M & F MINERA OFIR S. A.

Geological evaluation

Estimation of reserves

"REY SALOMON 1"

"REY 2"

"REY 3"

December 2007

ATICO – PERU

NOTE: THIS DOCUMENT IS A TRANSLATION OF THE ORIGINAL REPORT WHICH WAS WRITTEN IN SPANISH. THE TRANSLATION TO ENGLISH IS INTENDED TO HELP DECISION MAKING PROCESS FOR ROCMEC MINING / CHAZEL CAPITAL AND IS NOT INTENDED TO REPLACE THE ORIGINAL DOCUMENT. DUE TO THE TECHNICAL NATURE OF THE REPORT, SOME SECTIONS HAD TO BE TRANSLATED ALMOST LITERALLY AND WERE NOT REVIEWED BY A TECHNICAL EXPERT FOR ACCURACY.

To Convert Imperial Measurement Units	To Metric Measurement Units	Multiply By
Acres	Hectares	0.404686
Feet	Metres	0.30480
Miles	Kilometres	1.609344
Ounces (troy)	Grams	31.1035
Pounds	Kilograms	0.454
Short tons	Tonnes	0.907185
Troy ounces per ton	Grams per tonne	34.2857

M & F MINERA OFIR S. A.

GEOLOGICAL EVALUATION

ESTIMATION OF RESERVES

“REY SALOMON 1”

“REY 2”

“REY 3”

1. INTRODUCTION

The mining rights of Minera Ofir S.A. – are composed of the following mining units: Rey Salomon I, 200 hectares; Rey 2, 600 hectares; and Rey 3, 300 hectares – are located in the Atico district, province of Caraveli, subdivision of Arequipa.

The goal of this Evaluation was to determine the mineral reserves of the various veins in the Rey Salomon 1 and Rey 2 mining properties. We also took samples in the North of the mining property Rey 3, in a conspicuous zone of alteration in the area, for chemical analysis.

1.1 LOCATION – Maps Removed

The mineral deposit is located between Quebrada de la Zorra and Pampa Redonda, in the district of Atico, province of Caraveli, subdivision of Arequipa. The property is approximately centered on the following coordinates:

VERTEX	NORTH	EAST
GEOCENTRE	8 248 500,000	652 500,000
VERTEX	LATITUDE	LONGITUDE
GEOCENTRE	15^{o} 50’ 15.04” S	73^{o} 34’ 33.54” W

Esferoide Internacional – Zone 18S – Prov. SA 1956 – Peru

Calculation of the system of coordinates based on Molodensky

1.2 ACCESS

The main access road is the Pan-American Highway South. The work site can be accessed by taking the Pan-American Highway South from the town of Atico. The road is paved until the intersection in Caraveli (km 31) and then turns into a gravel road for 10 km. Then a 6 km road on the right goes up to central part of the mining work.

2. GEOGRAPHY

The topography of the terrain is moderately steep with elevations going from 1410 to 1710 meters above sea level. However, the slope in certain areas is very steep, which is a geomorphologic characteristic of the type of rocks that are exposed in the area. The variations in height, geological structure, lithology and climate correspond to the Peneplanicie Costanera (plain), located SE of the Chaparra quadrangle. These areas show an accumulation of conglomerates and tophus of the late Tertiary and cover ancient areas of erosion. The drainage is markedly going towards the South.

2.1 CLIMATE AND TERRAIN

The climate is dry, which is characteristic of an arid geographical environment, with presence of rain in January, February and March only. The terrain is not very steep but presents some steep and rugged hills caused by external and internal erosive phenomenon (orogenic period) that alternate with shallow streams and flat areas in the lower parts, which is typical of the Peneplanicie Costanera.

2.2 VEGETATION

Vegetation is very limited and composed of small shrubs.

2.3 NATURAL AND HYDRIC RESOURCES

Natural resources are scant, especially when it comes to the products of subsistence farming, but they are well stocked in the cities of Arequipa, Atico and Chala.

2.4 HUMAN RESOURCES

In spite of the migration towards the surrounding cities, there are sufficient human resources available for development and exploitation of the mining reserves.

3.0 PREVIOUS WORK

Some mining exploration and development of narrow veins, consisting mostly of small galleries, mineshafts and trenches, have been carried out in the mining concessions Rey Salomon 1, Rey 2 and Rey 3. INGEMET has produced geological information on the previous work. It corresponds to the geological maps of the Chaparra quadrangle, sheet 32-o. There is also information regarding the Calpa Mine. M & F Minera Ofir S.A. has financials on the work that was done as well as the various topographical and structural plans that were used for the current work.

4.0 MINING PROPERTY

The mining concessions “REY SALOMON I” of 200 hectares, “REY 2” of 600 hectares and “REY 3” of 300 hectares were obtained legally and were physically and legally sanctioned by INACC.

On a geodesic level, they are located in the 18 S zone, Chaparra sheet, code 32-o of the national map of the IGN, scale 1 / 100 000, Datum and reference system PSAD 1956, and have the following UTM coordinates:

UTM COORDINATES OF REY SALOMON I – 200 HECTARES		
VERTEX	NORTH	EAST
1	8 249 000,000	654 000,000
2	8 248 000,000	654 000,000
3	8 248 000,000	652 000,000
4	8 249 000,000	652 000,000

UTM COORDINATES OF REY 2 – 600 HECTARES		
VERTEX	NORTH	EAST
1	8 250 000,000	655 000,000
2	8 247 000,000	655 000,000
3	8 247 000,000	652 000,000
4	8 248 000,000	652 000,000
5	8 248 000,000	654 000,000
6	8 249 000,000	654 000,000
6	8 249 000,000	653 000,000
6	8 250 000,000	653 000,000

UTM COORDINATES OF REY 3 – 300 HECTARES		
VERTEX	NORTH	EAST
1	8 250 000,000	652 000,000
2	8 248 000,000	652 000,000
3	8 248 000,000	650 000,000
4	8 249 000,000	650 000,000
5	8 249 000,000	651 000,000
6	8 250 000,000	651 000,000

5.0 REGIONAL GEOLOGY

The rock is mostly metamorphic, intrusive, volcanic and sedimentary rock ranging from the Precambrian Period to the Quaternary Period, formed by intrusion openings of dioritic or andesitic nature, granodiorites-diorites-andesite, travertine dacite rhyolite, andesite porphyritic rock, orthoquartzite-shale-sandstone, colluvial-alluvial-ashes.

5.1 THE GUANEROS FORMATION

The Guaneros formation was studied by Bellido (1963) who named this sequence of volcanic rocks that can be seen in the stream of the same name, which flows into the Moquegua River from the right side, 15 km before the river mouth.

The zone rest over the Chocolate volcanics with erosional discordance.

Its outcrops can be found at the NE-NW of the area studied, giving shape to the Cerro Santa Barbara, where it is damaged by the Los Medanos fault.

It was established from fossils that were described by C. Rangel as: Trigonia Eximia Philippi and Lucina Magma Alencaster. The first represents an animal of Caloviano while the second has a larger vertical range and is present in sequences going from Caloviano to Kimmeridgiano (late Jurassic age).

It was chronologically correlated with a formation of the same name in the quadrangle Clemesi (Bellido and Guevara, 1963) and Ilo (Narvaez, 1964) and with the formation Ataspaca of the quadrangles Pachia and Palca (Wilson and Garcia, 1962), as well as the inferior portion of the Grupo Yura (Jenks, 1984).

5.2 MILLO FORMATION

With this name, Luis Vargas V. (1970) described some outcrops of volcanic deposits in the Millo stream, located in the quadrangle Arequipa.

This formation can be seen in the South, SE and SW, on the sides of hill Cebadilla, close to the area of study, and mainly in the hill Medanos.

The lithology consists of conglomerates, sandstone conglomerates, tuff and volcanic ashes.

The average size of conglomerates is 400 meters, with elements of round or semi-rounded shape. Their diameter can reach 30 cm. The top is made of a conglomerate of semi-consolidated sandstone with round elements of 1 to 10 mm in diameter, and a thickness that varies from 0.5 to 1.0 m. Between them, there are seams of yellow to white tuff with lenticular seams of salt and gypsum.

<u>Age and correlation:</u>

There is no specific evidence allowing us to determine the age of the Millo formation. Regarding this, we only know that they lie over a surface of erosion, probably carved out during the Miocene, and underlays the Sencca volcanics, probably from the middle of the Pliocene, and we thus roughly evaluate that it dates back to the early Pliocene. In the Maure quadrangle, Mendivil (1965) estimated that it dates back to the Pliocene by correlating the Bolivian "Estratos Mauri" where fossils were found.

5.3 SENCCA VOLCANIC

With this name, Mendivil (1965) described a pyroclastic sequence that can be seen in the Sencca stream, located in the SE sector of the Maure sheet.

These rocks are present in the Eastern surface of the area. They were subjected to intrusion by the dikes of the porous andesites (hypabyssal rocks), these rocks were placed there at the end of the Albian and at the beginning of the Cenomanian.

The stones conducive to mineralization are located inside the Linga super unit, which is represented by granodiorite even though there are defined and discordant contacts with monzodiorites, tonalites, monzonites. Its mineral constituents are of variable granular sizes, pale green tabular plagioclasic feldspar, dark green hornblende (anhedral), some biotite and potassium feldspar of graphic texture with quartz. After the Bella Union Complex, these stones are the most ancient. The Millo formation that appears on the surface of the area is comprised of continental deposits that can be seen in the S-SW area of the C^0 Pampa Redonda, and is comprised of sandstone conglomerates. Conglomerates, tuff and ashes lie at the surface of an area of sub-horizontal erosion and lie in parallel with the Sencca volcanics. It is believed that it dates back to the early Pliocene.

The Sencca volcanics are formed of red to orange weathered rocks. In fresh samples, they are light grey, yellowish-white and pink. This pyroclastic tuff is composed of riodacites, dacites and andesites where quartz and plagioclasic feldspar are the essential minerals; it is believed to be as old as the mid-Pliocene.

Due to the tectonic and hydrothermal magmatic activity, there is a highly fractured area of silicification that is responsible of the Stock Words defined in the NW, as evidenced in the entire mineralized area that almost covers the totality of the Rey Salomon I concession and the NW portion of the Rey 2 concession.

The mineralization is associated to secondary minerals like calcite and barite.

5.4 ALLUVIAL DEPOSITS

The alluvial deposits gather at the bottom of this structure with a group of heterogeneous non-consolidated material comprised of gravel, sand, round pebbles and clay, which form the ground of most of the plains and depressions, as is the case for the slopes and the streambeds. They can also be found on the sides of the Chaparra valley, where there are low terraces of small extension that are dedicated to subsistence agriculture and fruit trees.

They do not present a definite stratification but rather a poor granulometric selection. The diameters vary, going from the size of a sand grain to big blocks, and are generally of igneous nature and can be found in all the streams and streamlets of the area.

5.5 INTRUSIVE ROCKS

The intrusive rocks found in the area are of hybabyssal or plutonic nature.

5.5.1 HYPABYSSAL ROCKS

5.5.1.1 BELLA UNION COMPLEX

This structure was named by J. Caldas (1978). It describes an enormous volume of sub-volcanic rocks (hypabyssal).

The lithology of the Bella Union complex is very varied with a predominance of rocks that show gaps of intrusion of andesitic or dacitic nature, with big angular and sub-angular blocks, mechanically developed while they were being deposited. Their morphology is cavernous due to differential erosion, mainly in the very steep terrain. These types of rocks were also subjected to intrusion by innumerable plutons and dikes of porphyritic andesite with big phenoblasts in intensely pyritized aphanitic matrices. To conclude, this group of rocks is crossed by dikes, andesites or dacites, which were formed by real swarms in many cases.

Age of the area

The Bella Union complex shows regional intrusion of mesozoic volcanic-sedimentary rocks from the Jurassic Age to the Albian Age. It was at its turns subjected to intrusion from Batolito de la Costa (Arequipa segment) and was established between 120 MA to 80 MA (Cobbing 1979). For this reason, it is believed that the intrusion dates from the end of the Albian to the beginning of the Cenomanian.

5.5.2 PLUTONIC ROCKS

5.5.2.1 BATOLITO DE LA COSTA

I) LINGA SUPER UNIT

The rocks belonging to this super unit are exposed in the Virgen, los Espanoles and Alto de la Luna knobs, located at the NW and NE of the area of study.

The predominant lithology of the super unit is the monzonite but there are internal variations even if there are defined contacts and discordant elements in the monzogabbro, the monzodiorite, the tonalite, the granodiorite, the monzogranite and the granite. Under microscope, they present the following textural characteristics (AGAR 1978): variable granular size, pale green tabular plagioclasic feldspar (An 45-55), dark green anhedral hornblende, some biotite and salmon red potassium feldspar of graphic texture with the quartz. Another notable characteristic is that the plagioclasic feldspar is frequently zoned.

Within the plutons of the Arequipa segment, the Linga super unit is very important since its location was associated with the mineralization of copper solutions.

After the gabrros preceding the batholitic plutonism, the Linga super unit corresponds to the most ancient intrusions of the Arequipa segment. The radiometric dating indicates that the Unit dates back to 97 MA (Cobing 1979) and it is therefore younger than the Paccho super unit of the Lima segment (Pitcher, 1978).

II) TIABAYA SUPER UNIT

This unit is widespread in the region, given that it is mainly of grano-dioritic nature. Its outcrops can be found between the Aguada del Huanaco, Victoria, Pacchapata, Alto Peru, Monte Quemado and Torrecillas knobs.

The rock is grey to pale grey, of medium to coarse grain and is composed of quartz, feldspar and an important content of ferro-magnesium. Hornblende is present in large prisms that can go up to 3 mm in width. The biotite is present in crystals of 1 to 2 mm, of tabular shape in length, a characteristic that helps to differentiate this super unit of the latter.

Another characteristic is the presence of round xenoliths, of finer grain and of a diameter going from 5 to 10 mm, and abundant aplitic and pegmatitic dikes, and quartz dikes.

Age of the Unit

It is encased by the younger plutons of the Arequipa segment and the radiometric dating indicates that the intrusion dates back to 80 MA (Cobbing 1979). It dates from the late Cretaceous age to the early Palaeocene, which allows us to correlate it to the early granodiorite tonalite of the Santa Rosa super unit of the Lima segment.

6.1 LOCAL GEOLOGY

The local environment consists of a sequence of rocks from the Bella Union complex, which were produced by the Andean magmatism from the Triassic to the Quaternary when the convergence zone between the Sub-American plates and the Nazea plates was fused.

Distribution of antimony

Most of the results are outside of the anomalous range < 3. However, they augment with an obvious preference in the zones of disturbance going up to 4 ppm and do not keep any relation with the Cu (copper) values.

Distribution of mercury

It is outside of the anomalous range at < 1 ppm and reaches a maximum of 1 ppm.

Distribution of bismuth

It is outside of the anomalous range at < 2 ppm.

6.2 STRATIGRAPHY

6.2.1 ALLUVIAL DEPOSITS

The lithology is composed of gravel, pebbles and other round to sub-angular elements in a sandy-argillaceous matrix with a rough stratification cradled between layers of sand and argyle.

These deposits are present in the slopes of the hills and the strati of the Quebrada La Zorra and Pampa Redonda streams.

6.3 INTRUSIVE ROCKS

6.3.1 BATOLITO DE LA COSTA

The Batolito Costanero del Peru is parallel to the coast and close to it, and flows a large area of faults and fractures. Piura, Trujillo, Lima, Arequipa and Toquepala, whether on a structural or mineralogical composition level, constitutes a large complex shaped by hundreds of individual plutons.

In the Arequipa segment, five large super units have developed: Patap, Pampahuasi, Incahuasi, Linga and Tiabaya.

In the area of study, only the super units Linga and Tiabaya are present. They are mostly composed of granodiorites, monzonites and granodiorites, respectively.

- **LINGA SUPER UNIT**

A.1 GRANODIORITE

This rock is present in the N-NE of the area of study and gives shape to the hill located between La Zorra and Pampa Redonda.

In cooler areas, it is light grey to whitish and in temperate areas, it is greyish.

The principal characteristics of its composition are its granular variable size, 45% of tabular pale green plagioclasic feldspar, 10% anhedral hornblende, 5% biotite, 20% potassium feldspar, 20% graphic texture with quartz; the plagioclasic feldspar is frequent.

Aplitic dike can be found going through these rocks.

A.2 LINGA MONZONITE

This is a leucocratic rock, of clear green and clear greyish-brown colour in temperate areas. It is present in the SE of the Victoria hill. The transition of colour is noticeable; it goes from a leucocratic greenish-grey to a melanocratic black-greyish colour from West to East. In the first instance, the mafic minerals are limited with predominance of chlorite and, in the second case, the mafic minerals are predominant, which gives it a dark colour.

It has a holocristalline granitoide and hypidiomorphic texture, composed essentially of alkaline feldspar and of plagioclasic feldspar; of anhedral quartz in a proportion of 20% approximately. Between the ferromagnesium contain the hornblende and chlorite as a secondary mineral.

B.1 GRANODIORITE

This rock is widely present in the area of study, between the Victoria and Alto Peru hills and locally between the La Zorra and Pampa Redonda streams.

Locally, it goes from whitish pink to dark grey and generally presents a homogeneous form, with moderate fracturing. The stone has an average grain, a holocrystalline and phaneritic texture, since the plagioclasic feldspar is the dominant mineral, after the orthoclase and the quartz. In terms of characteristic minerals, it presents biotite and hornblende.

A macroscopic observation of a hand sample reveals the following composition:

- Plagioclasic feldspar 50%
- Orthoclase 18%
- Quartz 16%
- Hornblende 9%
- Biotite 2%
- Secondary minerals 5%

TOTAL	100%

- Texture: granular, granitic
- Classification: granodiorite

The following veins are located in this stone: Ofir, Alabe, Esperanza, Teresa and Catherine, among others. Based on radiometric data, it dates back to the late Cretaceous Age to the early Tertiary Palaeocene.

6.4 STRUCTURES

The tectonic activity in the South of Peru is responsible for the structural plan of the area.

In the late Cretaceous Age and at the beginning of the Palaeogene Period, due to the Andean orogenesis, the region underwent an intense process of structural deformation of the pre-existing formations. The longitudinal and transversal faults have a pronounced NW-SE direction.

REGIONAL STRUCTURES

There is evidence in the region of two regional structures.

6.4.1 LOCATION OF BATOLITO DE LA COSTA

It is determined by the faults and deep fractures running NW-SE.

This intrusion of the Batolito de la Costa was not responsible for the formation of faults or folds located outside of the area of the actual work.

6.4.2 FAULTS

We will only consider the structures that were controlled by the tectonic activity and the mineralization in the region:

PAN DE AZUCAR FAULT

This is a normal vertical fault. It is subparallel to the Los Medanos fault located South, with a NW-SE direction. The structure is more than 30 km long. The Los Medanos fault and Pan de Azucar fault have given rise to the Graven Pan de Azucar structure between them.

GRAVEN PAN DE AZUCAR

This structure is defined by the Pan de Azucar fault and the Los Medanos fault. It is 7 km wide, has a NW-SE direction and a length of more than 12 km.

LOS MEDANOS FAULT

This is a system of staggered faults. The NE block is raised compared to the SW block. The fault is normal and vertical, and it is also oriented NW-SE.

LOCAL STRUCTURES

The local structures are related to the batholithic rocks. The tectonic forces have given rise to pre-mineral structures with a general orientation of NW-SE, displaying dips at the NE and NW, like the Ofir, Alabe, Esperanza and Teresa veins, respectively.

These structures are secondary to the regional structures and are intimately tied to the mineralization and have allowed the circulation of the mineral solutions that have ultimately given rise to the auriferous veins at the heart of this geoeconomic study.

6.5 JOINTS

The rock joints found in the area of study are due to the consolidation of plutons. They were produced by the slow cooling of the igneous massif or by the pressure changes generated by tectonic forces. In general, these joints are cracks where there is no displacing of one block compared to another.

The rock joints have two defined systems; one at strike N 43º W and average dip of 65º at the NE and the other at strike N 65º E with a dip of 60º at the SE.

7.0 GEOLOGY OF THE MINERAL DEPOSIT

7.1 GENERAL INFORMATION

The mining properties of Minera Ofir regarding their mineralization belong to the Provincia Metalogenetica Occidental for this part of the South of Peru, forming a portion of the auriferous band Nazca Ocona.

The mineral structures are located in intrusive rocks from the Tertiary age. They are of epigenetic type given its moderate formation temperature (mesothermal and epithermal).

The veins are composed of quartz, pyrite, gold, limonite, hematite and calcite.

The principal veins – Ofir, Alabe, Esperanza, Teresa and the other mineralized structures such as Katherine, Marcelo, Monica, Melchora, Aurora – are located in intrusive rocks from the Tertiary that correspond to Batolito de la Costa (Tiabaya granodiorite).

The mineral deposit of Minera Ofir is of epigenetic type, which means it was fractured and then filled later. It is mesothermal to epithermal because it was formed by matters of moderate temperature.

The mineralization consists mainly of quartz, pyrite, gold, limonite, hematite, copper oxides and, in terms of secondary minerals, calcite and barite.

It is believed the mineralization of the mineral deposit dates back to 50 MA (Eocene).

7.2.1 OFIR VEIN

This Ofir vein is the most conspicuous, with a known length of 400 meters in different levels, some at SE, some at NW, with an average strike of N 60º W and a dip of 74º at the NE and a thickness of 0.75 meters.

This structure shows a well-defined topography with presence of quartz. It is white, whitish-yellow to reddish because of the iron oxides content.

Its mineralogy consists primarily of white transparent quartz, pyrite, native gold and some barite and calcite in terms of secondary minerals.

The Ofir vein has been developed at different levels: level 1527, 1549, 1544, 1549, and 1569 in the SE and NE sides of the vein.

In the main levels of the Ofir vein, there is a dominant dip SE-NW.

The entrapped rock is composed of granodiorite that is very argilized at the mouth of the main adit and then silicified with moderate argillization.

From a mineral standpoint, this vein is composed of white quartz resembling sugar (altered), masses of transparent quartz – porous with disseminated pyrite, with spots of native gold in the host rock with a moderately to strongly oxidized limonite. Based on the evaluation of reserves, the value is estimated to 1.04 (m^3) in terms of adjusted volume for the main drift and all the sub-levels.

7.2.2 ALABE VEIN

This is also a main vein. It has strikes going from S 85 E and N 85 W and dips going between 73º and 86º NE, with an average thickness of 0,60 meters, a length of more than 150 meters between the trench and the gallery, Fb=1.06.

There is a continuous presence of transparent milky-white quartz with a strongly oxidized limonite and moderate fracturing.

7.2.3 ESPERANZA VEIN

The Esperanza vein has various splits: Esperanza vein, Esperanza A vein and Esperanza B vein. The estimation of reserves has revealed a mineralized structure with a strike of SE-NW, a dip of 63 º NE and a thickness of 0.55 meters. A factor of Fb=1.12 was calculated and thus the possible length is a minimum of 90 meters.

7.2.1 TERESA VEIN

This vein is located NE of the three first veins described. It covers the horizontal area of erosion mentioned above and is also filled with small streams in the area covered by this report. It can be seen at the NE in the Cerro Pan de Azucar.

At the surface, the rocks are reddish to orange. However, in fresh samples, they are pale grey, yellowish-white to pink and are classified as riodacite, dacite and andesitic tufa.

Age and correlation:

Since there isn't sufficient paleontological proof regarding the Sencca volcanics, if we only consider what lies on the Millo del Mio-Pliocene formation and the Maure formation, which probably dates back to the early Pliocene, it is believed that these rocks were deposited during the middle of the Pliocene. They correlate to the tuff of the same name that was studied in the Ichufia (Mocquegun) and Characato (Arequipa) quadrangles.

7.3 MINERALOGY

The mineralogical components of the veins are the result of hydrothermal processes. The main mineral is quartz, and then gold, pyrite and gold, sometimes mostly visible in the host rocks.

7.3.1 MINERAL ORE

- **Native gold (Au):**

  Native gold is present in native form within the iron oxides (limonite) and in the semi-porous and porous, moderately transparent, milky white quartz.

  The visible gold can be observed in the main vein in the form of spots, grains or scales, and can have dimensions of 0.5 mm to 4 mm. The most frequent form is the dendritic form; it can be found in the host rocks.

  It is characterized by a yellow colour and an intense metallic shine, i.e. 19.3 and hardness of 2.5.

7.3.2 MINERALS IN VEINSTONE

- **Quartz (SiO_2)**

This is the most abundant mineral and it constitutes the filling of the vein. It is present in massive white transparent quartz, fractured and cavernous (porous), broken and oxidized. It occasionally takes a crystallized form and presents Box Works characteristics for this type of mineralization.

Because of its persistence in the mineralized structure, it guides the exploration. It is characterized by its hardness 7, i.e. 2.65 and its conchoidal fracture.

- **Pyrite (S_2Fe)**

It is not as abundant and is disseminated. It is associated to the quartz and has subhedral and anhedral forms. It is characterized by its pale yellow brass colour and its metallic shine.

It is of secondary origin and was formed by the alteration of the hematite and the other iron sulphides. It is mostly present in earthy varieties, of yellowish gray-brown colour. It relates to high values of gold, is abundant and gives a yellow tint to the quartz.

- **Hematite (Fe_2O_3)**

It is a product of the oxidization of the pyrite, has a chestnut reddish colour, is less present and generally takes an earthy form. Its reactions with gold are less direct but regular values have been observed next to it.

7.4 PARAGENESIS

The paragenesis of a mineral deposit is determined by the disposition sequence through time. This chronological order is revealed through the study of the relations observed in the minerals, based on structural and textural characteristics.

In general, the veins were initially filled with quartz, after an argillization of the layers and a seritization of the same structure. After, there were other pulsations of quartz and of metallic minerals, depositing pyrite, native gold.

7.5 FORM AND TYPE OF MINERAL DEPOSIT

Based on their form, the deposits are filoneanos, filled with fractures, a compact mineral mass of tabular form, limited by two well-defined rocky sides.

It is an epigenetic mineral deposit of hydrothermal origin, of mesothermal to epithermal facies, formed in intermediate depths, of high to moderate pressure and with temperatures of 150 ^{o}C to 300 ^{o}C.

7.6 GENESIS OF THE MINERAL DEPOSIT

The mineral deposit is intimately related to the first phase of the Andean orogeny (at the end of the Steinman Peruvian folding) that, consequently, gave rise to the formation of hydrothermal deposits that can be found in the region.

The pre-existing faults and the fissures in the granodiorite and the ones that are currently mineralized were formed by tectonic movements (compression forces E-W and tension forces). These movements occurred after the batholitic intrusion and the fractures were mineralized as a result of thermal waters of magmatic origin circulating and forming these structures that are good receptors for these solutions.

As such, the quartz dikes that are located in the intrusive rocks or that cut through them (granodiorite) are related to the mineralization of the mineral deposit.

Consequently, the mineralization of the mineralized structures of Minera Ofir date back to ± 50 MA (Eocene).

7.7 HYDROTHERMAL ALTERATION

With the formation of any hydrothermal deposit, we must first consider the availability of fluids that contain a sufficient concentration of metals and, secondly, the presence of openings in the rocks to facilitate the transport of the solutions and can serve as receptacles for the mineralization.

The progressive changes in the constitution of the rocks resulting from the passage of solutions give rise to different mineral species which, when grouped in various associations, constitute the levels of alteration.

The mineralization and alteration are part of one process. The establishment of the mineral deposits that can economically exploited was preceded by an important or minor level of hydrothermal alteration. However, it is important to note that the existence of a hydrothermal alteration does not necessarily mean that there are mineral deposits that can be exploited in an economical fashion.

It is commonly accepted that the main elements of the hydrothermal process are the composition of the rock, the composition of the solution, the temperature and the pressure. The present study focuses only on the establishment of the characteristic traits of the hypogenic alternation, which is the alteration of interest for the purposes of the current study.

7.7.1 HYPOGENIC ALTERATIONS

When they enter in contact with the rock faces of the openings, the hydrothermal solutions produce physical changes like changes in the colour, recrystallization and chemical changes like the formation of halos or rings around the mineral structure.

In the mineral deposit of Minera Ofir, the hypogenic alterations are represented by:

7.7.1.1 PROPYLITIZATION:

Applied to the mineral associations that fall in the category of incipient to weak alteration. It is observed in two well-defined levels: the first phase presents a light greenish tonality, while the plagioclasic feldspar shows signs of incipient alteration. The second is stronger. The green is intense, the primary minerals are completely altered and show a smooth whitish texture (calcite) that alternates with the green coloration of the chlorite.

This alteration can be found away from the veins and the other veins in the area, and is moderately visible in the granodiorites.

7.7.1.2 ARGILIZATION AND SERICITIZATION:

Usually, this alteration constitutes a major portion of the mineral deposits because of its direct relation with the economical mineralization. In the veins, it guides the subterraneous exploration.

The argillization and sericitization are intermediate to advanced levels of the hydrothermal alteration process. They are characterized by the formation of clay and sericite, which completely destroy the primary traits of the rock (feldspar and plagioclasic feldspar).

In general, the veins present clay of the Caolin group, which forms because of the alteration of the feldspar and the granodiorite. They do not react in a stable fashion to the action of the hydrothermal solutions. Next to the clay, there is a clear dominance of the sericite with some quartz and pyrite. The economical mineralization is associated to this type of alteration.

7.7.1.3 SILIFICATION

This is the introduction of silica in the rocks, which makes them harder and waterproof. In the host rock of the veins, the silicification is quite notable and differentiated. Thus, this is also related to areas of economic interest.

This alteration is associated to limonite, which is related to a high cut-off.

7.7.2 SUPERGENIC ALTERATION:

When a mineral deposit is exposed to erosion, it is meteorized with the rocks that encapsulate it. The superficial waters result in oxidization of much of the metallic minerals, generating solvents that in turn dissolve other minerals.

In the mineral deposit, the alteration around the veins consists of argillization and there is an anomalous red to orange colour due to supergenic alteration of the hipogenic pyrite. The argillization occurs mostly in the outcrop of the structures, which gives it a whitish colour due to the alterations of the feldspar and the plagioclasic feldspar.

7.8 CONTROLS AND MINERALIZATION GUIDES

Certain regional factors have allowed us to verify that all the veins with mineralization of gold are encased in intrusive rocks of the Batolito de la Costa.

It puts this connexion in evidence, at least on a spatial level, and allows us to determine that, on a structural level, all the gold mineralization is located within the structures of the tectonic crack, and there is no unique direction that stands out for the veins of the mineral deposits. However, we underline that the directions NW-SE (Ofir, Alabe, Esperanza) or NE – SW (Teresa) are mechanically equivalent, with the compression E-W, to the direction of the formation of the break structures for all the mineral deposits.

Regarding the characteristics of the filoneano fill based of comparison from various mines, we can deduct that there are three main components – quartz, pyrite and iron oxide – that associate gold to these minerals.

The factors of regional nature seem to suggest that, on a genetic level, the mineralizing solutions in the mineral deposits of fracture fillings were related to the host rock (Batolito de la Costa), establishing a favourable environment for the deposit of these solutions.

7.8.1 LYTHOLOGICAL CONTROL

The lythological control has been determined as favourable to the mineralization according to the solutions and the chemical reactivity. These have induced the precipitation of mineral ore, thus causing a major effect in the filling of the cavity.

These rocks that show hydrothermal alteration, above all clayed alteration, constitute an important guide from a lithology standpoint.

7.8.2 STRUCTURAL CONTROL

The pre-existing faults and fissures in the Tiabaya granodiorite, caused by the tectonic movements, have determined the localization of this deposit. The position of these fractures in the subvertical dip have contributed to the mineral deposits.

The Ofir, Alabe and Esperanza veins with a NW-SE direction present the best gold concentration than the veins with a NE-SW direction, like the Teresa vein.

The changes of direction or the inflections in the main veins are favourable to economical mineralization. Thus, when the structure has a tendency to become subvertical and the thickness goes to about 1 meter, the concentration decreases notably.

7.8.3 MINERALOGICAL CONTROL

The most common mineralogical changes in the rocks that surround the epigenetic veins usually involve the introduction of certain chemical elements and the subtraction of others. Thus, with the replacement of the minerals caused by the action of the different phases of mineralization, which have brought with them sterile mineral, new economical minerals were formed (sericite, clay, chlorite, calcite, pyrite and silica), were grouped in different associations and have formed distinct phases of the hydrothermal alteration, following the argillization-sericitization and the silicification that accompanied the economical mineralization, relegating the propylitization to sterile phases or minor phases of the mineralization.

On a superficial level, the ore minerals or the evidence of its previous presence are the most direct guides that can offer the outcrops. Thus, oxidised primary sulphides, products of the meteorization, can be observed and have left hematite and limonite behind them. The composition of quartz and gold stays the same since these minerals are not very soluble.

Internally, the minerals that are present and their relative abundance are very useful guides for the research of mineral ore.

The physiographic traits can be seen as direct and indirect evidence of the presence of mineral ore. In the mine, the veins are quite informative, since conspicuous outcrops contrast with the topography. These outcrops are indicated by aligned outcrops of minerals that are not very soluble, like quartz, native gold and minerals that were generated by the oxidization of primary sulphides.

The expressions observed on the terrain are attributable to the differential erosion that occurred in the rocks and in the mineral structure, which are thus infallible guides for the geological exploration.

8.0 HISTORICAL GEOLOGY

8.1 REGIONAL TECTONIC CONTEXT

The geological events that occurred in the zone date back to the late Jurassic, where the Guaneros formation was shaped. The Andean deformation, a product of the Steinnman orogenic "Peruvian" movement, appeared in the late Cretaceous, folding and lifting the region, at a time where the hypabyssal rocks of the Bella Union complex were deposited.

The different magmatic solutions that gave rise to Batolito de la Costa (super units Linga and Tiabaya), which were formed after a long period of erosion, may have irrupted in phases during the ultimate phases of the folding, at the beginning of the Tertiary age.

This was followed by another phase of folding, but of lesser intensity, during the late Eocene. This was the "Incaica" phase of Steinnman.

At the end of the Miocene, the "Quichuano movement" occurred and folded gently the cordillera region while faults developed in the coastal area.

Then came a prolonged erosion that gave rise to a subhorizontal area in the region.

The conglomerates of the Millo formation were deposited on this area.

Afterwards, during the Pliocene, new volcanic activity began and deposited the Sennca volcanics, which covered large expanses of Southern Peru.

During the late Quaternary, the modelling of the relief continued. Today, the erosion and accumulation processes still continue but at a lesser level.

9.0 GEOCHEMICAL RESULTS

At the N-NE of the La Zorra stream and in the mining concession Rey 3 of 300 hectares, 13 samples were collected between mineralized structures and rocks.

In the first phase, six (6) initial samples were taken. Seven (7) samples were taken in the second phase.

The samples of altered mineralized structures were taken in the channels and the rock samples were taken by chipping rocky outcrops in the hematization areas and in the Stock Works.

The grid of the sampling does not present a regular systemic spacing because of the falta de zoneamiento of the alterations in the rocky outcrops.

The goal of the geochemical exploration was to establish the level of dispersion of the basis materials and of the gold by means of chemical analysis of the samples, based on the higher levels of concentration, the highest geochemical contrasts and the longest length of dispersion.

The results of the chemical lab tests have shown anomalous values of copper that were relatively low while the highest were found in the alteration areas.

METHODOLOGY

In general, the samples were analyzed with a fire test (gold) and multielements (ICP-MS) for all he samples.

The tests were realized in the Laboratorio ACME Analytical for the gold and the multielements (36 elements).

For interpretation purposes, we have chosen a group of the following elements: Cu, Mo, Ag, Zn, Pb, As, Sb, Hg and Bi.

DISTRIBUTION OF CONCENTRATION

According to the geochemical study, the presence of disseminated gold was initially discarded but the presence of copper is encouraging for a systematic study of the alteration area of the mining concession Rey 3 in an area of 800 meters X 500 meters, which is corroborated by the geochemical values of Mo found.

10.0 ESTIMATION OF RESERVES

10.1 GENERAL INFORMATION

The veins of the company Minera Ofir, encased by the mains veins Alabe, Ofir, Esperanza and Teresa, are the most important structures of interest.

For the present measurements, we have used a longitudinal section with a 1:500 scale where it is anticipated that the underground work will take place in the vein and the respective blocks. For this reason, we have used geological underground plans and samples of all the levels.

Between the measured mineral and the indicated mineral (marginal), we have calculated 44 255 MT with a average of 0,411 Oz Au/TC.

10.2 RESERVES

10.2.1 SAMPLING

The sampling, in the underground work in the main vein, was carried out by means of perpendicular channels from the direction of the vein, systematically spaced by 2 meters. The channels were 10 cm wide, 3 cm deep. From this sampling, we have prepared composite cores of all the veins sampled for the present evaluation. The cores were sent to the laboratory and the reports related to the tests were registered.

The values of copper are variable. However, they go from 107 ppm to 131 ppm. The rest of the values present a clear grouping until de central zone (Stock Works) where there is an alteration of iron oxides (hematization). They are also higher than the base of 80 ppm and show a threshold of 190 ppm, which makes it a moderate anomaly.

Distribution of the molybdenum

The distribution of the molybdenum values goes from 7 ppm to 12 ppm, which is in line with the low anomalous concentrations of copper detected, knowing that the base is 4.2 ppm and the threshold is 11.7 ppm. However, there is no relation with the gold values.

Distribution of silver

The geochemical tests have generated results of < 0.3 ppm and confirm that there is no mineral ensemble with the copper and gold since they are low.

Distribution of zinc

The zinc values, going from 56 ppm to 326 ppm are somewhat vast and are don't have any relation with the low values of copper and gold.

Distribution of lead

The concentrations of lead are anomalously low, 28 ppm and 92 ppm, but clearly coincide with the anomalous concentrations of copper.

Distribution of gold

The highest concentration of gold goes from 6 ppb to 10 ppb. For the purposes of establishing a relation with a gold deposit, this is not representative. The rest of the concentrations are lower than < 5 ppb.

Distribution of arsenic

The anomalous distribution of arsenic goes from 9 ppm to 25 ppm. It is dispersed and isolated and there is no relation with the anomalies regarding copper, which are the most conspicuous of the geochemical sampling carried out.

10.2.2 FOR LENGHTS OF MINERAL IN ONE SECTION

a) Average thickness of the sample:

Calculated with the following formula:

$$\text{Average thickness of the sample} = \frac{\sum \text{thicknesses}}{\text{Number of samples}}$$

b) Average concentration of the sample:

Calculated with the following formula:

$$\text{Average concentration of the sample} = \frac{\sum (\text{thicknesses X concentrations})}{\sum \text{thickness}}$$

10.2.3 FOR THE BLOCKS OF MINERAL:

a) Average thickness of the block sample:

It corresponds to the sum of the product of the sampled length by the average thickness of the sample of each work, divided by the sum of the lengths:

$$\text{Average thickness of the block} = \frac{\sum(\text{length X thickness of the sample})}{\sum \text{length}}$$

b) Average concentration of the block samples:

It corresponds to the sum of the products of the length of mineral by the average thickness of the sample by the respective concentration, divided by the sum of the products of the length by the thicknesses:

$$\text{Average thickness of the block} = \frac{\sum (\text{length X average thickness x average concentration})}{\sum (\text{length X average thickness})}$$

To compensate for sampling errors, contamination, lab tests, etc., the average concentration of gold is reduced by 10 % (0.90 factor).

10.2.5 ERRATIC CONCENTRATIONS:

A sample is considered erratic when its value is more than four times higher than the average of the section it comes from. These samples will be replaced by the average sum of the adjacent samples.

10.2.6 MINING WIDTH-DILUTION:

It is the minimum width of the hole considered necessary to exploit a vein. The minimum width of mining considered for the main vein is of 0.80 meters for the needs of the mining operation, and thus thicknesses of less than 0.80 meters would be diluted at this width.

10.2.7 DILUTION:

Is the quantity of sterile material that necessarily mixes with the mineral when it is exploited. The dilution factor considered for the main vein is 0.30 (0.15 meters on each side), added to the average width of the vein.

10.2.8 MINING CONCENTRATIONS OR DILUTION

The mining concentration is obtained by multiplying the average thickness by the average corrected concentration, divided by the width of the mining:

$$\text{Mining concentration} = \frac{\text{average thickness of the block X corrected average concentration of the block}}{\text{Width of the mining}}$$

a) Area

The area of the blocks is determined through geometrical methods, by decomposing areas, by multiplying the length by the height, for projections related to lengths based on a 1:1000 scale. In the irregular figures, a planimeter was used.

The volume is obtained by multiplying the average width of each block by the area.

- **Corrected volume:**

The volume increases based of the outcrop factor. Since the calculations are made with sections of longitudal sections, an inclination (dip of the vein) must been taken into account as well as a constant factor for each angle of the outcrop. Therefore, the main vein dips with an angle of 70º NE, therefore:

$$K = \frac{1}{\text{Angle } 70^{o}} = 1.06$$

Thus, for any angle of the dip, the corrected volume will be Volume X Fb (1.06).

c) Specific weight:

A specific weight of 2.65 is considered for the mineral and a specific weight of 2.45 was considered for the sterile material.

d) Tonnage:

This is obtained by multiplying the corrected volume by the specific weight.

- Correction to the tonnage:

  The tonnage of each block was diminished by 10% to account for probable bridges and/or pillars that would have to be left aside during the exploitation.

10.3 CLASSIFICATION OF THE BLOCKS OF MINERAL:

10.3.1 BASED ON THEIR ACCESSIBILITY:

The blocks of mineral are classified based on their accessibility:

a) Accessible mineral:

We come across these blocks during the mining work (galleries, chimneys, mineshaft, etc.) and they can be exploited.

b) Mineral that will eventually be accessible:

These blocks are not quickly accessible for immediate exploitation since the mining infrastructure is not completed or decided. The costs to make these blocks accessible are lower than the total cost of normal operations.

10.3.2 BASED ON THEIR ECONOMIC VALUE

a) Mineral ore:

Is the economic mineral whose value surpasses all the operational, commercialisation, depreciation and interest costs, etc., in such as way that it produces profits.

b) Marginal ore:

This mineral does not cover all the costs related to depreciation, interest, etc. and its value is below the cut-off. This mineral could be exploited without producing profits but produces cash and offers a bigger divider for the general profits.

The mineral reserves are comprised of mineral ore and marginal ore such that the weighted concentration of this sum is not inferior to the minimum concentration used to define the mineral ore.

10.3.3 BASED ON THE CONTINUITY OF THE MINERALIZATION:

They are classified as follows:

a) Measured mineral:

A measured mineral resource is that part of a mineral resource for which quantity, grade or quality, density, shape and physical characteristics are so well established that they can be estimated with confidence sufficient to allow the appropriate application of technical and economic parameters, to support production planning and evaluation of the economic viability of the deposit. The estimate is based on detailed and reliable exploration, sampling and testing information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes that are spaced closely enough to confirm both geological and grade continuity.

b) Probable block:

The concentration of a block adjacent to a measured block is deemed the same as the measured block.

The height of the blocks determined by only one work, under the measured block, is proportional to the length of their mineralization.

A probable mineral reserve is the economically mineable part of an indicated, and in some circumstances a measured mineral resource, demonstrated by at least a preliminary feasibility study. This study must include adequate information on mining, processing, metallurgical, and economic and other relevant factors that demonstrate, at the time of reporting, that economic extraction can be justified.

10.4 NOMENCLATURE FOR THE BLOCKS:

For the proven blocks, we have considered adding the letters Pd after a correlative number from 10 to 22 and then the letters OF, AL, ES and TE, representing the name of the vein. For example: 10-Pb-OF.

For the probable blocks, we have considered adding the letters Pb after a number going from 50 to 52 and then the letters OF, AL, ES and TE, representing the name of the vein. For example: 50-Pb-OF.

Table No. 1 - SUMMARY OF THE MINERAL RESERVES BY VEIN

OFIR VEIN

Mineral	Thickness (m)	Tonnage MT	Concentration of Au Oz/TC
PROVEN PROBABLE	0,75 0,75	16 668 7 777	0,37 0,45
AVERAGE	0,75		0,40
TOTAL		24 445	

ALABE VEIN

Mineral	Thickness (m)	Tonnage MT	Concentration of Au Oz/TC
PROVEN PROBABLE	0,60 0,60	4 241 1 457	0,50 0,45
AVERAGE	0,60		0,49
TOTAL		5 698	

ESPERANZA VEIN

Mineral	Thickness (m)	Tonnage MT	Concentration of Au Oz/TC
PROVEN PROBABLE	0,55 0,55	1 795 1 795	0,26 0,26
AVERAGE	0,55		0,26
TOTAL		3 590	

TERESA VEIN

Mineral	Thickness (m)	Tonnage MT	Concentration of Au Oz/TC
PROVEN PROBABLE	0,70 0,70	6 812 3 610	0,43 0,47
AVERAGE	0,70		0,44
TOTAL		10 422	

GENERAL SUMMARY OF THE MINERAL RESERVES

TOTAL RESERVES BY VEIN	TONNAGE MT	Concentration Au Oz/TC
OFIR ALABE ESPERANZA TERESA	24 445 5 698 3 590 10 422	0,40 0,49 0,26 0,44
TOTAL	44 155	0,411 average
	44 155	14,089 Gr/MT
Exploitable Resources	20,004 Ounces of gold	NOTE: 40-50% diluted

11.0 CONCLUSION AND RECOMMENDATIONS

1. The Minera Ofir S.A. and its mining concessions Rey Salomon 1, Rey 2 and Rey 3 is an epigenetic mineral deposit of hydrothermal origin, of mesothermal to epithermal facies, located in granodiorite.

2. The main veins are controlled by normal longitudinal faults at the roof and at the floor.

3. The general mineralization of the mineralized structures consists of a filling of hypogenic mineral, mainly transparent white quartz, pyrite, gold and, in terms of secondary fillings, limonite, hematite, barite and calcite.

4. The hydrothermal alteration present in the host rock of the veins consists of silicification, argillization, seritization, propylitization.

5. The measured and indicated mineral reserves have been estimated to 44 155 MT, with an average concentration of 0,411 Oz Au/TC. Total exploitable resources in the four main veins are 20,004 ounces of gold.

6. The ensemble of hydrothermal alteration presents a defined zone of alterations and is tied to a system of mineral structures SE-NW, NE-SE that correspond to the structural systems of tension, compression and other systems of shear.

7. Based on the results initially obtained, we recommend the realization of a geological and mineralization reconnaissance program. At that moment, we could only map and evaluate 300 hectares, in order to establish a relation between the structures recognized up to now and identify new mineralized structures.

8. The evaluation of reserves determines its profitability even more so now that the gold prices continue to be the rise, which stresses the importance to start the mining work by digging and doing other work in preparation of a rational exploitation and according to the needs of the moment.

9. The control of the quality of the mineral will be indispensible, in order to ameliorate the concentration at the beginning.

10. It will be necessary to study thin and clean sections of rocks and minerals in order to identify the origin of the mineralization and the paragenesis of the mineral deposit.

Within the program, we recommend geophysical studies of magnetometry and Induced Polarization in order to determine the anomalous concentrations of mineralization in depth.

The geochemical analysis carried out generated slightly anomalous results but it is necessary to do a geochemical study of copper with an adequate mesh before making any final decisions regarding copper.

Atico, December 2, 2007