources were prepared by AMEC. The current oxide and sulphide measured and indicated mineral resources comprise 1.3 billion tonnes at a grade of 0.50 g Au/t, 0.98 g Ag/t. and 0.18% Cu (NI 43-101 report on Exeter website and filed on SEDAR in 2010). These resources are reported as being in a large open-pit mining scenario that also hosts lesser inferred resources. WGM does not imply support for any economic suppositions or representations of reserves and resources quoted.

![](_page_52_Picture_0.jpeg)

#### 16. MINERAL PROCESSING AND METALLURGICAL TESTING

Mineral Processing and Metallurgical Testing have not been undertaken. If work is contemplated in future, there should be guidance from existing and proposed mining operations in the district.

#### **17. MINERAL RESOURCE AND MINERAL RESERVE ESTIMATES**

No Mineral Resources or Reserves have been identified at Santa Cecilia.

#### **18. OTHER RELEVANT DATA AND ADDITIONAL INFORMATION**

WGM has no additional comments for this section.

#### **19. INTERPRETATION AND CONCLUSIONS**

The Santa Cecilia Project hosts a very large system of hydrothermally altered volcanic and sedimentary rocks that in WGM's opinion has significant potential for discovery of gold-copper mineralization similar to that at known deposits in the Maricunga belt of Chile.

Mineralization at Santa Cecilia occurs within the outer envelopes of alteration and is interpreted by WGM to be related to porphyry-type nuclei at depth. Pyrite accompanies gold and copper values, and is widespread but sparse. It occurs in veins and veinlets, and also is disseminated within siliceous structures. Although no nuclei of primary K-Sil alteration and associated mineralization have yet been identified at Santa Cecilia, they are expected to occur within the outer envelopes and at greater depth than has been explored to date.

Past drilling within the central Cerro Del Medio area encountered a few gold-copper vein intersections up to several metres wide and veinlets with low-grade siliceous stockworks carrying 0.02-0.40 g Au/t together with varying amounts of disseminated pyrite down to the 4,200 m elevation. One hole, DDH SC-02, reached down to the 3,950 m level encountering quartz diorite invaded by microdiorite together with brecciation, disseminated pyrite, heavy silicification and magnetite, and had it gone deeper, might have added significantly to knowledge of the geology of the mountain.

With the exception of an adit at 3,881 m elevation, which did not extend far enough to adequately explore targets that might exit in its intended path, past exploration work has not been deep enough to encounter the targets responsible for the alteration seen on the surface or identified by the recent MMI and CSAMT surveys.

In early 2010, strong MMI gold and copper values, plus deep CSAMT anomalies were identified. These together indicate a deep drill target to the immediate north of Cerro Del Medio and additional targets that require additional sampling and lines of CSAMT for better definition prior to drilling.

WGM concludes that there is significant potential for finding very large, probably low-grade, gold, silver and copper resources at Santa Cecilia. It is unlikely that these will be near surface, but given the mountain topography, future open-pit consideration is not ruled out. Of concern is the predicated lack of access to water. The exploration and development at the adjoining Caspiche property is and will be a useful model on which to base activities at Santa Cecilia.

![](_page_54_Picture_0.jpeg)

#### **20. RECOMMENDATIONS**

WGM has discussed recommendations proposed by MSC for work to be completed by 2011. The work proposed by MSC includes a major deep-drilling program comprising 9,700 m and possibly extending the existing geochemical and geophysical surveys.

1. Drill the Cerro Del Medio anomaly initially with five diamond drill holes directed due south with at -60° on three sections 500 m apart. The drill- rigs need to have the capacity to reach this depth or more if justified. Total drilling may exceed 7.500 m and may lead to additional follow-up drilling.

UTM coordinates and depths for the five holes are:

DDH 1 E467000-N6938470 1,500 m DDH 2 E467000-N6937975 1,500 m DDH 3 E 466500-N6938410 1,500 m DDH 4 E 466500-N6937950 1,500 m DDH 5 E 467500-N6938140 1,500 m

2. Drill the anomaly near the property's eastern limit initially with two diamond drill holes directed due west at -60°. Follow-up drilling will depend on results.

UTM coordinates and depths for the two holes are:

DDH 6 E469400-N6936300 1,100 m DDH 7 E469500-N6936850 1,100 m

- 3. If the drilling is a success:
  - (a) CSAMT data should be extended to cover the entire area of hydrothermal alteration on the property. The estimated cost is \$50,000.
  - (b) The two strong open MMI anomalies on the southern part of Traverse line 9 should be investigated with further MMI and CSAMT work towards the western Santa Cecilia claim boundary. The estimated cost is \$20,000.

WGM however is of the opinion that MSC should proceed with a two staged exploration program. An initial program would include drilling to testing the Cerro Del Medio target with one hole to 1,500 m and completing more detailed sampling and CSAMT surveys which are required to better define drill targets within the broader geochemical anomaly. The second stage of the program would include follow-up drilling at Cerro Del Medio and drilling other targets within the MMI anomalies.

WGM's recommendation for an initial program is shown on Table 4.

![](_page_55_Picture_0.jpeg)

Description	Cost (C\$)
1,500 m drilling at Cerro Del Medio (including down hole geophysics)	\$750,000
Detailed and expanded MMI/ CSAMT	\$120,000
and a subsequent program:	
6,000 m drilling at Cerro Del Medio	\$3,000,000
2,200 m for MMI targets	\$1,000,000
Contingency (~15%)	\$730,000
Total (approximate)	\$5,600,000

TABLE 4. ESTIMATED BUDGET FOR INITIAL PROGRAM

An advantage of the above approach is that if the MMI and geophysics are started immediately and the drilling next spring, the survey results will be in hand by the time the first hole is finished. This will allow the drill to be relocated to the MMI target sites while the results from the first hole are assayed and reviewed prior to deciding the best location for the next series of holes.

WGM believes that initial drilling within the MMI anomaly should be focussed on areas of precision of no greater than 400 by 400 m in the elevation range of 3,800 to 4,200 m. To achieve this WGM recommends that the MMI sampling including areas along the western Santa Cecilia claim boundary be carried out together with sufficient additional sampling between lines, and with additional CSAMT lines, so as to provide a high degree of confidence that the targets meet WGM's specifications.

Drilling at the Cerro Del Medio target which already meets the WGM specifications, should start with one hole positioned approximately midway between the above recommended holes 2 and 4. Subsequent holes would be expected once the target is drilled successfully.

WGM recommends that the geophysics and MMI sampling be undertaken without delay and that drilling at Cerro Del Medio be planned for the summer of 2011. This would allow for the results of the additional MMI and CSAMT to be in hand after the completion of the first hole and would allow an immediate start to the second phase drilling program.

In addition to the above, WGM suggests that the possibilities of drilling from the 3,881 m adit and of deepening the former drill hole DDH SC-02 be investigated. Should the 3,881 adit be rehabilitated it should be re-mapped with the objective of identifying any evidence of structural control and alteration that might guide the deep drilling program.

Despite the uncertainty, WGM recommends that provision be made for expenditure over two years in line with the recommended of approximately \$5.6 million.

![](_page_56_Picture_0.jpeg)

#### **21. SIGNATURE PAGE**

This report entitled "A Technical Review of the Santa Cecilia Hydrothermal Gold, Silver and Copper Project, Maricunga Belt, Chile for South American Gold and Copper Company Limited" dated January 27, 2011, was prepared and signed by the following author:

Dated effective as of January 27, 2011.

signed by "James A. McGregor"

James A. McGregor, Ph.D., P.Eng. Senior Associate Geologist

![](_page_57_Picture_0.jpeg)

#### CERTIFICATE

#### To Accompany the Report Entitled "A Technical Review of the Santa Cecilia Hydrothermal Gold, Silver and Copper Project, Maricunga Belt, Chile for South American Gold and Copper Company Limited" dated January 27, 2011

I, James A. McGregor, do hereby certify that:

- 1. I reside at 20 Mount View Crt, Collingwood, Ontario, Canada, L9Y 5A9.
- 2. I graduated from Rhodes University, South Africa with a B.Sc. degree in Geology (1956), a M.Sc. degree in Geology (1960), and a Ph.D. in Geology (1964), and I have practised my profession continuously since that time.
- 3. I am a Professional Engineer licensed by Professional Engineers Ontario (Membership Number 30466015).
- 4. I am a Senior Associate Geologist with Watts Griffis and McOuat Limited, a firm of consulting geologists and engineers, which has been authorized to practice professional engineering by Professional Engineers Ontario since 1969, and professional geoscience by the Association of Professional Geoscientists of Ontario.
- 5. I am a qualified person for the purpose of NI 43-101. I have worked as a geologist for over 50 years since graduation. My relevant experience for the purpose of this Technical Report are: Multiple projects involving exploration, engineering and operations in consulting and management roles; and, Prepared reports on mineral properties throughout Canada, the United States of America and specifically in Brazil, Venezuela, Uruguay and Chile.
- 6. I visited the Santa Cecilia Property on November 10, 2010.
- 7. Acting in my capacity as Senior Geological Associate of WGM, I am solely responsible for all sections of the report.
- 8. This report or portions of this report are not to be reproduced or used for any purpose other than to fulfil South American Gold and Copper Company Limited's obligations pursuant to Canadian provincial securities legislation, and where required, to comply with reporting obligations including disclosure on SEDAR, and if South American Gold and Copper Company Limited chooses to do so, to support a public financing, without WGM's prior written permission in each specific instance. The authors do not assume any responsibility or liability for losses occasioned by any party as a result of the circulation, publication or reproduction or use of this report contrary to the provisions of this paragraph.

![](_page_58_Picture_0.jpeg)

- 9. Neither I, nor any affiliated entity of mine, is at present, under an agreement, arrangement or understanding or expects to become, an insider, associate, affiliated entity or employee of South American Gold and Copper Company Limited or any associated or affiliated entities.
- 10. Neither I, nor any affiliated entity of mine own, directly or indirectly, nor expect to receive, any interest in the properties or securities of South American Gold and Copper Company Limited, or any associated or affiliated companies.
- 11. Neither I, nor any affiliated entity of mine, have earned the majority of our income during the preceding three years from South American Gold and Copper Company Limited, or any associated or affiliated companies.
- 12. I have read NI 43-101 and Form 43-101F1 and have prepared the technical report in compliance with NI 43-101 and Form 43-101F1; and have prepared the report in conformity with generally accepted Canadian mining industry practice,
- 13. As of the date of the certificate, to the best of my knowledge, information and belief, the technical report contains all scientific and technical information that is required to be disclosed to make the technical report not misleading.

signed by "James A. McGregor"

James A. McGregor, Ph.D., P.Eng. January 27, 2011

![](_page_59_Picture_0.jpeg)

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