

PANORO MINERALS LTD.

**SURIGAO PROPERTY GROUP
NORTHEASTERN MINDANAO
GEOLOGY AND EXPLORATION POTENTIAL**

By

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1. SUMMARY

The Surigao group of properties, known as Northern Agusan, Lake Mainit, Agata, Tapian Main, Tapian San Francisco and Mat-I, cover 23,974 hectares in northeastern Mindanao in the southern Philippines and are located between the cities of Butuan in the south and Surigao in the north. All are accessible by boat or road although within the properties themselves access is only on foot. The properties lie within a tropical climatic region with no pronounced dry season although the wettest months are between June and November, the northern monsoon season. With the exception of the Lake Mainit property, all occur within an uplifted belt known as the Western Highlands that borders the Mindanao Sea. The Western Highlands are quite rugged and rise from sea level to elevations of about 600 metres above sea level. All are covered with second growth forest, coconut and banana palms and cogon grass. The Lake Mainit property lies within lowlands occupied by the Tubay River and Lake Mainit within dominantly agricultural lands.

Philippine mining law as it relates to exploration and development has been recently updated under the Philippine Mining Act of 1995 and which allows 100% foreign ownership of an exploration and mining project although the constitutionality of this has been challenged in the Philippine Supreme Court. The Court has yet to release judgement.

Income earned from mining operations is able to be fully repatriated after payment of income tax and excise tax. An income tax holiday applies to most mining projects until development capital has been recovered. Excise tax, a tax based on market value of gross metal output, is 2%.

The geology of the region is typical of the Philippine archipelago in that oldest rocks exposed consist of metavolcanics and metasediments metamorphosed to greenschist facies of regional metamorphism. These rocks are probably of Cretaceous age and are overlain by ophiolitic rocks that were emplaced on to the "basement" during Cretaceous to Eocene times. These are overlain by limestone and epiclastic sedimentary rocks of probably Miocene age, that, in turn, by Pliocene volcanic and related sedimentary rocks. Youngest rocks are reefal limestone and Quaternary volcanic units. Intermediate to felsic intrusive rocks of Pliocene age and which are probably comagmatic with volcanic rocks of similar age occur throughout the region. Most mineral deposits of the region are spatially, and probably genetically, associated with this intrusive suite.

The dominant structures of the region are related to the Philippine Fault system, a set of subparallel transtensional, north northwesterly-striking faults that are expressed in the regional physiography. Second order structures related to the Philippine Fault system have been important controls on the emplacement of intermediate to felsic plutons and the localisation of ore-forming hydrothermal systems. Within the Surigao region these second order structures usually strike to the northeast. Important deposits that are controlled by these structures include the newly-discovered porphyry copper-gold deposit of Boyongan, the epithermal precious metal deposits of the Placer mine and the Motherload gold deposit (now known as the Mabuhay deposit).

The Agata property is covered by an approved Mineral Production Sharing Agreement and comprises

4,955 hectares located to the south of Lake Mainit, on the west side of the Tubay River valley and extending across the Western Highlands. The property consists of 98 claims held by Minimax Exploration Corporation from which Mindoro Resources Ltd. ("MRL") may earn a 75% interest through funding and carrying out exploration. The Agata area was included in regional studies by Teves et al. (1951), Madrona (1979) and the United Nations Development Project of 1984. It was later examined by La Playa Mining Corporation who evaluated the area for its lateritic nickel and cobalt potential. In the period 1979 to the mid 1980's the Agata area became the focus of artisanal miners who worked auriferous saprolite developed over monzodioritic intrusions. Several shafts were sunk to access gold mineralization beneath saprolite but, because of the difficulty of mining unoxidised rock without the use of explosives, only a few local people are currently employed, mainly at Assmicor and American Tunnel. Significant mineral deposits nearby include the Asiga copper-gold porphyry deposit, a few kilometres to the east of Agata and the Maraat and Old Loepanto gold deposits

MRL began exploration of the Agata area in 1997 and concentrated its efforts on areas of former artisanal mining activities. After grid establishment over the Limestone, Assmicor and American Tunnel areas, soil geochemistry, geological mapping and magnetometer surveying were undertaken. Zones of anomalous gold and copper in soils, extending over an area of at least 1,000 x 800 metres were outlined to the west of Assmicor. Subsequently, eleven diamond drill holes were completed in the Assmicor and Limestone target areas where anomalous gold in soils was recognised. This drilling was aimed mainly at defining gold mineralization associated with the monzodiorite - ultramafic contact, the site of current underground mining activities. Other targets were stratabound gold mineralization within a silty limestone unit and, as a step-out hole to the east, possible intrusion hosted mineralization.

The Tapiam Main property is located to the north of the Agata property and covers 1,296 hectares that is underlain by similar geology to that at Agata. Early work at Tapiam Main was a mining operation located in the southwestern part of the property where Tapiam Surigao Gold Mines Incorporated worked an underground 100 tonne per day operation on a auriferous quartz vein within porphyritic andesite. This operation began in 1939 but ended in 1941 as a result of Japanese occupation. In the 1970's Marcopper Mining Corporation carried out exploration for a porphyry copper deposit in the Tapiam Main property area and reopened the Tapiam Surigao Gold Mines workings as well as carrying out geological mapping and geochemical surveying. None of the data collected during this work is available today.

In 1997 MRL acquired the property and carried out regional geochemical surveying and reconnaissance geological mapping. The results of this work highlighted the area of the old gold workings which were outlined by strong copper-gold anomalies. Subsequent prospecting and trenching outlined several areas in which highly anomalous gold (up to about 26 g/t gold) was determined in rock chip samples, both in andesite and silicified limestone.

Stratigraphically, the lowermost exposed unit of the Tapiam Main property is greenschist overlain by

an ophiolitic sheet comprising mainly serpentinised peridotite although abundant diabase float suggests that dykes of this rock type may be associated with the ophiolite. Immediately overlying the ultramafic unit is conglomerate with serpentinite cobbles and sandstone with a large mafic and ultramafic component. This immature epiclastic sequence is overlain by massive to well bedded limestone. Andesitic volcanic and volcanoclastic rocks overlie the limestone and a subvolcanic plug occupies the central part of the property. Andesite dykes also intrude the carbonate unit. Internal thrust faults within the ophiolite unit are recognised so that lowermost sedimentary rocks (conglomerate and immature sandstone) resting on the top of the ophiolite are in thrust contact with overlying ultramafic rocks.

Tapian San Francisco occurs to the north of Tapian Main and forms part of the same Mineral Production Sharing Agreement application as Tapian Main. Tapian San Francisco comprises 14 claims totalling an area of 1,134 hectares.

The Tapian San Francisco property was covered by regional surveys by a number of early workers including the United Nations (UNDP, 1987). After WWII a number of small operations were worked at Gold Hill and Limon but no records of the results of these ventures appear to exist. During the period 1973 to 1975 Lepanto Consolidated Mining Company drilled the Limon prospect area but results are also unknown. Probably about this time about 90 tonnes of direct shipping copper ore was mined at Limon and shipped to Japan.

MRL began exploration of the Tapian San Francisco property in 1997 and carried out soil and rock chip sampling and mapping over the southern part of the property, that area in which the Gold Hill and Limon prospects occur. In addition localised stream sediment sampling was undertaken at the Riverside prospect to the north of Gold Hill.

The geology of the Tapian San Francisco property is typical of the region. Lithologies consist of an ophiolitic unit that is overlain by limestone and on which lies basaltic andesite with interbedded lapilli tuff and epiclastic sedimentary strata. The northern part of the property is underlain by a porphyritic andesite intrusive body. Northeasterly - striking faults cut the southeastern part of the property: these structures form part of a regional northeasterly-striking lineament that extends through the Boyongan and Placer deposits to the northeast. North northwesterly-striking faults are also inferred to occur in the Limon and Gold Hill areas.

Hydrothermal alteration of the rocks of the southern part of the property - the Limon and Gold Hill areas - is pervasive and consists of silicification at Gold Hill and a large zone (at least 700 metres x 300 metres) of intense phyllic alteration at Limon. This alteration assemblage adjoins a well developed zone of calcsilicate alteration to the west with which it is probably in fault contact with phyllic altered rocks along Cantikoy Creek. Potassic alteration has also been recognised in this area, characterised by secondary biotite. Immediately to the south of Tapian San Francisco Spinnifex Minerals Ltd. drilled tested Canaga, a small copper-gold porphyry deposit.

No work has yet been carried out on the Lake Mainit, Northern Agusan and Mat-I properties having been only recently acquired by MRL. The Mat-I property was recently mined by Filipino "high graders" who

extracted gold from saprolite. The geology of Mat-I and Northern Agusan is typical of that of the Western Highlands. The Lake Mainit property is probably underlain by Quaternary sediments that overlie downfaulted Lower to Upper Tertiary ophiolitic, carbonate and volcanic lithologies.

Of the above properties, the Agata and Tapian San Francisco offer excellent potential for the discovery of copper-gold porphyry deposits and associated high level epithermal precious metal mineralization. Of these two properties, Tapian San Francisco has the best potential for the discovery of a near-surface porphyry copper-gold porphyry deposit because of the presence of a large phyllic alteration zone overlain by highly anomalous copper and gold in soils, the recognition of potassic alteration and the presence of large throughgoing northeasterly structures that control the locations of the Boyongan copper-gold porphyry deposit and the Placer gold deposit to the northeast of Tapian San Francisco. In addition, potential exists within the Riverside project area for carbonate hosted precious metal mineralization. Previous exploration at Agata has shown the presence of significant features for both copper-gold porphyry deposits and near-surface epithermal mineralization. Tapian Main requires further exploration to define the geology and its mineral potential and only a small area, that around the old gold workings, has been mapped and prospected to date. The Northern Agusan, Lake Mainit and Mat-I properties require initial exploration based on stream sediment geochemistry to define areas for further exploration.

Accordingly a regional exploration programme is proposed over those properties that have yet to be explored. A programme of detailed alteration mapping and geophysical surveying is recommended at Agata and Tapian San Francisco. Follow-up programmes at Tapian San Francisco and Agata are recommended based on diamond drilling but dependent on the results of Phase 1 exploration. Exploration at Tapian Main should initially be at a property wide scale and should comprise stream sediment sampling and mapping with emphasis on defining zones of hydrothermal alteration.

Total costs for first phase exploration are expected to be about P13,707,000 (about US\$250,000) while follow-up diamond drilling will cost approximately P41,745,000 (about US\$760,000).

2. INTRODUCTION AND TERMS OF REFERENCE

2.1 General Statement

This report is prepared at the request Mr. H. Wöber, President and Chief Executive Officer of Panoro Minerals Ltd. (“Panoro”) who, by means of a letter of engagement dated July 16, 2003, contracted the writer to provide an evaluation of the Surigao group of properties held by Mindoro Resources Ltd. (“Mindoro”) and which are located in northern Mindanao, Philippines (Figure 1).

The purpose of this report is to provide qualification as to the merits of the Surigao properties for the purposes of exploration financing and to make recommendations with respect to exploration programmes and expenditures on these properties.

Information on which this report is based is derived from a field visit made by the writer to the Surigao properties between August 4 and August 11, 2003, from reports and maps published by the Philippine Bureau of Mines, from reports of exploration carried out by Mindoro and from publications and data held in the library of Bailey Geological Consultants (Canada) Ltd. All such information used in this report is referenced within the report and listed in Section 18.

During the field visit made to northern Mindanao in August, 2003, properties described and discussed in this report were examined by the writer accompanied by Mr. Wöber of Panoro, Mr. J.A. Climie, President and Chief Executive Officer of Mindoro, and by MRL geologists who had worked on the respective properties.

Although mineral occurrences are common throughout the Surigao group of properties, no ore deposits or economic concentrations of minerals have yet been defined within the properties at this time.

2.2 Location Access and Physiography

The Surigao group of properties are located in the northeastern part of the island of Mindanao, the southmost island of the Philippine archipelago (Figure 1). The region can be accessed directly from Manila by plane to the city of Butuan, by plane to Surigao from Cebu or by an inter-island ferry from Manila. Within the Surigao region there are numerous well maintained roads and all of the properties are accessible from the Trans-Philippine Highway that runs between Surigao and Butuan through northeastern Mindanao. Within the properties access is by foot only.

The topography of the region is dominated by two steep ranges, referred to here as the Western Highlands and the Eastern Highlands, separated by a broad northerly-trending valley that is occupied by Lake Mainit and the Tubay River. In most places primary forest has been cleared but thick secondary growth hinders movement away from cut trails. Cogon grass is common in some areas while banana and coconut stands are ubiquitous. Lowland areas are mainly utilised for agricultural purposes.

2.3 Environmental and Political Factors

The Philippines has modern mining and exploration statutes that are not too dissimilar to legislation in developed nations. Formerly foreign ownership of exploration and mining projects was limited to 40% while 60% had to be held by Filipinos. In 1995 this legislation was changed to allow 100% foreign ownership but which has been challenged by local special interest groups in the Philippine Supreme Court. Judgement on this case has yet to be made but it is expected that the decision will support the current legislation. "Philippine Minerals Policies, Rules and Regulation", a paper authored by the Department of Environment and Natural Resources, Mines and Geosciences Bureau (2002), discusses more fully aspects of mining legislation and is included as Appendix A.

The Philippines has, perhaps, among the most comprehensive requirements of any developing nation with respect to environmental and social issues regarding mining. In addition, it is highly recommended that before, or at the very early stages of, exploration social profiling be undertaken by dialogue with local people and stakeholders in the areas that exploration is to be embarked upon. Mindoro, through its wholly owned Philippine subsidiary MRL, is extremely pro-active in this respect and produces a booklet that outlines common issues of concern to local people and which is distributed along with holding village meetings and continual discourse with locals. MRL has an enviable record in this field and carries its corporate social responsibility far beyond what is legislatively required. For example, MRL has built a day care centre and a council office in one barangay (i.e. village) within the Agata project area and makes every effort to hire local labour for each project rather than importing workers from elsewhere.

Environmental issues are of foremost concern in the Philippines and early mining projects deserve the criticism that has been leveled. However, in general, environmental matters are similar to those of western countries and require that protection of the environment be paramount at every stage of exploration and mining



Figure 1. Philippine archipelago and location of the northeastern Mindanao region.

3. MINERAL TENEMENTS

The Surigao group of properties comprise six groups of mineral tenements summarised in Table 1 and shown in Figure 2.

Table 1. Surigao Properties, Northeastern Mindanao

Name of Property	Location	Area (hectares)
Northern Agusan	Jabonga, Santiago, Tubay, Cabadbaran; Agusan del Norte Province	7,764
Lake Mainit	Jabonga, Kitcharao, Agusan del Norte Province; Mainit, Alegria, Surigao del Norte Province.	8,095
Agata	Jabonga, Santiago, Tubay, Agusan del Norte Province	4,955
Tapian Main	Bgy. Taipan and Tagbuyawan, Mainit, Surigao del Norte Province	1,296
Tapian San Francisco	Mainit, Malimono, Surigao del Norte Province	1,134
Mat-I	Bgy. Mat-I, Surigao City	730
	TOTAL	23,974

Of these tenements, the Agata property is covered by an approved Mineral Production Sharing Agreement (“MPSA”), the Tapian Main, Tapian San Francisco and Mat-I properties by MPSA’s in the final stages of application, the North Agusan property by a newly applied for MPSA and the Lake Mainit property by an application for an Exploration Permit.

The writer has not examined the applications for the above mineral tenements but, as a result of discussions with MRL personnel, is not aware of any reasons why these applications should not be granted. The tenements of the individual properties are described in the sections on each property.



Figure 2. Surigao region: Mindoro Resources Ltd. mineral tenements.

4. REGIONAL GEOLOGY AND MINERALIZATION

4.1 Geological Setting

The Philippine archipelago comprises a number of tectonostratigraphic sequences that indicate an island arc-related history since the Cretaceous and, with the exception of Palawan whose evolution relates to that of southern China, has been free of continentally influenced sedimentation since that time. Since Cretaceous times the Philippines has developed as a result of the interaction of the Philippine Sea plate with the Pacific plate to the east above a westerly-dipping subduction zone. However, in Pliocene times the polarity of subduction changed to easterly-dipping along the Philippine trench, located to the east of the Philippine arc. The Philippine trench in the south is connected to the East Luzon trench in the north by a transform fault (Figure 3). That this subduction zone is very young is attested by the lack of volcanism related to this subduction event and the fact that the benioff zone associated with the Philippine trench only extends to a depth of about 100 km (Cardwell et al., 1980)

The island of Mindanao comprises several disparate island arc terranes that became amalgamated probably by the late Cretaceous - early Tertiary. In eastern Mindanao this amalgamation is marked in part by obducted ophiolitic sheets emplaced on an older volcanosedimentary arc terrane during late Cretaceous to possibly Eocene times. These strata are now overlain by a succession of carbonate and epiclastic strata, younger volcanic and volcanoclastic units, biohermal limestone and Quaternary volcanic products.

Extending through eastern Mindanao is a major north northwesterly-trending transtensional sinistral fault system, the Philippine Fault system that extends the length of the Philippine archipelago. This fault system also has a vertical sense of movement with several hundreds of metres of displacement on individual faults, resulting in north northwesterly-trending horst and graben structures that are particularly pronounced in northeastern Mindanao. Here an uplifted block along the west coast, the Western Highlands, is bounded to the east by a graben, partially occupied by Lake Mainit (Figure 5), and which to the east is bordered by the uplifted Eastern Highland block. This zone of crustal extension is particularly well endowed with high level intermediate to felsic plutons and related copper-gold porphyry and precious metal epithermal deposits.

Mineral deposits within eastern Mindanao are dominated by porphyry copper-gold and epithermal precious metal deposits and which occur in three groups (Figure 4), a southern group that includes the porphyry deposits of Kingking, Hilo and Amacan and the Diwalwal epithermal gold deposit, a central group that includes Rosario, and a northern group of mainly gold deposits (e.g. Placer, Motherlode and Siana) but which also contains the recently discovered Boyongan copper-gold porphyry deposit. As in the northern Philippines, in eastern Mindanao there is a close spatial, and probably

genetic, association between epithermal precious metal deposits and porphyry deposits.

Other mineral deposits in eastern Mindanao are related to ultramafic rocks of the ophiolite suite and comprise chromite lenses within harzburgite and lateritic nickel deposits that have developed over weathered ophiolitic sheets. Most of these deposits are located in the northern part of eastern Mindanao (Figure 4).

In northeastern Mindanao hydrothermal ore deposits - porphyry and epithermal deposits - exhibit strong structural control. First order structures are those of the Philippine Fault system but, whereas these play a role in the localisation of ore deposits, it is the second order structures that have developed as a result of movement along the Philippine Fault system that are the most important in terms of spatial control of ore deposition. In the Surigao region northeasterly-striking lineaments appear to have played a primary role in ore deposition and are well displayed on topographic maps of the region. These are shown in Figure 5 which also indicates the significant mineral occurrences of the region and their relationships to regional structures.

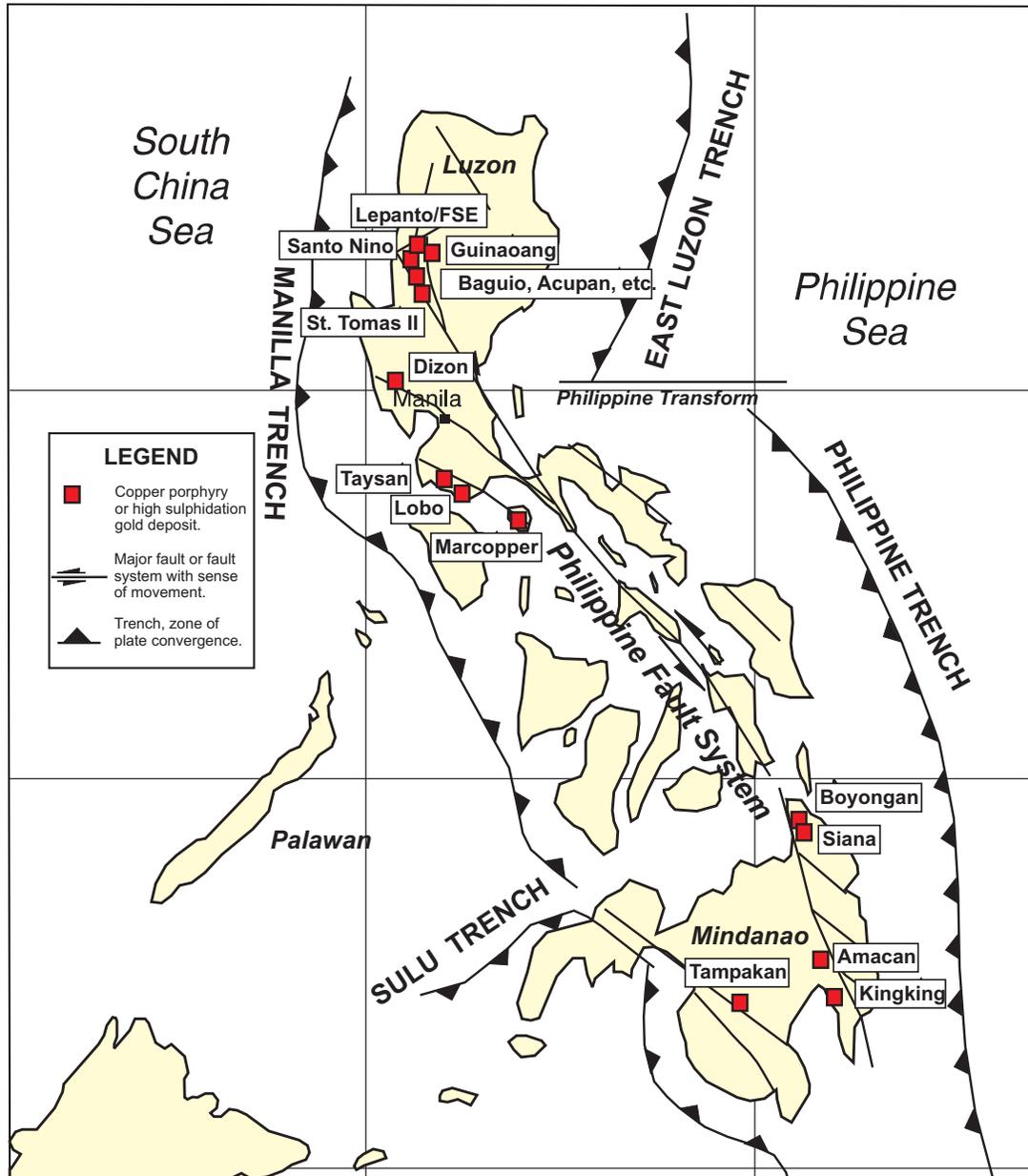


Figure 3. Major tectonic elements of the Philippine archipelago and significant copper porphyry and high sulphidation gold deposits.

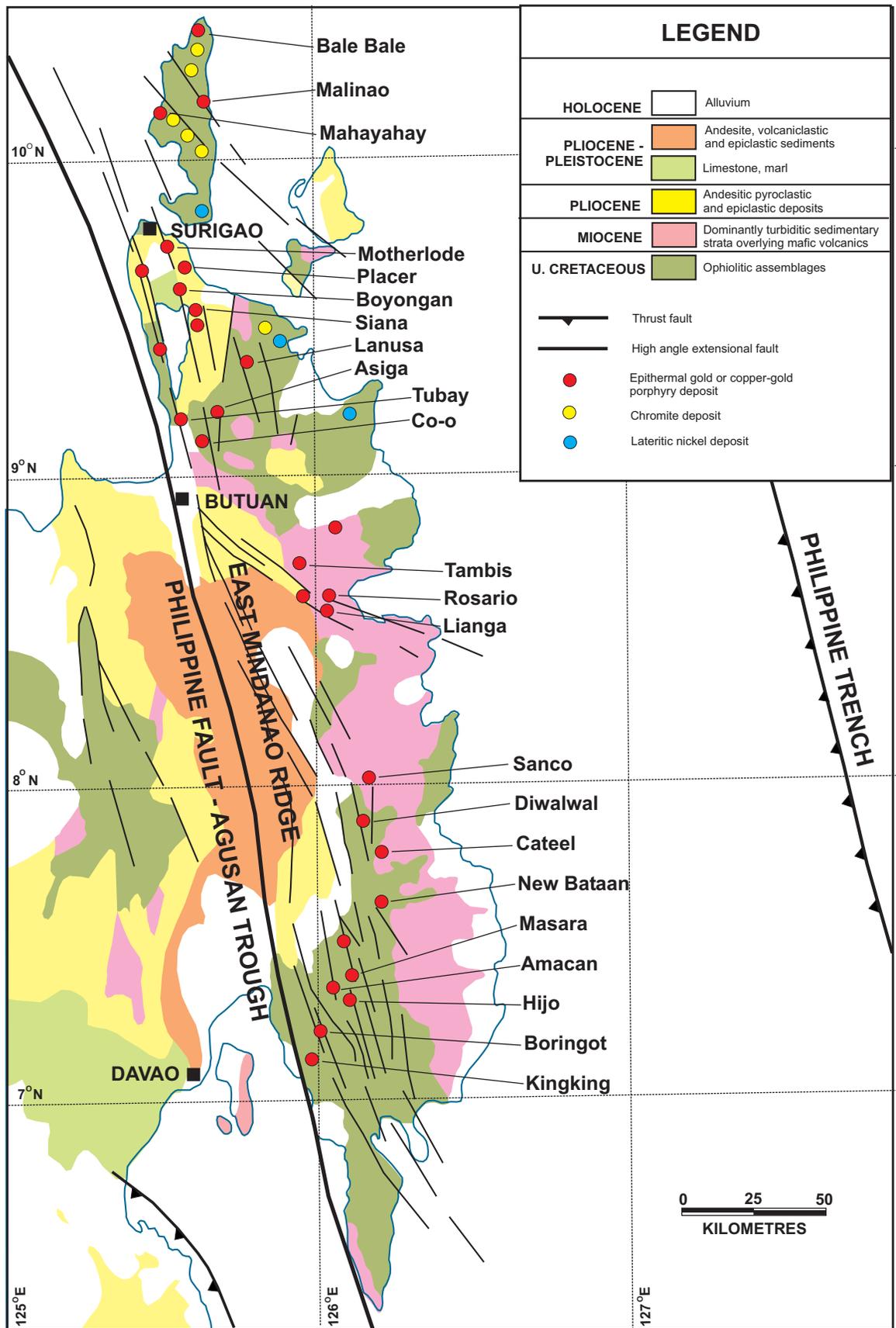


Figure 4. East Mindanao generalised geology, major structures and distribution of principal mineral deposits. (From Climie et al., 2000 (after Louca, 1995)).

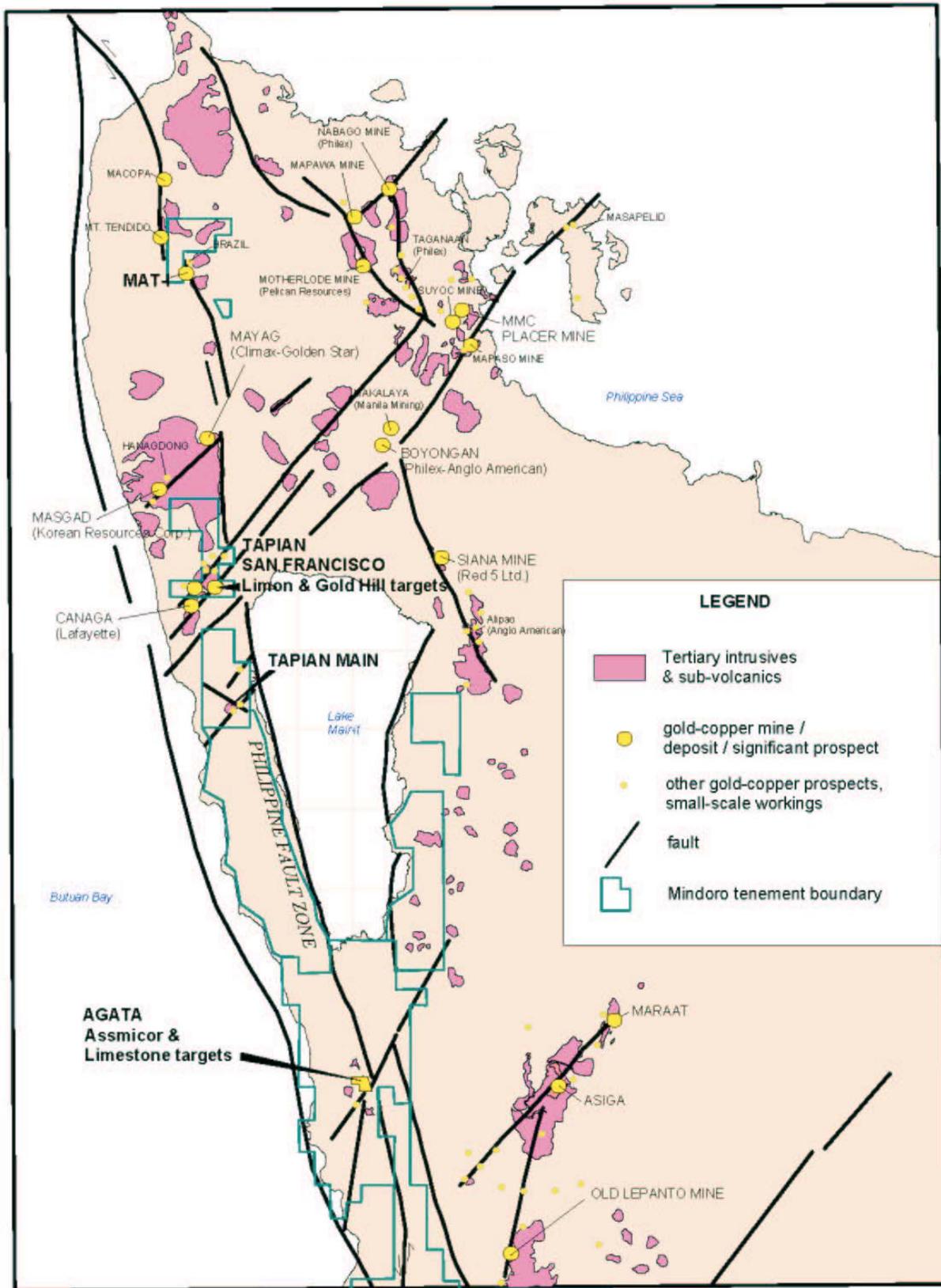


Figure 5. Surigao-Agusan mining district, northeastern Mindanao; geological setting, mineral deposits and prospects (from N. Ruelo, written communication, September 2003).

5. AGATA PROJECT

5.1 Location, Access and Physiography

The Agata property is within the northern part of Agusan de Norte province in northeastern Mindanao and is bounded by latitude 9°10'00"N to 9°21'00"N and longitude 125°29'30"E to 125°34'00"E. It is accessible from the village of Barangay La Paz, about one kilometre to the southeast by means of bancas (“pumpboats”) traversing the Tubay River. La Paz is accessible via a gravel road from the town of Santiago on the Pan-Philippine Highway.

The property covers moderately rugged terrain covered by secondary forest and cogon grass with interspersed banana and coconut palms except on the Tubay River floodplain in the eastern part of the property where rice and other crops are grown along with some cattle grazing.

Elevations range from about 30 metres above sea level at the Tubay River to about 350 metres above sea level to the west of the Tubay River.

The climate of the region is equatorial with no pronounced dry season although wettest months are between August and November, the northern monsoon season. However, the southern monsoon from about December to February, also somewhat influences the southern Philippine climate and the driest part of the year extends only from about March to June.

5.2 Mineral Tenements

The Agata property comprises 65 claims that cover an area of 4,955 hectares (Figure 6). These claims are held by Minimax Mineral Exploration Corporation (“Minimax”) and under an agreement with Minimax, MRL has the right to earn a 75% interest in the property by funding exploration to the amount of about US\$280,000 over a three year period. The writer has not examined this agreement or underlying royalty agreements with local stakeholders. Currently MRL has earned a 40% interest in the property and will have earned its 75% interest by expending an additional US\$203,000 over the next two years.

5.3 Exploration History

Earliest recorded work in the region is that of Teves et al. (1951) who, during regional geological reconnaissance of northern Agusan, also carried out regional mapping over the Agata property area. These workers described the rocks of Agata as comprising epiclastic and carbonate sediments ranging in age from early to mid Tertiary. In 1979 a team lead by Madrona (Madrona, 1979, referenced in UNDP, 1984) of the Surigao Mines regional office recognised the ophiolitic nature of the ultramafic rocks of the Agata area. This work was amplified on by a United Nations team (United Nations Development Project, 1984) who provided a stratigraphic column of the Agata area based on both UNDP

work to the south and Madrona's work (Madrona, op.cit.).

In the late 1970's La Playa Mining Corporation, financed by funds from Germany, evaluated the potential of lateritized ultramafic rocks at Agata for their nickel and cobalt potential and sunk several test pits for this purpose.

In 1978 to the mid-1980's, because of the recognition of gold in saprolite, "high-graders" swarmed to the Agata area, increasing the population by about 3,000 people. However, once the saprolite resource was exhausted, the miners left the area, leaving only a few local people to continue mainly underground mining operations at Assmicor and American Tunnel.

In 1987 Minimax placed claims over the project area and carried out initial work of areas of known mineralization and aerial photograph interpretation. In 1997 MRL, recognising the porphyry copper-gold and epithermal gold potential of the region, entered into a joint venture with Minimax and is the current operator of the project.

5.4 MRL Exploration

In 1997 MRL began an exploration programme over the area of the Agata property that had been subjected to artisanal mining activities - the Limestone, Assmicor and American Tunnel areas. A grid was established over these areas and soil sampling and geological mapping at scales of 1:1,000 and 1:2,000. In addition, samples were collected for petrographic analysis and rock chip and channel sampling carried out both on the surface and in underground workings. Results of soil sampling outlined a large area (1,000 meters x 800 metres) of anomalous copper (greater than 100 ppm) and gold (greater than 50 ppb) in soils in the Assmicor area. Underground sampling of workings of the Assmicor shaft demonstrated the presence of gold mineralization associated with quartz veins and zones of silicification within monzodiorite at or near the contact with ultramafic rocks.

In 1999 the Assmicor and American Tunnel grids were re-established and additional gridlines surveyed. The grid areas were then geologically mapped and additional soil sampling undertaken. A ground magnetic survey was then completed on the Assmicor grid area that showed several magnetic highs (greater than 40,250 nanoTeslas) that correspond more or less with the known distribution of ultramafic rocks. Magnetic susceptibility decreases to the west from the outcropping ultramafic unit reflecting, perhaps, an increasing depth of limestone cover over the serpentinised ultramafics.

Mindoro drilled eleven diamond holes in the Assmicor area to test (a) extensions of gold mineralization at the monzodiorite - ultramafic contact in the vicinity of the Assmicor shaft and (b) areas of anomalous gold in soils in the Limestone prospect area. The last hole drilled, hole 11, was collared to the east of the Assmicor area on the Tubay River flats. A summary of significant drilling results is given in Table 2. It should be noted that at this time Mindoro emphasised exploration for high level, or

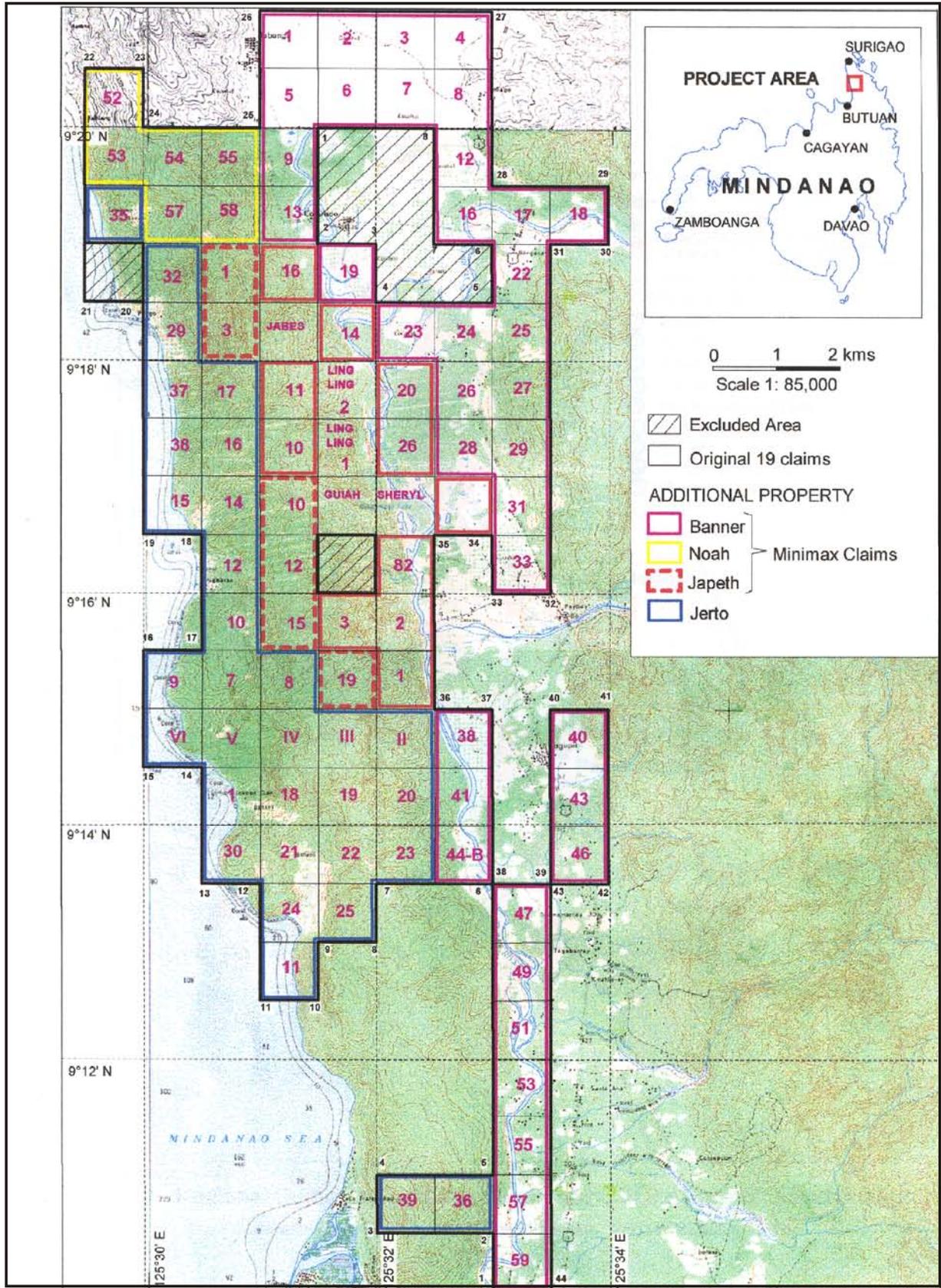


Figure 6. Agata property: mineral tenements

epithermal, gold deposits and, while recognising the exploration potential for porphyry copper-gold mineralization, this was not the main focus of exploration.

Table 2.
Significant Drilling Results, Agata Property

Drillhole No.	Lithology	Alteration	Sample Interval (m)	Gold (ppb)
99 - 01	saprolite	albite - limonite - sericite	0.00 - 7.80	635/7.8m - incl. 606/1.8m, 992/2.0m
99 - 02	saprolite	albite - limonite - chlorite - sericite	0.00 - 7.20	432/7.2m - incl. 992/2.0m
99 - 03	monzodiorite	albite - chlorite - carbonate - epidote - pyrite	33.0 0 - 33.30	1900/0.3m
99 - 03	limonitic intrusion	albite - sericite - chlorite - limonite	9.0 0 - 18.00	538/9.0m - incl. 920/3.0m, 475/3.0m
99 - 04	biotite quartz diorite	albite - chlorite - pyrite	11.20 - 12.00	12,397/0.8m
99 - 04	limonitic intrusion	albite - sericite - chlorite - limonite	12.00 - 18.85	273/6.85m - incl. 455/2.0m
99 - 04	quartz monzonite	quartz - chlorite - carbonate - pyrite	43.80 - 45.30	5,577/1.5m
99 - 05	limonitic intrusion	albite - sericite - chlorite - limonite	2.40 - 21.20	1,133/18.8m - incl. 2,385/2.2m, 2,055/2.0m
99 - 06	limonitic intrusion	albite - sericite - limonite	0.00 - 24.20	1,380/24.2m - incl. 1,330/2.0m, 1530/2.0m

Summary drill sections are shown in Figures 9 to 14.

5.5 General Geology

The Agata project area is underlain by an ophiolitic suite that was tectonically emplaced onto Mesozoic metavolcanic and metasedimentary rocks that form the “basement” to the overlying stratigraphy. These rocks have been metamorphosed to greenschist facies of regional metamorphism and are commonly chloritic. Ophiolitic rocks are probably of Cretaceous to Eocene in age and are overlain in part by Upper Eocene to Oligocene limestone and andesitic volcanoclastic rocks of Pliocene

age. Rocks of the eastern part of the claim group are poorly exposed in the low-lying Tubay River valley but, from the few outcrops available, are probably Late Tertiary and Quaternary calcareous and clastic sediments and by reefal limestone (Figure 7) overlain by recent lacustrine and fluvial sediments.

Intruding the ultramafic rocks are small intermediate to felsic plutons of alkalic affinity (syenite, monzonite, monzodiorite and diorite) and which, so far, have been identified only in the central part of the property in the vicinity of the Assmicor grid area (Figure 7).

The structures of the property are characteristic of those of a transtensional environment. The western side of the Tubay River valley is demarcated by a major sinistral fault that is part of the Philippine Fault system (Figure 3). The western side of this fault is uplifted while the eastern side has been downdropped to form a graben occupied by the Tubay River and, to the north, Lake Mainit. Subsidiary faults within the Agata property are also commonly north northwest-striking, parallel to the Philippine Fault. Mapping of the Assmicor grid area indicates a number of broad northeasterly- and northwesterly-striking folds that have developed in limestone and underlying rocks. At this stage of investigations it is unknown when folding occurred. At a regional level a major northeasterly-striking structure is interpreted to pass through the Assmicor grid area (Figure 8) and folding could be related to the development of this structure.

5.6 Alteration and Mineralization

Three areas of anomalous gold and copper geochemistry have been identified within the Agata property, each with past or current artisanal gold workings. From south to north these are the Limestone area, the Assmicor area and the American Tunnel prospect (Figure 8). In addition anomalous copper geochemistry in soils is recognised over dacitic tuff of the Tubay copper prospect in the southern part of Agata.

The Limestone prospect is underlain by monzonite and monzodiorite in the east and limestone and ultramafic rocks to the south and west. A number of shafts, of which the largest is the Lao shaft (Figure 8), were sunk during former artisanal mining activities in auriferous saprolite that had developed over intrusive rocks. Calcsilicate alteration characterised by the development of a carbonate - chlorite - tremolite - actinolite \pm epidote \pm garnet assemblage occurs around the margins of serpentinised ultramafic rocks and monzodiorite. This alteration assemblage is interpreted to have formed during monzodiorite intrusion by fluid exsolution during the emplacement of the pluton. A schistose chloritic unit that occurs within altered limestone may also have formed by hydrothermal alteration of a silty carbonate bed within the limestone.

Monzodioritic and dioritic rocks have been altered to a propylitic assemblage consisting of chlorite - albite - calcite, often with sericite and pyrite. The intensity of alteration varies from place to

place but a paucity of outcrop and lack of detailed alteration mapping disallows any conclusions to be made at this stage as to its distribution.

Altered limestone commonly contains very fine pyrite and associated gold but it is not yet clear whether this mineralization is related to small scale structures within the carbonate or is lithology-related

The Assmicor prospect area is underlain by monzodiorite over which a thick saprolitic layer has developed. Gold has been concentrated within the saprolite by supergene processes and has been extensively worked in the past by local miners. Average gold grade recovered is stated as being a few grams per tonne. Underground gold is being mined from the Assmicor shaft from which workings extend to a depth of about 40 metres below the shaft collar. Gold grade averages about 3-4 g/t but, in places, grade is significantly higher. Underground channel sampling by MRL has returned values of up to 26.83 g/t over 2.3 metres (Abralsaldo, 1999) related to zones of quartz veining and silicification within monzodiorite at or near the contact of the intrusion with serpentized ultramafic rocks. As to the south, monzodiorite at Assmicor is variably propylitically altered. Drilling to the east of Assmicor in the Tubay River valley intersected vuggy quartz - pyrite - magnetite alteration associated with a multiphase intrusion

The American Tunnels prospect is underlain by a diorite - monzodiorite stock which has intruded serpentized ultramafic rocks. Intrusive rocks are also propylitically altered to varying degrees. As at Assmicor, hypogene gold mineralization tends to be concentrated within quartz veins and stockworks within the intrusion near the contact with ultramafic rocks. Skarn mineralization has also been recognised at American Tunnel as well as in Duyangan Creek near American Tunnel.

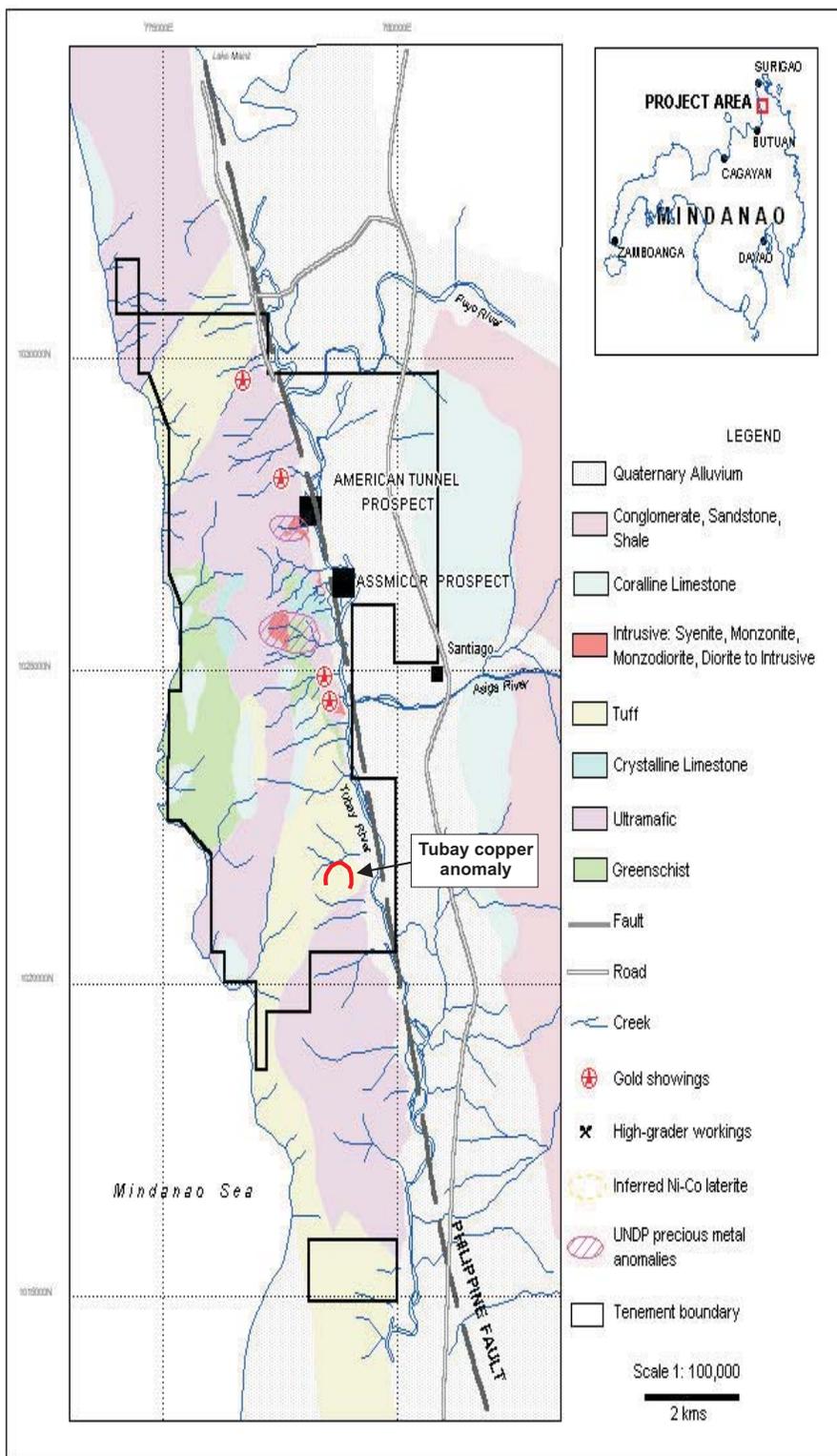


Figure 7. Agata property: generalised geology and mineral occurrences. (From Climie et al., 2000)

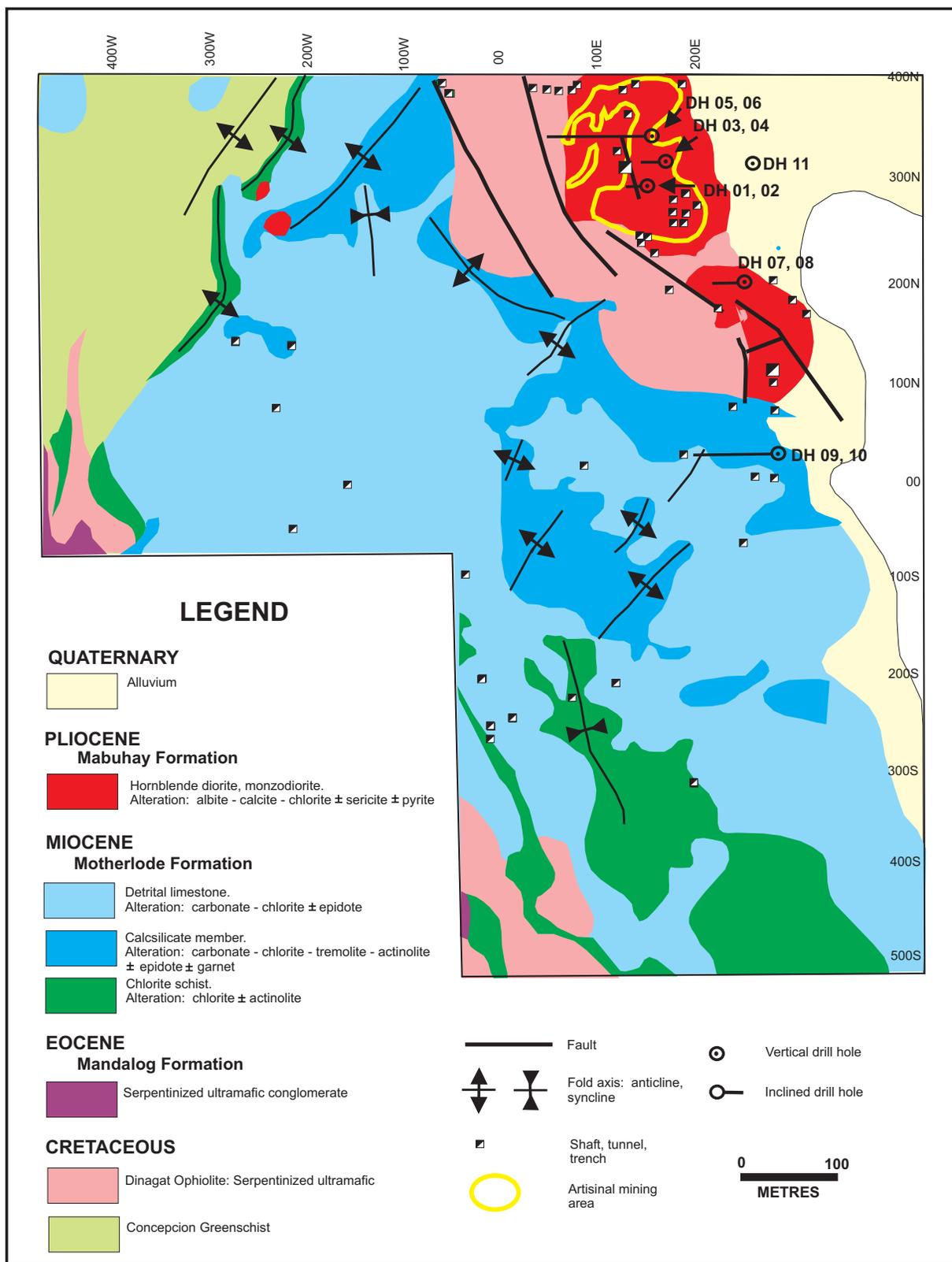


Figure 8. Geology and drill hole locations of the Assmicor grid area.

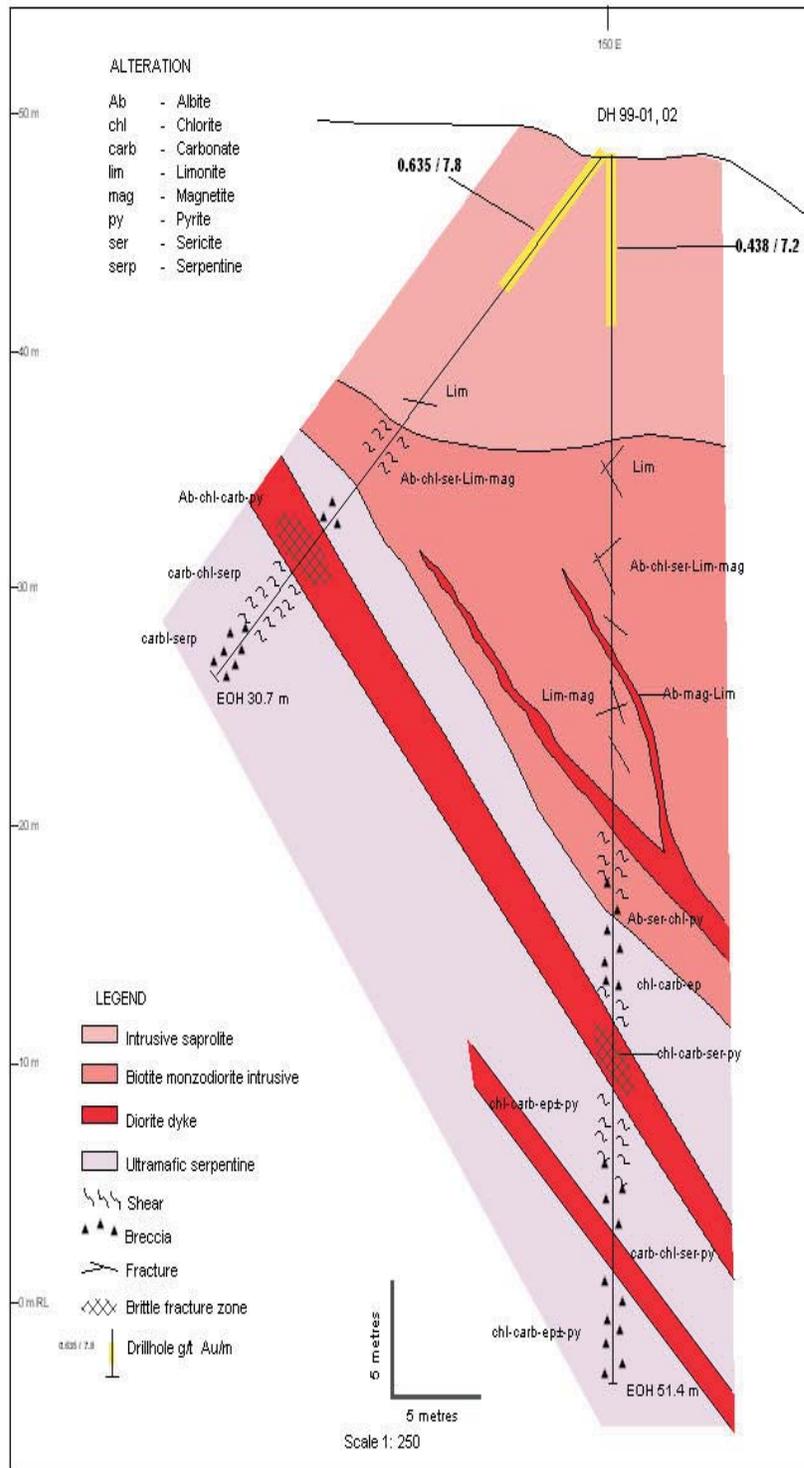


Figure 9. Drill section; DH-1, DH-2

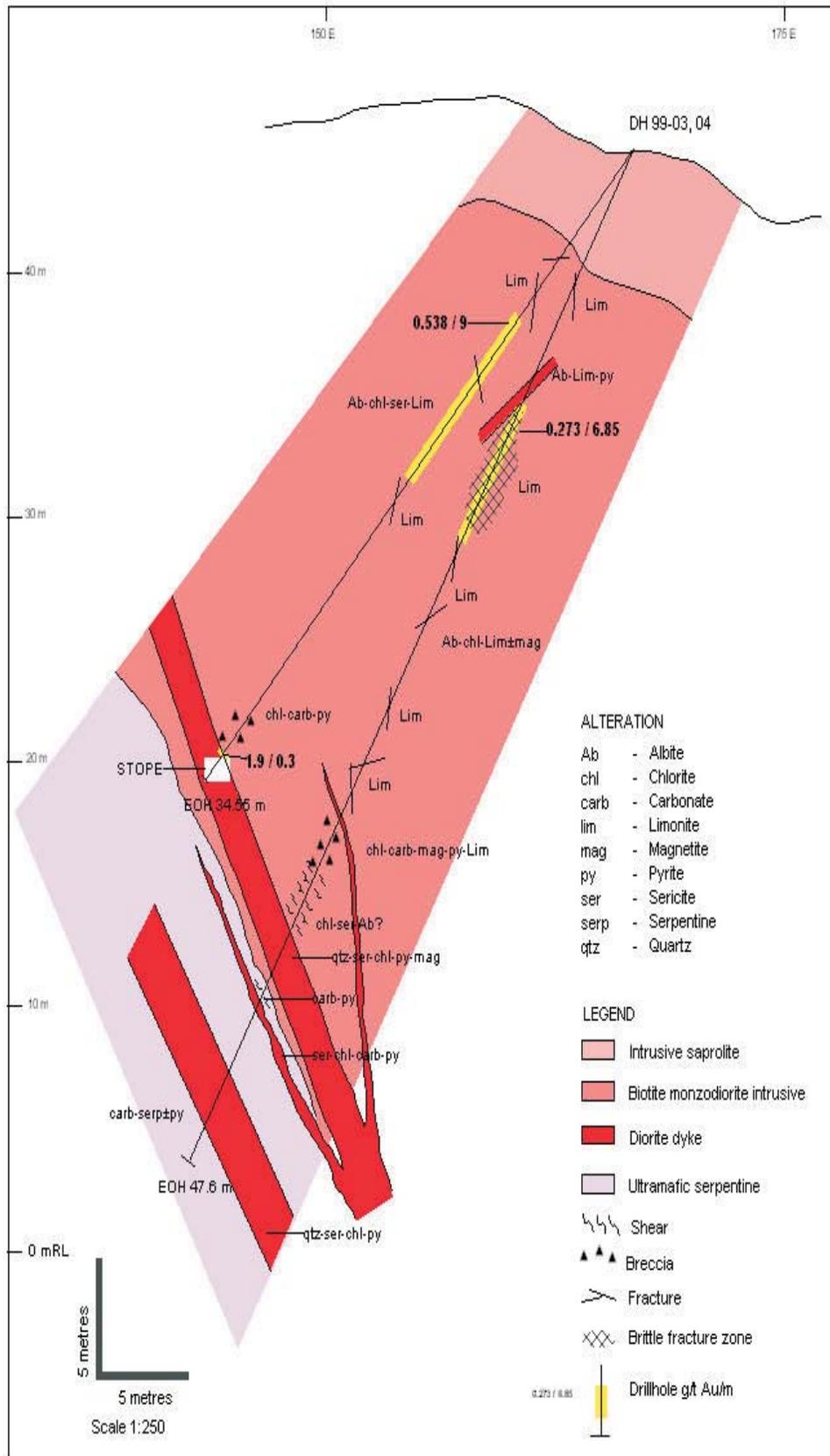


Figure 10. Drill section; DH-3, DH-4

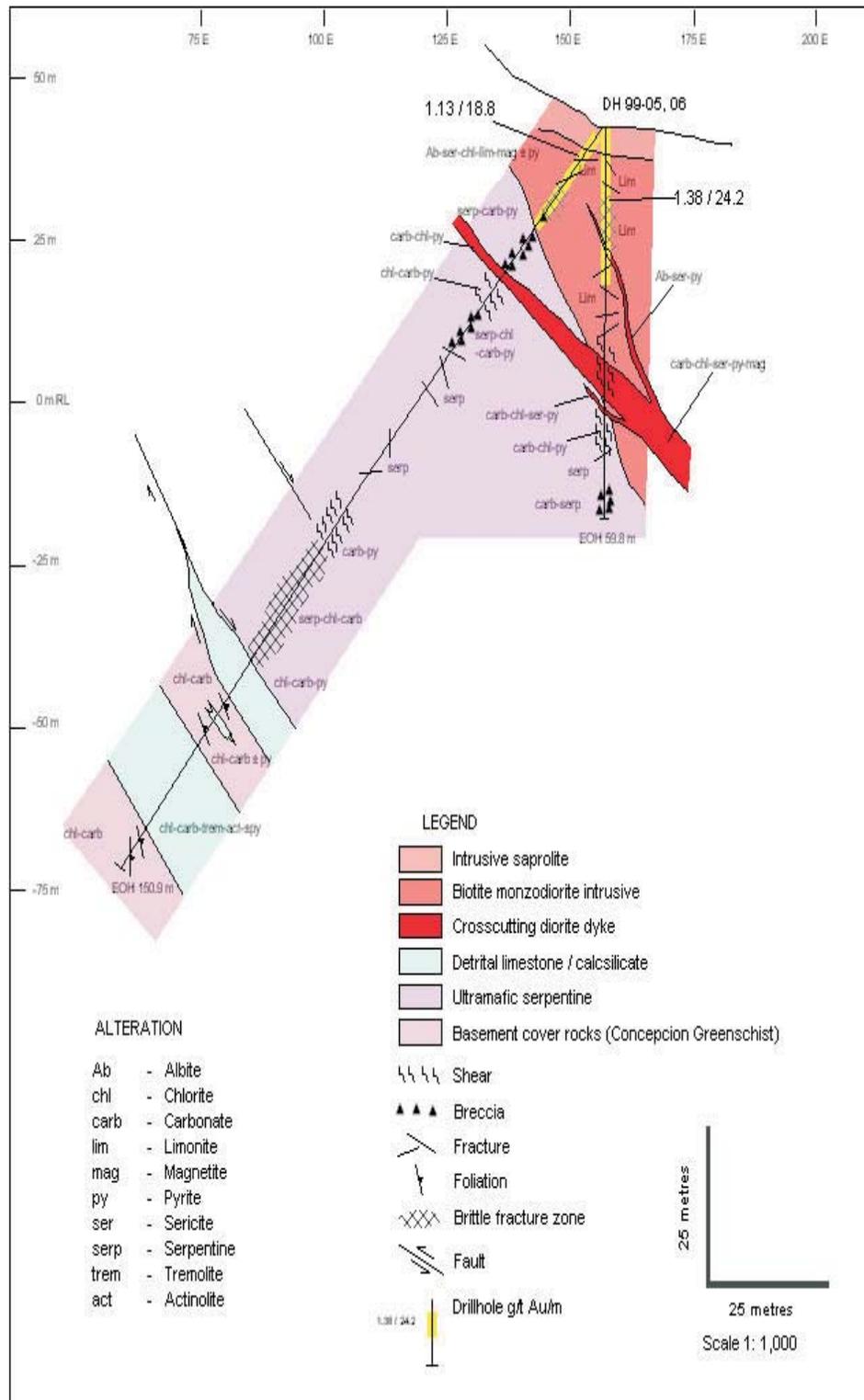


Figure 11. Drill section DH-5, DH-6.

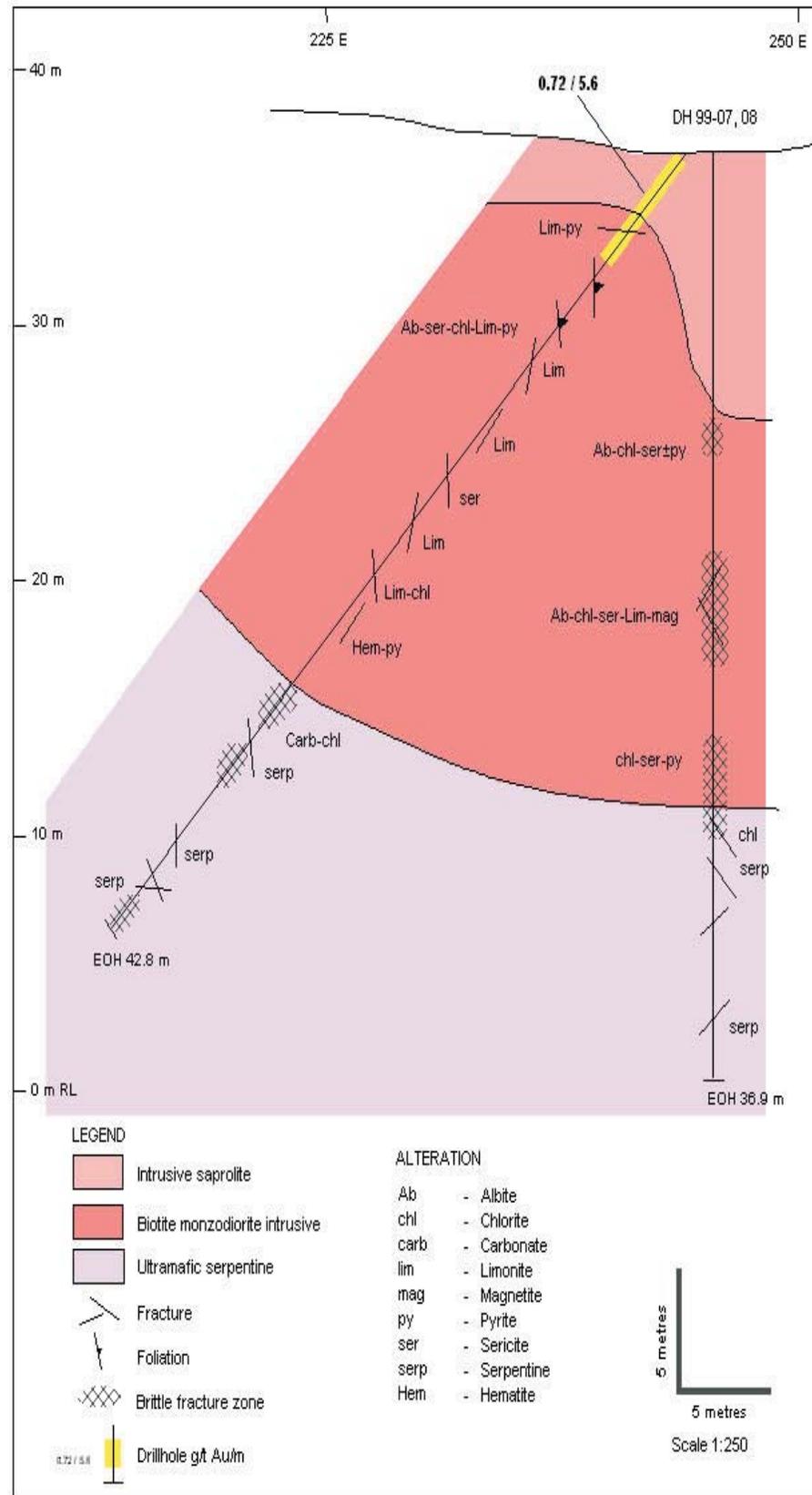


Figure 12. Drill section DH-7, DH-8.

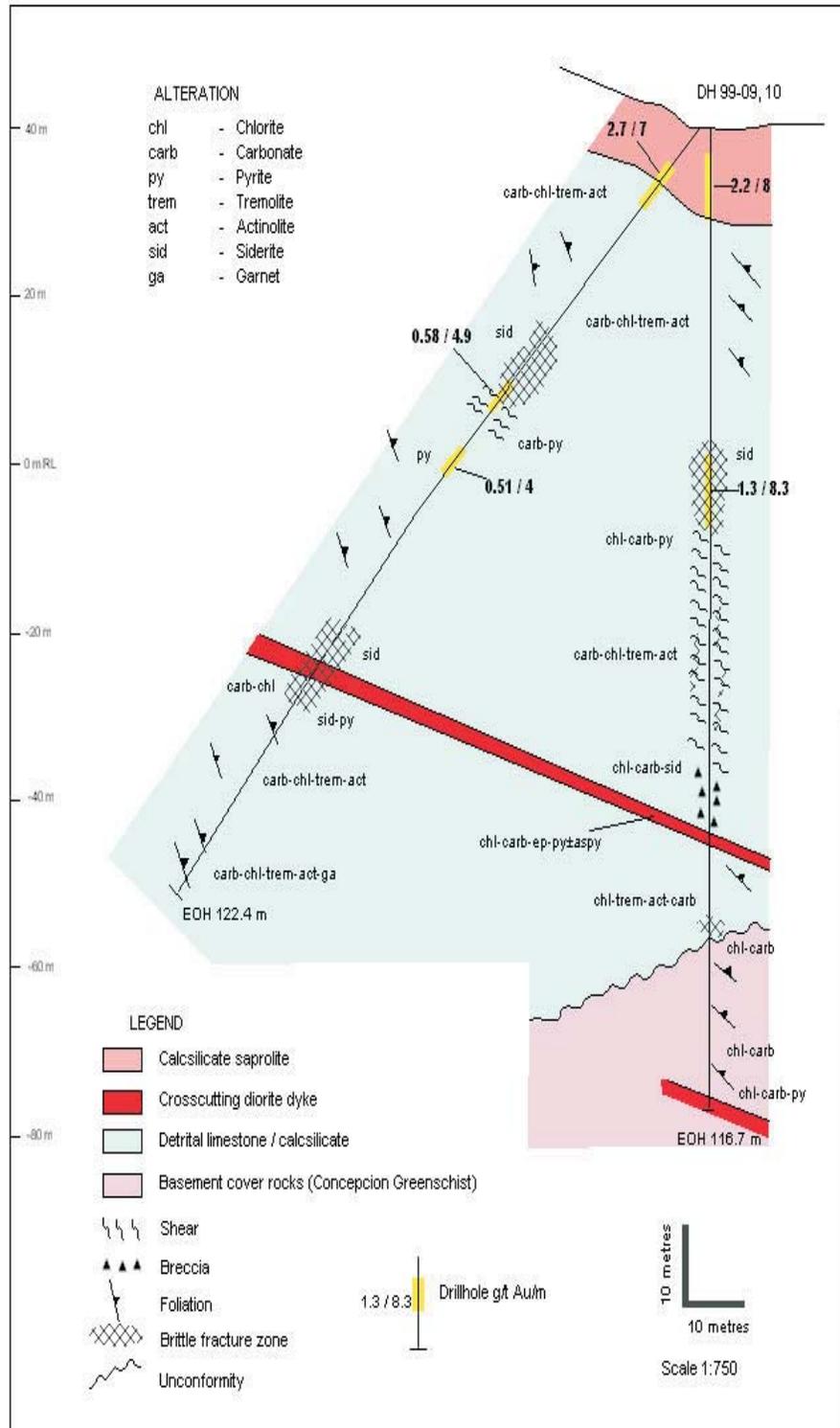


Figure 13. Drill section, DH-9, DH-10.

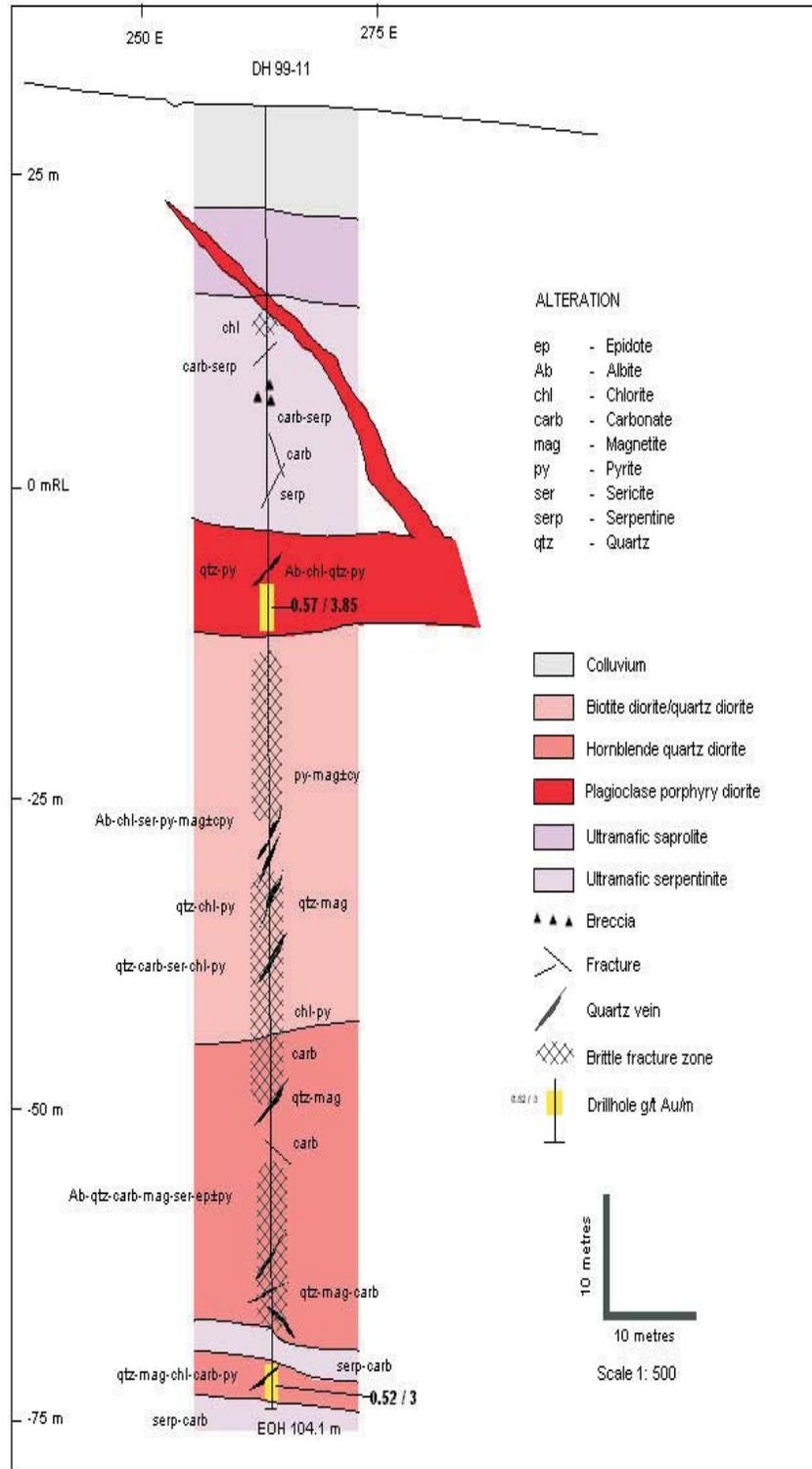


Figure 14. Drill section DH-11.

6. TAPIAN MAIN PROPERTY

6.1 Location, Access and Physiography

The Tapian Main property is within Surigao del Norte immediately to the west of Lake Mainit. (Figure 2). It can be reached by boat from the town of Mainit on the northern shore of Lake Mainit or by a secondary road that traverses the western shore of the lake from Mainit.

The property has a moderate to rugged topography although maximum relief is only about 400 metres. Vegetation cover is typical of the Western Highlands and consists of secondary forest cover, cogon grass and coconut and banana palms.

6.2 Mineral Tenements

The Tapian Main property comprises 16 claims that total 1,296 hectares (Figure 15). MRL has an agreement with Minimax that allows MRL to earn a 75% interest in the property under the same terms as outlined above at Agata (Section 6.2). Tapian Main is part of the same MPSA as Tapian San Francisco. At this stage MRL has a 10% equity in both properties and may earn an additional 65% by additional expenditure of about US\$370,000

6.3 Exploration History

Exploration of the Tapian Main property has been summarised by Salas (1999) as follows.

“The Tapian Gold Mines, located at the southeastern portion of the property claim blocks were operated by underground method prior to World War II by the Tapian Surigao Gold Mines Incorporated. A 100 tone per day cyanidation mill started operation in March 1939. The mine closed in 1941. Production records have not been found.

“During the early 1970's Marcopper Mining Corporation conducted extensive exploration activities in the search for porphyry copper deposits. The exploration involved re-opening of the Homer Tunnel. Extensive geological mapping and geochemical stream sediment and soil sampling were also carried out within adjacent areas of the old mines. Unfortunately none of the exploration data are available. There are reported recent high-grader workings within the old mines, however these were abandoned due to lack of water supply.

“The earliest regional investigations which contributed information on mineralization occurrences in the easternmost portion of the East Mindanao Ridge were by Santos-Ynigo (1944), Teves et al. (1951), Santos et al. (1962), Madrona (1970) and Fernandez (1979). The UNDP (1984 and 1987) and Louca (1996) emphasised in their reports the relationship of tectonics with the various mineralization occurrences in the Surigao district.”

6.4 MRL Exploration

Initially MRL undertook a stream sediment sampling programme and geological reconnaissance over the entire property. Strong copper and gold anomalies in stream sediments were recognised in the southern part of the property, the area in which old gold workings are located, known as the Mt. Tapian prospect area (Figure 17). This area was then gridded, geologically mapped and soil sampled at intervals of 25 metres on lines 50 metres and 100 metres apart. Results of this survey are shown in Figure 18.

6.5 General Geology

The geology of Tapian Main is similar to other areas in the Western Highlands and comprises a lowermost greenschist unit, exposed in the southwestern part of the property, on which ophiolitic sheets were thrust during Upper Mesozoic - Lower Tertiary times. Overlying the ophiolitic rocks is basaltic andesite and which is exposed mainly in the northern part of the property. Epiclastic sedimentary rocks of conglomerate with serpentinite clasts and mafic sandstone immediately overlies the ophiolitic rocks in the southern part of the property. Porphyritic andesite, interpreted as intrusive in origin occurs within ultramafic rocks at the Mt. Tapian prospect (Figure 17). Minor amounts of limestone thought to be of Miocene age are preserved within and adjacent to the porphyritic andesite while Quaternary reefal limestone lies on greenschists exposed along the coastline of the Mindanao Sea in the western part of the property.

The property is bounded to the east by a fault of the Philippine Fault system. Vertical movement on this fault has uplifted rocks to the west (the Western Highlands) and downdropped eastern strata (the Lake Mainit graben). Within the property a conjugate set of northeasterly-striking and northwesterly-striking faults are inferred, related to the Philippine Fault system. One such northeasterly-striking fault is interpreted to pass through the Mt. Tapian prospect (Figure 16).

6.6 Alteration and Mineralization

Known mineralization within the Tapian Main property is confined to the Mt. Tapian prospect where gold mineralization was mined from a quartz vein system that had developed at the contact of porphyritic hornblende andesite with an outlier of greenschist (Figure 17). Near the headwaters of Samson Creek (Figure 17) a small outcrop of well bedded limestone has been intruded by an andesite sill. Adjacent to this sill a chip sample over 1.4 metres was found to contain about 26 g/t gold. Other rock chip and trench channel samples within the same area were also anomalous in gold (Figure) within an area of about 0.2 sq. km.

Pervasive hydrothermal alteration has not yet been recognised within the Tapian Main property

although recrystallised limestone within the Mt. Tapan prospect area and incipient propylitic alteration of andesitic rocks suggests the former presence of a local heat and hydrothermal fluid source. The old mine workings within the prospect area were not accessible and no comment can be made on the controls of gold mineralization therein. However, the configuration of old workings suggests that possibly a northwesterly-striking structure controlled the localisation and deposition of gold from hydrothermal fluids.

Contours of gold in soils (Figure 17) also suggest that there may be a northeasterly structural component that may have focussed hydrothermal waters to give rise the zone of anomalous gold at the Mt. Tapan prospect.

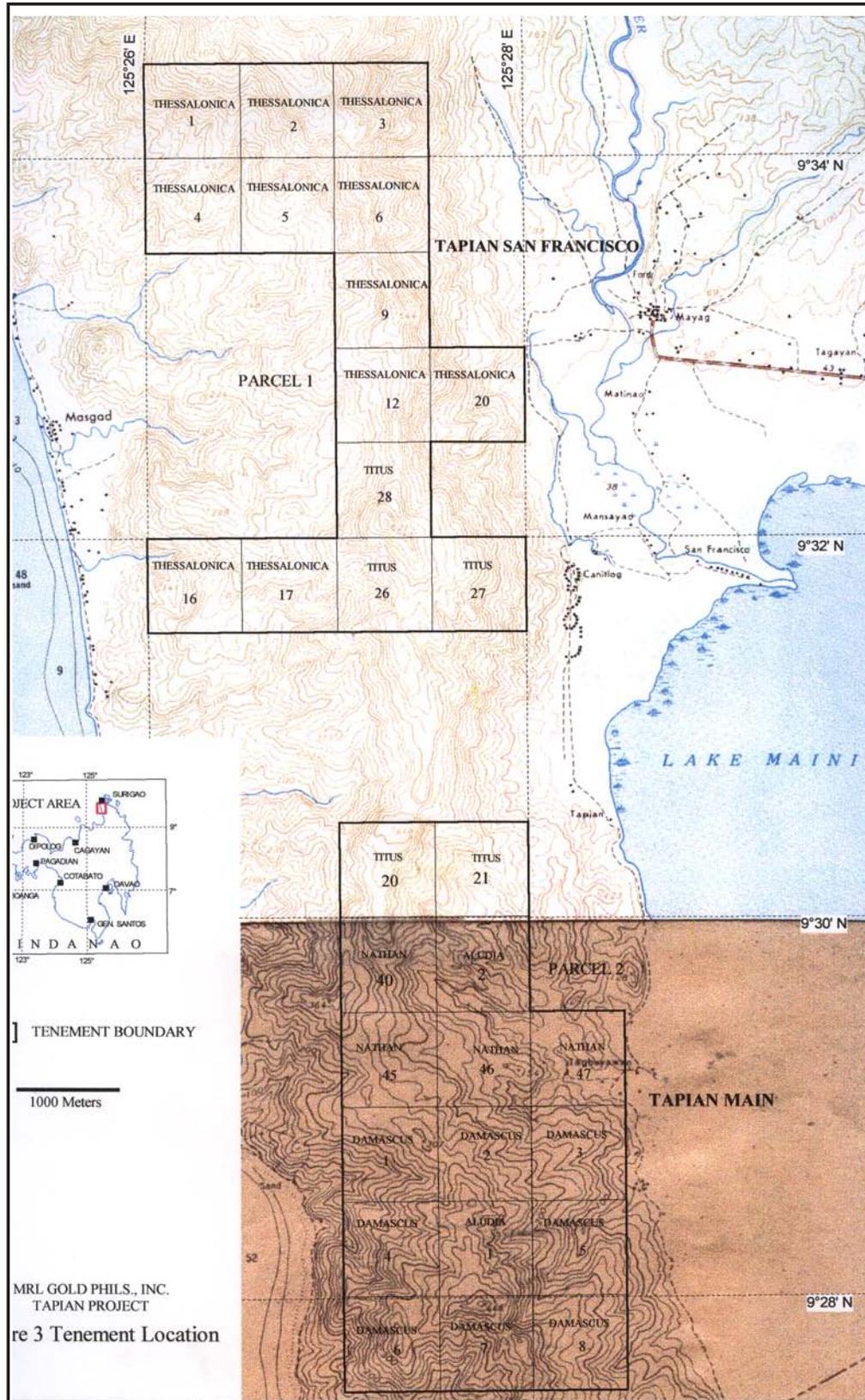


Figure 15. Mineral tenements, Tapien Main and Tapien San Francisco properties.

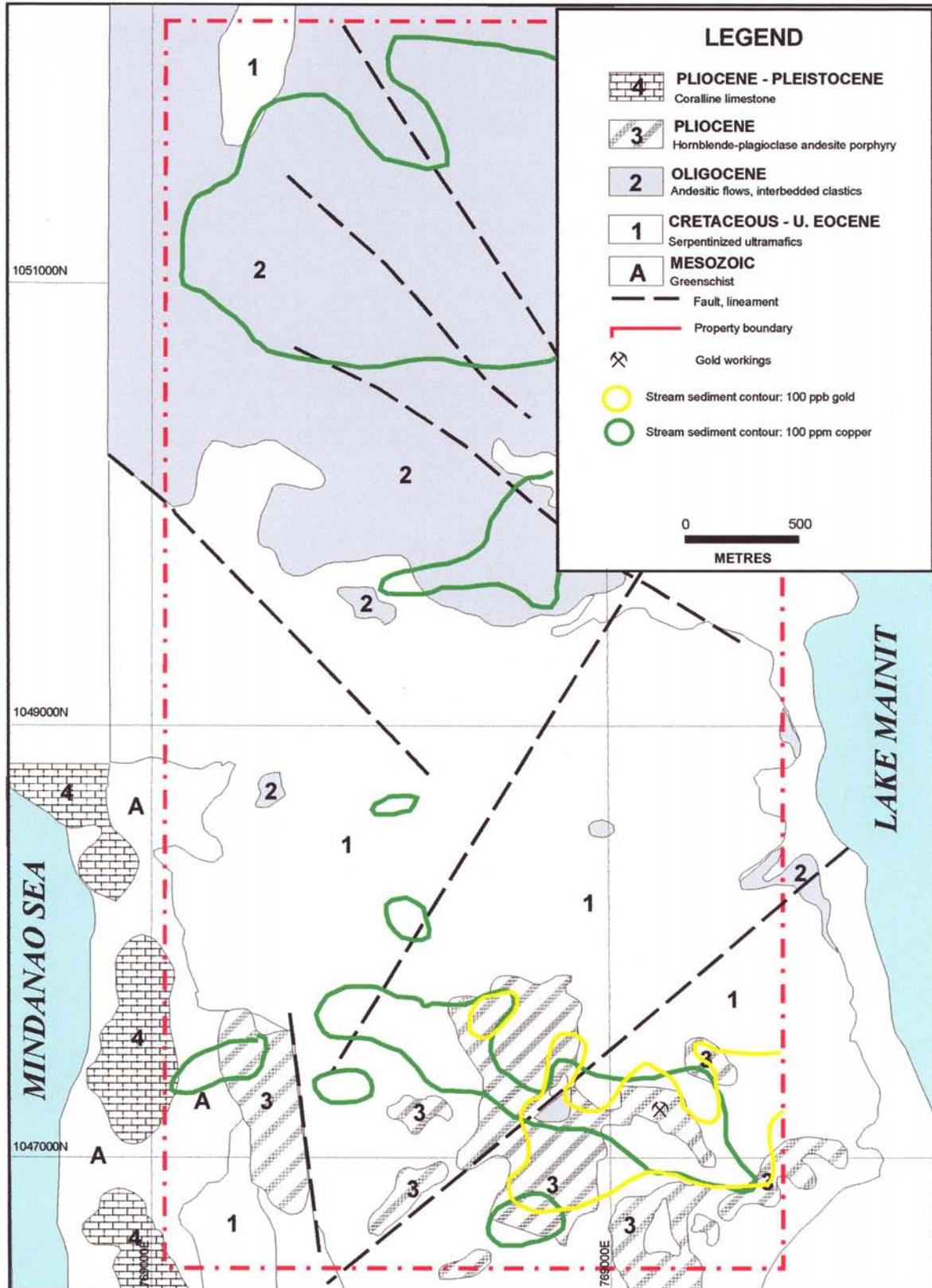


Figure 16. Generalised geology of the Tapian Main property and anomalous copper and gold geochemistry (from stream sediment sampling).

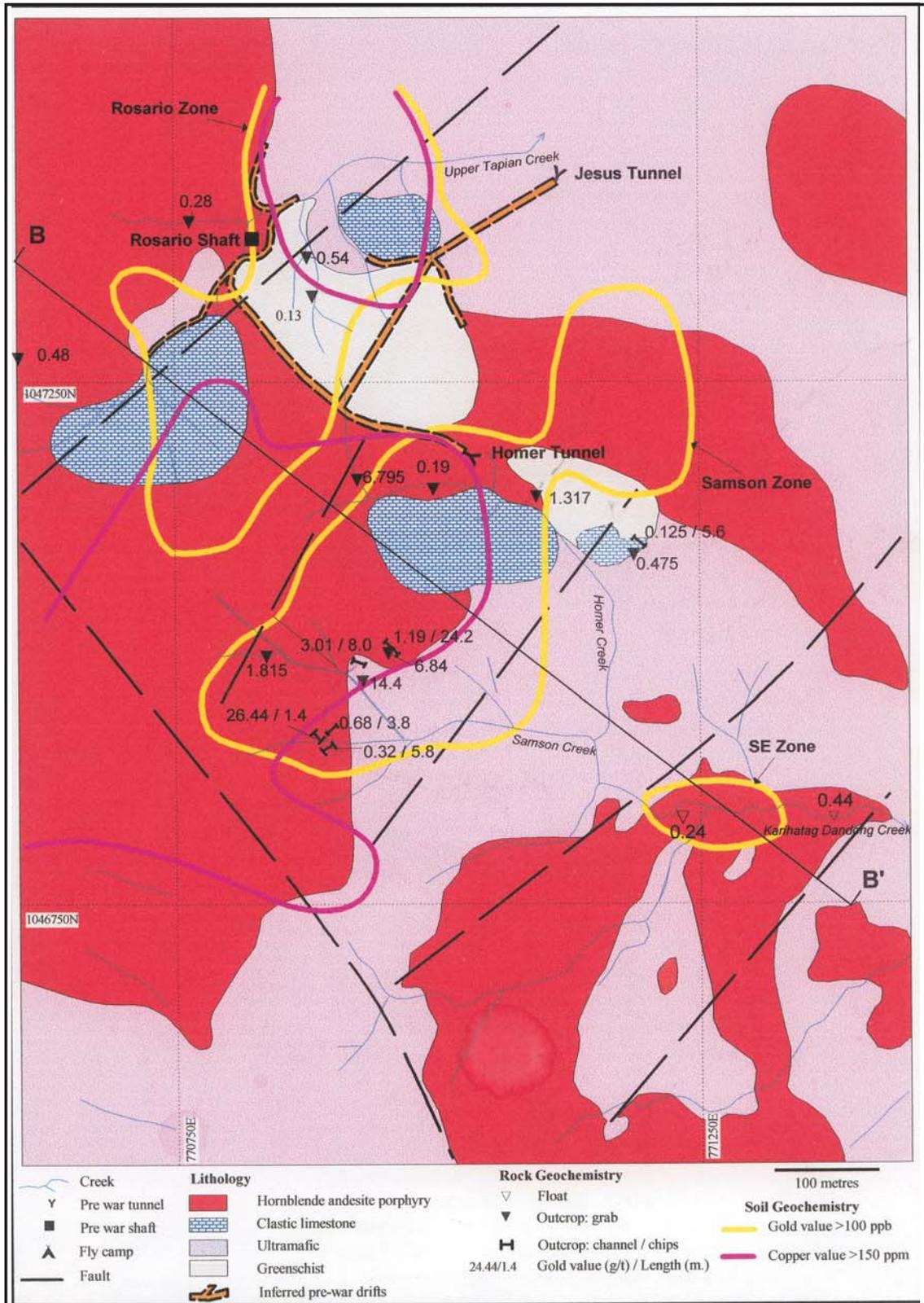


Figure 17. Tapian Main prospect: geology and distribution of anomalous copper and gold in stream sediments.

7. TAPIAN SAN FRANCISCO PROPERTY

7.1 Location, Access and Physiography

Tapian San Francisco, located a few kilometres to the north of Tapian Main, is accessible by road from the town of Mainit at the head of Lake Mainit to Barangay Hacienda San Francisco. Access to areas within the property, however, is by foot only although an old overgrown logging road that extends from the lowlands to the east to the upper parts of the southern part of the property may be refurbished at probably little cost.

The highest point on the southern part of the property, Gold Hill, is at 621 metres ASL although in the northern part hills rise to above 800 metres ASL. Vegetation is typical of the region, comprising second growth forest, stands of coconut and banana and cogon grass in old cleared areas.

7.2 Mineral Tenements

The Tapian San Francisco property comprises 14 claims totalling 1,134 hectares, the disposition of which are shown in Figure 15. MRL's agreement with Minimax, the underlying title holder, is that of Tapian Main; the two tenement groups are held under the same Mineral Production Sharing Agreement (see Section 6.2).

7.3 Exploration History

There is very little documentation remaining of exploration and mining activities within the Tapian San Francisco property and most of the following has been supplied from local residents other than the publications referred to below.

Regional geological surveys that covered the Tapian San Francisco property were reported on by Santos-Ynigo (1944), Teves et al. (1951), Santos et al. (1962), Madrona (1970), Fernandez (1979) and the United Nations Development Project of 1986 (UNDP, 1987).

Initial mining activities were purportedly undertaken at Gold Hill in 1941-42 by a company known as Del Rama Mining. Following World War II, goldmining operations began again at Gold Hill under the auspices of San Isodoro Mine (Santos-Ynigo and Oca, 1946). A company known as Frontino Mining worked on the Limon prospect area in 1964 and concentrated its efforts on a limestone-serpentinite contact in the headwaters of Limon Creek. Results of this exploration are unknown. In 1968 White Eagle Mining drilled a number of shallow exploratory holes over a period of two years but, typically, results of this programme are also not preserved. During the period 1973 to 1975 Lepanto Consolidated Mining Company carried out exploration in the Limon Prospect area and

drilled may be six holes. Results of this programme are also not available.

Local residents also report that in the late 1970's about 90 tonnes of direct shipping copper ore were extracted from the Limon prospect area and shipped to Japan. Although the site from which the ore was extracted was pointed out to the writer, the area is now covered with cogon grass and no outcrop appears to exist and, consequently, the nature of this "ore" is unknown.

7.4 MRL Exploration

MRL began work at Tapian San Francisco in 1997 and focussed its exploration activities on areas of known gold mineralization, specifically the Gold Hill and Limon prospects and an additional area to the north of Gold Hill known as the Riverside prospect.

Reconnaissance geological mapping was undertaken over the entire property while grid establishment, soil sampling and more detailed geological mapping was carried out over the Gold Hill and Limon areas and stream sediment sampling over the Riverside prospect area.

Results of soil sampling indicated the presence of two areas of anomalous gold greater than 75 ppb, a 1.5km long belt up to about 300 metres wide extending to the northeast over the Limon prospect area and a 300 metre diameter area over the Gold Hill prospect (Figure).

7.5 General Geology

Tapian San Francisco is underlain by basaltic andesite overlying ultramafic rocks and limestone with interbedded calcareous sandstone and shale in the southeastern part of the property. The Riverside prospect area is largely underlain by limestone while the remainder of the property, except in the northernmost part, is underlain by ultramafic rocks. In the north porphyritic hornblende andesite is the dominant rock type.

Geological mapping in the northern part is sketchy and the structural geology of this area is poorly understood. However, in the southern part of the property northeasterly-striking structures are recognised and are thought to have played a role in the control of mineralisation in that the gold anomaly in soils at Limon is also northeasterly-striking.

As in other properties of the Western Highlands, the eastern side is bounded by a fault of the Philippine Fault system.

7.6 Alteration and Mineralization

The Tapian San Francisco property hosts two significant areas of alteration and mineralization that may be interpreted as being related to an unexposed porphyry copper-gold system. At Gold Hill gold mineralization with associated copper has been mined from quartz veins and zones of silicification

within andesitic rocks. Quartz veins are generally widely-separated and occupy discrete fractures. A “grab” sample of mineralization taken from an old dump at Gold Hill assayed 66.4 g/t gold, 42.55 g/t silver and 1.18% copper.

Within the Limon prospect area a northeasterly-striking zone of intense phyllic alteration (quartz-sericite-pyrite) is at least 700 metres long and possibly 300 metres wide and corresponds to the zone of elevated gold and copper in soils. To the east of this zone along Cantikoy Creek (Figure 18) rocks have undergone calcsilicate alteration to form an assemblage dominated by calcic amphibole, calcite and possibly diopside. The contact between the phyllic alteration and calcsilicate alteration is possibly a fault as it appears to pass down the Cantikoy Creek valley and the change from phyllic alteration to calcsilicate alteration is quite sharp. Potassic alteration in the form of secondary biotite has also been identified in thin sections from rocks within the phyllic zone.

Within Cantikoy Creek boulders of silicified and hydrothermally brecciated rocks are possibly representative of an epithermal system eroded from a structurally higher level than the pervasive alteration exposed in the creek.

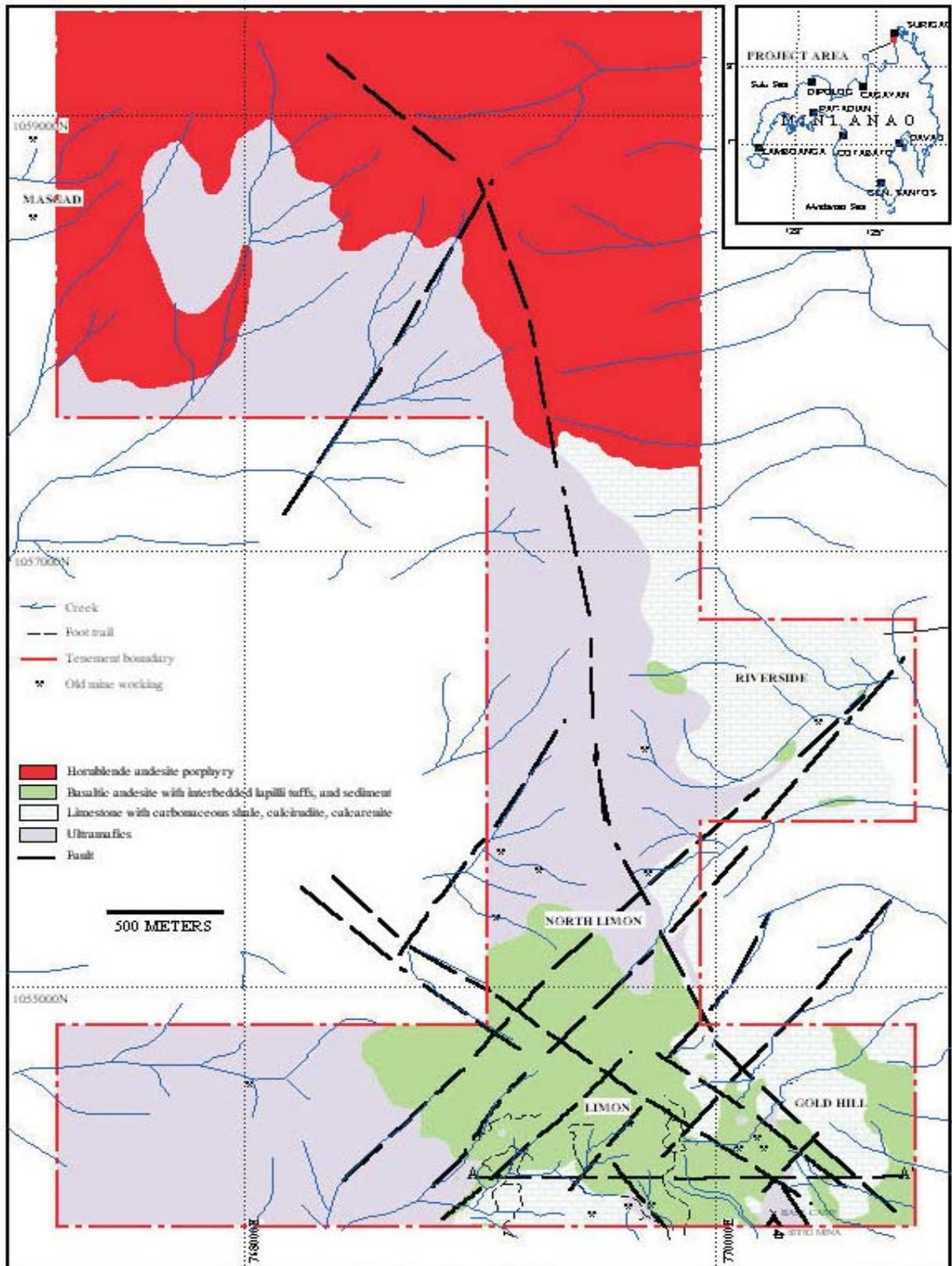


Figure 18. Generalised geology of the Tapian San Francisco property.

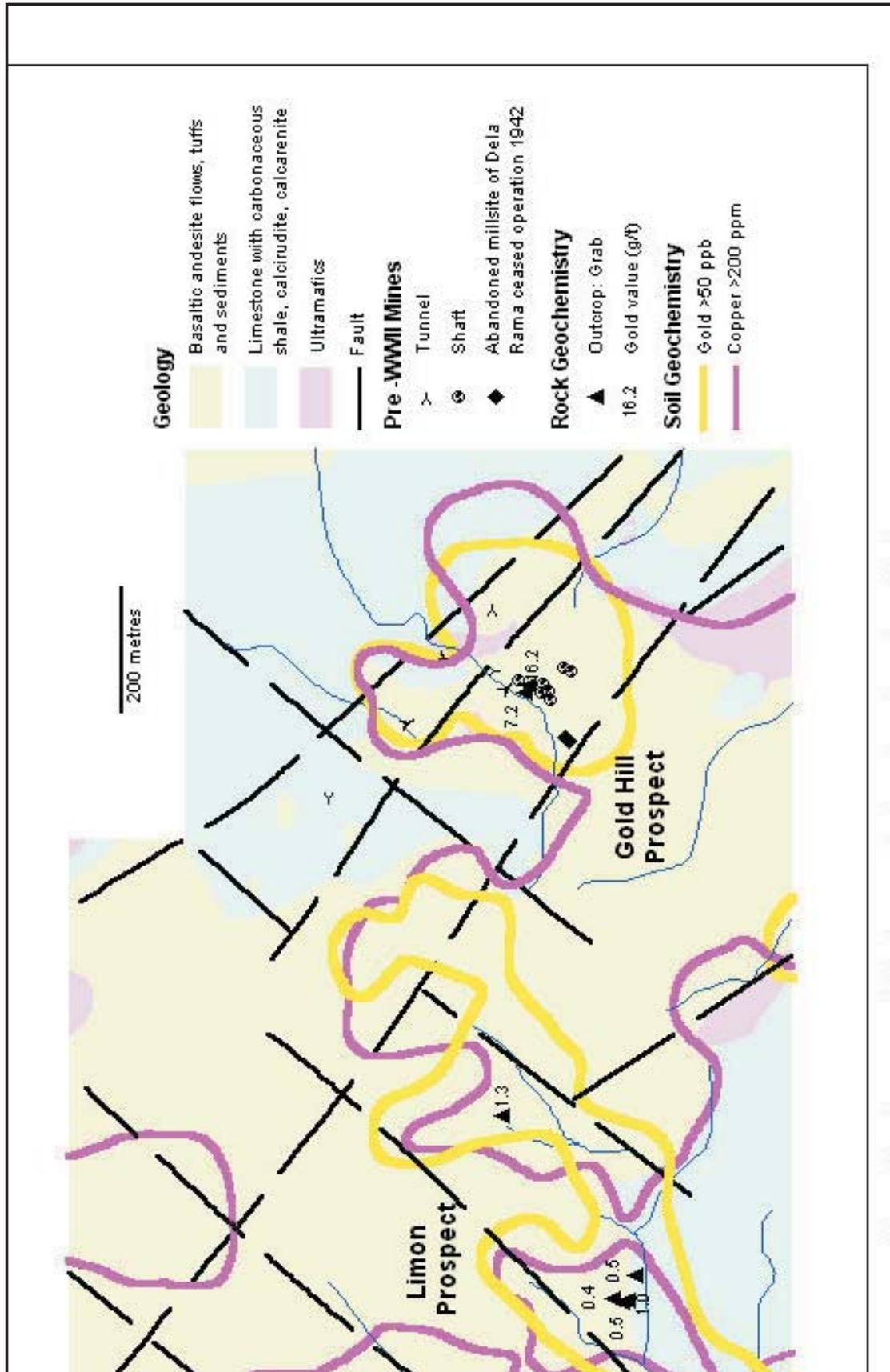


Figure 19. Geology and copper and gold soil geochemistry of the Limon prospect and Gold Hill prospect areas.

8. OTHER PROPERTIES

8.1 General Statement

The properties described below are under application and no exploration has yet been carried out on them. Consequently, apart from regional studies, there is little information on these properties. The Northern Agusan and Mat-I properties lie within the Western Highlands and the geology of these properties is similar in terms of lithologies and structures as Agata, Tapian Main and Tapian San Francisco. The Lake Mainit property, on the other hand, lies largely within a fault bounded graben that hosts Lake Mainit and the Tubay River valley and pre-Quaternary bedrock is poorly exposed. Much of this area is under agriculture.

8.2 Northern Agusan

Covering 7,764 hectares, this property is under application for a Mineral Production Sharing Agreement (MPSA) and surrounds the southern part of Agata, extending to the south to near the village of Tubay. No exploration has yet been conducted on this property but regional mapping has shown that it covers geology similar to that at Agata. A positive feature of this area is that a northeasterly-striking lineament that is interpreted to have controlled the Maraat gold deposit and the Asiga copper-gold porphyry deposit (Figure 5) may extend to the southeast to pass through the Northern Agusan area.

8.3 Lake Mainit

Located both to the east and west of Lake Mainit, this property is covered by an Exploration Permit application. The area applied for comprises 8,095 hectares. To the east of Lake Mainit the geology is poorly understood as bedrock outcrop here is very limited. The region lies within a graben bounded by faults of the Philippine Fault system and is largely low relief land under agriculture. To the west of Lake Mainit the area covers the Western Highlands and, from regional geological mapping, covers an area of similar geology to that of Agata to the south and Tapian Main to the north (Figure 2).

8.4 Mat-I

Mat-I lies about 15 kilometres to the north of Tapian San Francisco (Figure 2) and has been host to illegal miners extracting gold from saprolite. Regional geochemical coverage has identified copper-gold soil anomalies within the prospect area but the locations and magnitude of these anomalies is not known. Epithermal precious metal occurrences have been recognised adjacent to the Mat-I property

9. SAMPLE TREATMENT

9.1 General Statement

Mindoro Resources Ltd. is a Canadian exploration company and, although it operates in the Philippines through its wholly-owned subsidiary, MRL Gold Phils., Inc., its approach to exploration and drill core sampling conforms to standard Canadian practice. The writer has discussed sampling procedures with MRL project geologists and is satisfied that these procedures are adequate both in terms of sample collection and analysis.

9.2 Sampling Methods

Stream sediment samples are collected by hand from a 10m-long stretch of drainage channel where active sediments exist. Samples are sieved in the field and bagged in wet-strength pre-numbered Kraft bags. The numbering system employed is that provided by McPhar Geoservices Inc. of Manila, the laboratory that performs MRL's analyses. Sample sites are marked with flagging tape numbered with the corresponding sample number.

Soil samples are collected from the B horizon on cut grid lines and ensuring that sampling is not within culturally modified soils. A duplicate sample is taken at the rate of one duplicate every twentieth sample. The same numbering system as used for stream sediment sampling is employed for soil samples. Duplicate samples are assigned a different set of numbers to those used for the other samples.

Drill core samples for analyses were collected by halving the core longitudinally by means of a diamond saw and retaining half in the core tray. Standard measuring procedure was employed to estimate core recovery (in percent).

10. SAMPLE PREPARATION, ANALYSES AND SECURITY

10.1 Sample Preparation and Analyses

All samples were prepared and analysed in the laboratory of McPhar Geoservices in Manila. A flow chart of preparation and analytical procedures is provided herein as Appendix B. Laboratory methods employed in Manila are comparable to those employed in North American certified laboratories.

10.2 Sample Security

All field samples are collected by local labourers under the supervision of the respective project geologist who trains the workers and directs the sampling procedure. Samples are packed in sealed boxes and shipped directly to McPhar's Manila laboratory.

Drill core samples are also taken under a project geologist's supervision and shipped in sealed boxes to Manila. Remaining core is stored in standard core trays stacked in a shed constructed for this purpose and which remains locked when unused. There is no sample preparation carried out in the field. All preparation and analyses is conducted within the laboratory confines.

11. DATA VERIFICATION

At the exploration level, data verification is confined to submitting duplicate samples in order to check sampling procedure and laboratory variance. In the laboratory one standard sample and one blank is included with every sample charge. The writer has discussed data verification methods with MRL staff and is satisfied that analytical results to date vary within acceptable limits.

12. MINERAL PROCESSING AND METALLURGICAL TESTING

At this stage of exploration, none of the properties discussed herein are at a stage where mineral processing and metallurgical testing is warranted.

13. MINERAL RESOURCE AND MINERAL RESERVE ESTIMATE

No mineral resources or reserves exist on any of the properties discussed herein.

14. DISCUSSION

14.1 General Statement

The properties of MRL in northeastern Mindanao occur in a part of the Philippine archipelago that is particularly well endowed with hydrothermal deposits of copper and gold and which, as indicated by the recent discovery of the Boyongan porphyry copper-gold deposit, has yet to be fully and effectively explored. Boyongan, for example, was recognised by the United Nations (UNDP, 1984) as an epithermal gold target but not as a porphyry target because of the lack of understanding at that time of the relationship between epithermal gold deposits, especially those of high sulphidation type, and associated copper-gold porphyry systems.

It is now clear that there is a common spatial and genetic relationship between these two types of ore deposits and that the recognition of a high level precious metal deposit of epithermal character may lead to the discovery of a nearby, possibly unexposed, porphyry deposit. Thus, epithermal mineralization, especially of high sulphidation character, in the Philippine island arc environment may be viewed as a prime indicator of a nearby porphyry.

14.2 Porphyry Copper-Gold Deposit Model

A model of a porphyry copper-gold deposit in the island arc environment such as the Philippines has been discussed in detail by such workers as Corbett and Leach (1998); Sillitoe and Gappe (1984), Sillitoe (1989, 1993) and Solomon (1990). In general, stocks that host copper-gold mineralization in island arcs were emplaced at relatively shallow levels (e.g. 1 - 2 km (Cox and Singer, 1988)) and often intrude coeval and, in places, comagmatic volcanic rocks (Bailey, 1990; Sillitoe, 1993). This is in contrast with porphyry deposits in continental settings where associated volcanic rocks may or may not be present. Epithermal precious mineralization is a common feature near island arc porphyry deposits and reflects the shallow emplacement of metalliferous stocks which, in turn, is a reflection of abnormally high heat flow within the island arc crust, a function of its thinness relative to the crust under continental arcs.

Structural controls on pluton emplacement are important and suitable structures, mainly extensional, provide the porosity and permeability for both magma ascent and egress of exsolved, water dominated, solutions from the cooling magmatic body. Corbett and Leach (1998) discuss the role of "transfer" or arc-normal structures in the island arc environment as a control of pluton emplacement, such structures being considered by the writer as originating as subducted transform faults and propagated upwards through the overlying crust in the manner of Griffith fractures. Other types of controlling structures include dilational jogs in transtensional faults, second order splays from major

fault systems and fault intersections.

Almost all copper-gold porphyry deposits and precious metal epithermal deposits in eastern Mindanao are located on oblique structures to the Philippine Fault system. In southern and central eastern Mindanao these structures are dominantly northwesterly-striking while in the north the dominant controlling structural direction is to the northeast. The structures are considered to have formed as a result of movement on faults of the Philippine Fault system.

A first order exploration guide for porphyry copper-gold deposits in northeastern Mindanao is, therefore, the identification of those areas where there are throughgoing northeasterly structures, especially those areas that are close to an intersection with a fault of the north northwesterly-striking Philippine Fault system. Secondly, because of the relatively shallow level of stock emplacement and the common association of plutonism and volcanism, identification of those areas underlain by volcanic rocks in a suitable structure setting may lead to the identification of a concealed or poorly exposed pluton.

Hydrothermal alteration envelopes about and above porphyry deposits in the Philippines reflect initially increasing heat flow as a magma rises and begins to dehydrate followed by decreasing heat flow as the pluton cools. Initial alteration assemblages are those of the propylitic facies which, in volcanic rocks of andesitic composition, is often characterised by an albite-epidote-chlorite-calcite-magnetite assemblage and which increases in both vertical and horizontal extent as the pluton rises. Propylitisation is overprinted by clay-dominated assemblages as heat flow increases (the “intermediate argillic” assemblages) and which, in turn, are overprinted by sericite-clay-chlorite alteration often with increased silica content. Potassic alteration is dominated by secondary biotite and is the innermost alteration facies in Philippine porphyry deposits and usually the least extensive, being confined to the pluton and its immediate environs. Magnetite is ubiquitous in Philippine porphyries and there is often a direct relationship between magnetite content and gold (Sillitoe and Gappe, 1984). Bailey (1990) showed that the oxygen fugacity of an exsolving magmatic body in an island arc setting is often close to the quartz-fayalite-magnetite buffer but commonly on the magnetite-stable side. Thus, excess iron is more often than not precipitated as magnetite rather than pyrite and although pyrite is invariably present, this mineral does not form the large pyritic haloes that are common around porphyry deposits of Andean or southwest U.S.A. settings, for example. In the Mesozoic island arc of central British Columbia, alkalic porphyry deposits invariably have pyrite in outer alteration zones but copper-gold mineralization is often pyrite- (and total sulphide-) poor but magnetite-rich. This feature has led to many examples of unsuccessful exploration by drilling induced polarisation highs and intersecting abundant pyrite rather than chalcopyrite.

14.3 Relationship Between Porphyry Deposits and Epithermal Mineralization

In the island arc environment developed over an active subduction regime an abnormally high heat flux exists relative to volcanic belts in the continental environment because of the relative thinness of the crust under island arcs developed on oceanic crust compared to that of continental arcs. Thus, it is rare in continental arc environments to see epithermal deposits closely related spatially to porphyry deposits because vertical isotherms are much more widely spaced and if a porphyry deposit is exposed, it usually means that a few kilometres of overlying cover has been removed, including any epithermal deposits that may have formed above the porphyry.

On the other hand, in the island arc environment the temperature at the surface above a cooling pluton is high enough to allow hydrothermal cells to develop in close proximity to the pluton and which may include magmatic fluids to form epithermal high sulphidation mineralization. In other words, a cooling pluton that is exsolving fluids from which epithermal deposits form may also be host to porphyry-type mineralization. Therefore, in the Philippines, any area that is indicative of high heat flow such as the presence of high level precious metal mineralization should be assessed for its porphyry potential. There are many examples of this relationship in the Philippines, mainly in Luzon, being the most well studied part of the country. However, in northeastern Mindanao, the Boyongan deposit was discovered because of the indication of near surface precious metal epithermal mineralization. Conversely, the Placer epithermal deposits, to the northeast of Boyongan and on the same northeasterly-striking structure, have indications of porphyry mineralization at depth (e.g potassic alteration, disseminated copper sulphides in porphyritic andesite interpreted as an intrusion). In addition, alteration envelopes about porphyry deposits, because of the high heat flow and the near surface emplacement of the pluton, may include epithermal deposits that formed as the heat flow regime waned. Advanced argillic alteration developed by the oxidation of sulphides in the near surface environment often has associated gold mineralization that has been superimposed on early alteration facies associated with the development of a porphyry deposit. Such appears to be the case, for example, in southern Barangas Province and at Lepanto, both in Luzon.

14.4 Nature of Plutonism and Volcanism Within the Surigao Properties

The mineralogy of both plutonic and volcanic rocks, in the absence of whole rock silicate analyses, would suggest alkalic compositions rather than calcalkalic. This is indicated by a single pyroxene species, that of greenish black clinopyroxene that may be diopsidic augite, a paucity of quartz, and calcic amphibole as the most common hydrous silicate. Primary biotite has not been recognised in volcanic rocks although it has been recognised in monzodiorite intersected in drill holes at Agata. Intrusive rocks recognised range from diorite through to syenite with monzodiorite appearing to be the

most common intrusive rock type. This may suggest that the volcanic and plutonic assemblages present within the Surigao group of properties may have shoshonitic affinities and which, in other alkalic terranes (e.g. Quesnellia, British Columbia; the Tasman Belt, eastern Australia), gold-enriched copper porphyry deposits are common. It is now thought that shoshonitic magmatism may be generated as a subduction zone changes polarity and which, in eastern Mindanao may correlate with a change from westerly-directed subduction to easterly-directed, a change that may have occurred in Pliocene times.

Another feature of shoshonitic-related mineralization is the common presence of mineral species indicative of high f_{O_2} and high f_{CO_2} . This is reflected in abundant calcite and iron oxide species (generally magnetite) as hydrothermal alteration minerals as well as the presence of these minerals as primary species within volcanic rocks and, in the case of magnetite, in plutonic rocks also. The presence of calcite as an alteration mineral of volcanic rocks can be important in some cases as calcite-altered volcanic rocks can host skarn mineralization associated with a porphyry deposit. For example, at Mt. Polley in British Columbia calcite-altered basalt host magnetite-chalcopyrite exoskarn developed at the periphery of a syenodiorite intrusive phase.

14.5 Mineralization Potential - Surigao Properties

14.5.1 Agata

Exploration at Agata has to date confirmed that known gold mineralization occurs in two environments; i) within a monzodiorite stock near its intrusive contact with ultramafic rocks and ii) within a silty limestone unit. In both cases it is not yet clear as to the role that structures played in localising gold mineralization. Extensive artisanal workings in saprolite developed over monzodiorite suggest widespread gold enrichment in this rock type but drilling results indicate that some supergene enrichment may have occurred (e.g. see Figures 9 to 13).

Within the Limestone prospect area it appears the gold is enriched in pyritic silty limestone associated with zones of fracturing or shearing rather than being stratabound (e.g. see Figure 13) but, nonetheless, the fact that gold enrichment in limestone has occurred confirms the former presence of hydrothermal fluids and which, under suitable conditions, may have deposited gold mineralization in the form of carbonate replacement deposits.

It is logical to consider the small monzodiorite bodies at Assmicor and American Tunnel prospects as a possible source of hydrothermal fluids from which gold and copper were deposited, or as representing apophyses of a larger intrusive body at depth. Copper and gold soil geochemistry at Assmicor and American Tunnel prospects cover a much larger area than the exposed plutonic rocks and possibly indicate much larger concealed plutons than are exposed at the surface. Calcsilicate alteration of limestone in the Assmicor area, unrelated to

the exposed pluton, supports the concept that limestone to the west and south of Assmicor may conceal a shallow pluton and also that this pluton was sufficiently “wet” to perhaps host an associated copper-gold porphyry deposit.

The other area of interest is to the east of the Philippine Fault that bounds the Assmicor area and which a single drill hole (D-11) was sited in 1999. This hole intersected propylitically-altered quartz diorite and dykes of similar composition with anomalous gold (Figure 14). The lithological assemblage intersected in this hole appears to be a downdropped part of the ultramafic - diorite assemblage exposed as Assmicor. However, as alteration of this downdropped intrusion is still propylitic in nature, any associated porphyry deposit is likely to be at an even deeper level than at Assmicor and to the west.

The western area underlain by limestone may also have compositions in places that may be amenable to carbonate replacement by siliceous and auriferous solutions and, thus, presents an additional target to that of a copper-gold porphyry deposit.

14.5.2 Tapian Main

This property hosts a former gold producer and, from exploration results to date, clearly has potential for the discovery of high level gold deposits. However, because of limited work to date, work that has concentrated in the Mt. Tapian area, the porphyry potential remains unknown. The presence of an andesite plug that may be part of a high level dioritic intrusion in the southern part of the property and associated anomalous copper and gold in stream sediments draining this plug suggests that further work is warranted in this area, to the west of the work completed in the vicinity of the former gold producer.

The northern part of the property may also be of interest as that area is underlain by an andesitic volcanic assemblage over which there is a copper anomaly that is over a kilometre in diameter. The lack of anomalous gold in stream sediments collected from this area may suggest differing mobility of gold in the fluvial environment in this area but it could also be indicative of a gold-poor environment. Immediately to the northwest of the northern part of Tapian Main lies the Canaga porphyry deposit (Figure 5), a small copper-gold porphyry deposit previously drilled by Spinnifex Minerals Ltd.

Part of the same group of structural lineaments that pass through Boyongan and Placer to the northeast passes through, or adjacent to, the northern Tapian Main property. Given the strong control that these lineaments have on the emplacement of metalliferous plutons, there is, therefore, potential for the discovery of additional porphyry mineralization within northern

Tapian Main. More work is required on this property before its porphyry potential is better understood.

14.5.3 Tapian San Francisco.

The southern part of this property has a number of positive features indicative of high potential for the discovery of porphyry copper-gold mineralization. These features are as follows:

1. The area is largely underlain by andesitic volcanic rocks of probably alkalic affinity and which may indicate a coeval and comagmatic pluton at depth.
2. Copper-gold mineralization mined at Gold Hill is probably of magmatic origin and may be a high level manifestation of auriferous copper mineralization at depth.
3. There is widespread anomalous copper and gold in soils extending over the southern part of the property and which includes both the Gold Hill and Limon prospects.
4. The Limon prospect area is underlain by phyllic alteration that has been traced along strike to the northeast for over 700 metres and may average several hundred metres in width. Alteration of this type has also been noted at north Limon and if this is part of the same phyllic zone as at Limon, this alteration assemblage may extend for at least one kilometre along strike to the northeast. Potassic alteration has also been recognised in locally-derived float.
5. To the west of the Limon phyllic alteration zone there is a zone of calcsilicate alteration characterised by calcic amphibole and recrystallised calcite. This zone may be in fault contact with the phyllic alteration and uplifted to the west, exposing a deeper structural level than that of the phyllic zone.
6. Both hydrothermal alteration and anomalous copper and gold in soils extend to the northeast, suggesting a strong control by northeasterly-striking regional structures that are interpreted to pass through southern Tapian San Francisco.
7. Epithermal-style silicification and silicified limestone has been recognised as boulders in Cantikoy Creek and were probably derived from a deposit that may occur further up the hills to the west of Cantikoy Creek and which may represent, as at Gold Hill, a high level expression of underlying porphyry-style mineralization.
8. Copper-gold porphyry mineralization is known at the Canaga prospect immediately to the southwest of the Limon prospect area.

From the above it is clear that the Limon area represents a high priority target for additional exploration to define copper-gold porphyry mineralization and an exploration

programme is proposed accordingly. The geology and mineral potential of the remainder of the Tapian San Francisco property is poorly understood at this stage of investigation although stream sediment geochemical results over the Riverside prospect area and the location of this area on a major northeasterly-striking structure (Figure 18) may suggest that potential for carbonate-hosted precious metal mineralization exists here.

The northern part of the property is largely underlain hornblende andesite porphyry interpreted to be of intrusive nature. The writer did not visit this area and cannot comment on this interpretation. However, it is possible that these rocks represent both intrusive and extrusive phases. A Korean group is currently exploring the gold-rich Masgad deposit that lies within this rock unit immediately to the west of the western boundary of Tapian San Francisco in the northern part of the property .

15. SUGGESTED EXPLORATION AND PROPOSED EXPENDITURES

15.1 General Statement

Exploration of the Surigao group of properties has, in general, been concentrated in areas of known gold mineralization as, in the late 1990's, gold was a more attractive commodity than base metals. However, given the perceived porphyry copper-gold potential of the Surigao region, it is proposed the future exploration be concentrated on this type of target as well as related gold deposits. The model on which the following exploration programmes are based in that of an alkalic or subalkalic porphyry copper-gold deposit as described in Section 14.

15.2 Regional Evaluations

Owing to the large area under application, it is proposed that regional work be undertaken at a reconnaissance level in order to be able to prioritise parts of this properties for future, more detailed, work. Thus, it is proposed that a combination of geological reconnaissance and prospecting be carried out over the Lake Mainit, Northern Agusan and Mat-I properties along with stream sediment sampling. In addition, aerial photograph interpretation should be undertaken with emphasis being place on structural interpretation, especially in regard to identifying possible northeasterly-trending structures.

15.3 Agata

The area of immediate interest considered here is that area of anomalous copper and gold in soils that has been identified to the west and southwest of the Assmicor prospect. This includes the Limestone prospect and the area to the west (west and southwest of Assmicor). It is proposed that the grid be reestablished and extended to the west to cover the area of anomalous copper and gold, that additional magnetic surveying should be carried out and that induced polarisation surveying be undertaken over those areas that may be interpreted as hosting secondary magnetite. It is suggested that these areas may be differentiated from concealed ultramafics by hosting roughly circular magnetic anomalies, or linear features aligned in a northeasterly direction. Magnetite produced as a result of serpentinization of ultramafics should not follow these patterns.

In addition, property-wide stream sediment sampling should be completed along with geological reconnaissance and prospecting.

15.4 Tapian Main

Work to date at Tapian Main has concentrated on the southern part of the property where former gold mining activities had taken place. It is proposed here that no further work be carried out in this area

(the Mt. Tapian area) until the entire property has been evaluated at the reconnaissance level. Accordingly, a property-wide programme of stream sediment sampling, reconnaissance geological mapping and prospecting should be initiated. The northern area of the property is of specific interest because of its proximity to the Canaga porphyry prospect.

15.5 Tapian San Francisco

The southern part of Tapian San Francisco host two areas that have yet to be fully evaluated, Limon and North Limon. Within the Limon area there are a number of features that suggest an underlying porphyry copper-gold deposit - phyllic and calcsilicate alteration zones, anomalous copper and gold in soils over a large area and the presence of favourable structures - and detailed exploration is warranted here. An exploration programme of magnetometer and induced polarisation surveying over the known phyllic zone is proposed along with alteration mapping of the Limon and North Limon areas. This programme may be extended to cover the southwestern extension of the Riverside prospect because interpreted northeasterly-striking structures that pass through the Limon area extend into the Riverside area where anomalous gold occurs in stream sediments.

The entire Tapian San Francisco property should be covered by stream sediment sampling and reconnaissance geological mapping and prospecting.

15.6 Exploration Expenditures (Costs in Philippine Pesos)

15.6.1 Regional Evaluations

Geological reconnaissance and prospecting: 100 mandays @ 2,750/day	275,000
Rock sample analyses: 100 @ 755 each	75,500
Regional stream sediment sampling: 150 mandays @ 500/day	75,000
Sediment sample analyses: 1000 @ 740 each	740,000
Rock sample analyses: 200 @ 755 each	151,000
Aerial photograph acquisition and photogrammetry	1,100,000
Aerial photograph interpretation: 10 days @ 2,750/day	27,500
Supervision: 10 days @ 11,000/day	110,000
Overhead (10%)	255,400
Total	2,809,400

15.6.2 Agata Property**1. Limestone Area**

Gridding: 40 line km.	190,000
Magnetic surveying: 40 line km. @ 8,727/km.	349,080
Induced polarisation: 20 line km.@ 44,898/km.	897,960
Alteration mapping and prospecting	55,000
Petrography	33,400
Rock sample analyses	15,100

2. Property Reconnaissance

Stream sediment sampling: 50 mandays @ 500/day	25,000
Sample analyses: 300 @ 740 each.	222,000
Geological reconnaissance and prospecting	110,000

3. Interpretation and Reporting

15 days @ 2,750/day	41,250
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4. Management

Geological supervision: 10 days @ 11,000/day	110,000
Overhead (10%)	204,879

Total	2,253,669
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Agata Phase 2 (contingent on results of Phase 1)

Diamond drilling (costs not itemised): 1,500m @ 11,000/m (all inclusive)	16,500,000
Overhead (10%)	1,650,000

Total;	18,150,000
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15.6.3 Tapian Main

Stream sediment sampling: 40 mandays @ 500/day	80,000
Sample analyses: 200 samples @ 740 each	148,000
Geological reconnaissance and prospecting	82,500
Geological supervision: 5 days @ 11,000/day	55,000
Overhead (10%)	36,550
Total	402,050

15.6.4 Tapian San Francisco (Phase 1)**1. Limon - North Limon**

Line cutting: 60 line km.	280,000
Magnetometer surveying	350,000
Induced polarisation surveying	898,000
Alteration mapping: 20 days	55,000
Petrography; 20 samples	33,400
Soil sampling	20,000
Soil sample analyses	306,000

2. Property Reconnaissance

Stream sediment sampling	80,000
Sample analyses	222,000
Geological reconnaissance and prospecting	160,000

3. Interpretation and Reporting

15 days @ 2,750/day	41,250
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4. Management

Geological supervision	110,000
Overhead (10%)	255,565

Total	2,811,215
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Tapian San Francisco (Phase 2 - contingent on results of Phase 1)

Diamond drilling (costs not itemised): 1,500m @ 11,000/m (all inclusive)	16,500,000
Overhead (10%)	1,650,000
Total;	18,150,000

15.6.6 Other Costs**Phase 1**

Canadian certified consultant geologist - qualification and reporting	950,000
Information communication and education	195,000
Tenement fees	1,680,000
Community relations	1,100,000
Contingency costs (15%)	1,505,450
Total	5,430,450

Phase 2

Contingency costs (15%)	5,445,000
Total	5,445,000

Total costs - Phase 1 Exploration	13,706,784
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Total costs - Phase 2 Exploration	41,745,000
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The total cost of Phase 1 exploration amounts to approximately US\$250,000, including a 15% contingency amount and the cost of providing qualification of Phase 1 to Canadian regulatory standards. Follow-up diamond drilling at Agata and Tapian San Francisco is expected to cost about US\$380,000 on each property (about 1,500 metres on each) for a total Phase 2 expenditure of about US\$760,000.

16. CONCLUSIONS

16.1 General Conclusions

1. The geological environment of northeastern Mindanao is very favourable for the development and preservation of both epithermal precious metal deposits and copper-gold porphyry deposits.
2. Sociopolitical factors are important in the Philippines but can be addressed satisfactorily to the benefit of both the local populace and the exploration company. In northeastern Mindanao the population supports mineral exploration and mining provided that the population's concerns are addressed.
3. The volcanic and intrusive rocks that occur within the Western Highland region of northeastern Mindanao are more likely to be of alkalic composition than calcalkalic. This suggests that they are shoshonitic affinity, a group with which gold-enriched copper porphyry deposits are commonly associated.

16.2 Agata Property

1. Geochemical and geological evaluations of the Agata property suggest that the property has potential to host a porphyry copper-gold deposit. However, based on alteration mineral assemblages recognised in outcrop and in drill core it is not expected that such a deposit will be discovered at a high structural level in that most hydrothermal mineral assemblages recognised are stable at relatively low temperature and are mostly typical of propylitic alteration facies (but see (2) below).
2. There is potential for near surface porphyry mineralization in uplifted blocks to the west of Assmicor if it can be shown that faulting within the property has caused considerable vertical displacement.
3. The potential for carbonate replacement precious metal deposits within the Agata property is high in that hydrothermal activity has occurred within the property and suitable carbonate lithologies have been recognised. In this respect it is concluded that Siana-type gold mineralization may exist in carbonate rocks within the property boundary.
4. Work to date suggests that Assmicor and American Tunnel areas have gold mineralization that was deposited under similar conditions to "listwanite" or "motherlode" mineralization in that most gold enrichment appears to be concentrated at the diorite-ultramafic contact, similar to the chemical setting of basalt-ultramafic contacts in the classical listwanite environment. Notwithstanding this conclusion, the Assmicor and American Tunnel dioritic intrusions are clearly gold-enriched as evidenced by former mining of saprolite.
5. Saprolite, at least at Assmicor, appears to have been enriched in gold by supergene processes as

drilling of the Assmicor monzodiorite indicates little anomalous gold below the saprolitic horizon or away from the intrusion-ultramafic boundary.

6. More detailed work is warranted over the Tubay copper prospect area as it is underlain by volcanic rocks and may have a concealed pluton from which copper mineralization was derived.

16.3 Tapian Main

1. The copper-gold porphyry potential of this property has yet to be assessed. The Mt. Tapian prospect area appears to contain structurally controlled auriferous quartz veins that are possibly of mesothermal character and not high level manifestations of an underlying porphyry deposit.

2. In the headwaters of the Sampson Creek the presence of highly anomalous gold (up to 26 g/t) within an assemblage of limestone intruded by andesite sills indicates that further work is required in this area to establish the extent of gold mineralization.

3. Insufficient work has been undertaken over much of the Tapian Main property to allow estimation of its porphyry potential. The northern part of the property is of interest because of widespread volcanic cover that may include subvolcanic and plutonic rocks.

16.4 Tapian San Francisco

1. The Limon and North Limon areas of this property have excellent potential for the discovery of an underlying copper-gold porphyry deposit at a relatively shallow level.

2. Inferred northeasterly-striking structures passing through the Limon, North Limon and Riverside areas are inferred, an inference that is strongly supported by the orientation of a phyllic alteration zone and by the distribution of gold geochemical anomalies. These inferred structures are expressed topographically and appear to form part of the same structurally set that passed through the Boyongan and the Placer deposits to the northeast.

3. Copper-gold vein-hosted mineralization at Gold Hill is related to an underlying copper-gold porphyry deposit. Similarly, indications of epithermal mineralization in boulders in Cantikoy Creek may derived also from a high level manifestation of an underlying porphyry deposit.

4. Calcsilicate-altered rocks exposed in Cantikoy Creek have been uplifted along a fault that possibly controls the Cantikoy Creek drainage, so that these rocks now abut volcanic rocks that have undergone phyllic alteration. The calcsilicate-altered rocks probably represent a deeper structural level within a porphyry system than the phyllic-altered rocks

5. Magmatic rocks at Tapian San Francisco have mineralogical characteristics of alkalic

compositions and may form part of a shoshonitic suite. Porphyry copper deposits within shoshonitic assemblages are commonly magnetite-rich as well as being highly enriched in gold.

6. The potential for the discovery of additional zones within Tapian San Francisco that may host porphyry copper-gold mineralization is unknown because of a lack of exploration over much of the property. The northwestern part of the property abuts copper-gold mineralization of the Massad prospect. Since copper-gold and gold deposits in the region tend to occur in structurally-controlled groups, it is concluded that this part of Tapian San Francisco is worthy of further work.

17. RECOMMENDATIONS

1. Because all of the properties of the Surigao group have potential for the discovery of porphyry copper-gold deposits and possibly related epithermal precious metal deposits, it is recommended that the work programmes outlined in Section 15 be instigated.
2. Because of the very favourable geological features of the southern part of Tapian San Francisco with respect to porphyry deposit characteristics in the Philippines, this property should be given exploration priority.
3. Exploration on the Agata and Tapian Main properties should now address the potential of these properties as a whole rather than concentrating efforts in areas of known mineralization. However, the writer is aware of the constraints under which previous exploration was conducted.
4. Regional work should initially focus on structural interpretation from aerial photographs and possibly satellite imagery before field work is undertaken in order to prioritise those areas for geological reconnaissance and prospecting. Notwithstanding this recommendation, stream sediment sampling should be undertaken over the entire extent of those unexplored properties.

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19. CERTIFICATE

I, David Gerard Bailey of 2695 Mountain Highway, North Vancouver, British Columbia, hereby certify that:

1. I am a consultant geologist and principal of Bailey Geological Consultants (Canada) Ltd. with offices at the above address:
2. I am a graduate of Victoria University of Wellington, New Zealand (B.Sc. Hons. in Geology, 1973) and of Queen's University, Kingston, Ontario (Ph.D. in Geology, 1978); at Queen's University my research was of the geological environment of a copper-gold porphyry deposit:
3. I have practised the profession of geologist continuously since graduation; experience relevant to this report includes exploration for, and evaluation of, porphyry copper and gold mineralization throughout North America, Latin America, Indonesia, Papua New Guinea, Central Asia, China and Australasia:
4. I am a registered Professional Geoscientist of the Association of Professional Engineers and Geoscientists of British Columbia:
5. I hold memberships in the Society of Economic Geologists, the Association of Exploration Geochemists, the Canadian Institute of Mining and Metallurgy, the Australasian Institute of Mining and Metallurgy, the Geological Association of Canada and the Geological Society of America:
6. This technical report is based on my personal inspection of the Surigao group of properties described herein during the period August 4, 2003 and August 11, 2003; I am responsible for all sections of this report other than information from other sources referenced herein as such:
7. It is my professional opinion that the Surigao group of properties are properties of merit and that further exploration of these properties is warranted:
8. I have not undertaken any previous work for Panoro Minerals Ltd., but may undertake to conduct further work if requested to do so as an independent geological consultant; for this report and possible further work I expect to receive no remuneration other than normal professional fees and reimbursement of expenses incurred:
9. I am not aware of any material fact or material change with respect to the subject matter of this technical report which is not reflected in the technical report, the omission to disclose which makes the technical report misleading:
10. For the purpose of this technical report I am a "Qualified Person" as defined by National Instrument 43-101, Part 1.2; I have read this instrument and Form 43-101F and this technical report has been prepared in compliance with this instrument and Form 43-101F; by applying the tests set out in Part 1.5 of National Instrument 43-101, I am independent of the issuer.

Signed at North Vancouver, British Columbia, this eleventh day of September, 2003.

David G. Bailey, Ph.D., P.Geo.

APPENDIX A

Philippine Mineral Policies, Rules and Regulations

Philippine Minerals Policies, Rules and Regulations

I. GENERAL

Mineral resources in the Philippines are owned by the State. The Philippine National Minerals Policy of 2002 states that the mineral resources development shall be undertaken in a transparent and sustainable manner guided by relevant laws, rules and regulations, industry guidelines, and corporate responsibility and accountability, committed to the highest technical standards, management systems and practices, and engaged in a sustained process of consultation with local governments and communities, business groups, civil society and other industry stakeholders. The exploration, development and utilization of mineral resources may only be undertaken through grants of authority or rights to undertake such activities from the government. Republic Act Number 7942 (the Act) otherwise known as the Philippine Mining Act of 1995 (together with its revised Implementing Rules and Regulations [IRR]) is the present governing law on mining rights in the Philippines. It is considered to be a progressive law as it allows 100% foreign ownership of a mining project under a specified form of mineral agreement, which is the Financial or Technical Assistance Agreement (FTAA). Previously, foreign equity in mining projects was specifically limited to a maximum of 40%, while at least 60% was required to be owned by Philippine citizens. The constitutionality of the FTAA (100% foreign ownership provision) has been challenged by certain opposition groups and the matter is being considered by the Supreme Court of the Philippines. No judgment has been released at this time.

II. QUALIFIED PERSON DEFINED

Pursuant to the Mining Act of 1995, the State may grant Exploration Permits and enter into Mineral Agreements and Financial or Technical Assistance Agreements with Qualified Persons for the exploration, development and utilization of mineral resources. The Act further provides for the maximum areas that a Qualified Person may hold at any one time or be granted under an EP, MA or FTAA.

“Qualified Person” means any Filipino Citizen of legal age and with a capacity to contract; or a corporation, partnership, association or cooperative organized or authorized for the purpose of engaging in mining, with technical and financial capability to undertake mineral resources development and duly registered in accordance with law, at least 60% of the capital of which is owned by Filipino citizens. Provided, That a legally organized Foreign-owned Corporation shall be deemed a Qualified Person for purposes of granting an Exploration Permit, FTAA OR Mineral Processing Permit only.

“Foreign-Owned Corporation” means any corporation, partnership, association or cooperative duly registered in accordance with law in which less than 50% of the capital is owned by Filipino citizens.

In line with the principle of a rational and equitable distribution and utilization of mineral resources, the total aggregate area that may be held or granted to a single Qualified Person of an

EP, MA, or FTAA at any one time is limited to the maximum areas provided in the Act and the IRR.

Each Qualified Person must have the financial and technical capability to undertake the submitted Exploration/Development/Utilization Work Program and the Environmental Work Program/Environmental Protection and Enhancement Program under the EP, MA, or FTAA. As further mandatory requirement in the acceptance of the Mining Application, the mining applicant for an EP, MA, or FTAA shall be required to have a minimum authorized capital stock of PhP10,000,000.00 and a minimum paid-up capital of PhP2,500,000.00 as further proof of its financial capability; Provided, that in case of applicants for FTAA, they shall be required to have a minimum authorized capital stock of US\$4,000,000.00 or its Philippine Peso equivalent, after approval of the President of the Republic of the Philippines and prior to registration of the FTAA as provided for in the IRR.

III. FINANCIAL OR TECHNICAL ASSISTANCE AGREEMENT

The State recognizes the need to promote FTAA as an instrument to attract foreign direct investment and technology transfer, and international competitiveness stems from the fact that the huge risk capital for large-scale mining and exploration is not readily available locally. Relying solely on local capital would result to a status quo situation where mineral exploration and a persistent drop in mine production and revenues are expected to dominate the industry. Responsible mining corporations with financial or technical capability are available worldwide and are particularly interested in the Philippines if the investment and the mineral regulatory framework are both clear and competitive.

An FTAA is a contract involving financial or technical assistance forged by a Qualified Person with the Government of the Philippines for the large-scale exploration, development and utilization of certain minerals.

Article XII, Section 2, Paragraph 4 of the 1987 Philippine Constitution provides the mandate for the FTAA, to wit: “The President may enter into agreements with foreign-owned corporations involving either technical or financial assistance for the large-scale exploration, development of minerals...”

A Qualified Person or a legally organized foreign-owned corporation may apply for an FTAA.

The FTAA shall be guided by the following:

- r Adapting the principle of equitability in computing the government share in the development and exploitation of mineral resources;
- r Ensuring an additional share for the Government during times of extra-ordinary profits;
- r Ensuring the distribution of the Government’s share from mining in accordance with the Local Government Code; and

- r Guaranteeing that the share of the host and neighboring communities from the benefits of mining are brought down to alleviate poverty and improve the quality of life of the people.

The subject minerals for the FTAA are gold, copper, nickel, chromite, lead, zinc and other minerals except cement raw materials, marble, granite, sand and gravel and construction aggregates.

Per Qualified Person and in the entire Philippines, the FTAA's maximum areas are:

- r 1,000 meridional blocks or approximately 81,000 hectares onshore;
- r 4,000 meridional blocks or approximately 324,000 hectares offshore; or
- r Combination of 1,000 meridional blocks onshore and 4,000 meridional blocks offshore.

The approved FTAA has a term of 25 years maximum from date of execution and renewable for another term but not exceeding 25 years, under such terms and conditions as may be provided by law and mutually agreed upon by the parties concerned. The activities of each phase of mining operations must be completed within the following periods:

- r Exploration – up to 2 years from date of FTAA execution, extendible for another 2 years;
- r Pre-feasibility study, if warranted up to two years from expiration of the exploration period;
- r Feasibility study – up to 2 years from the expiration of the exploration/pre-feasibility study period or from declaration of mining project feasibility; and
- r Development, construction and utilization – remaining years of FTAA.

Provided, that any 2 or more of the activities under the above periods may be simultaneously undertaken in the Contract Area during each Period, as the need of the Contractor may arise, subject to the pertinent provisions of the IRR.

Relinquishment of the Contract Area is required under the FTAA contract. The Contractor is required to relinquish at least 25% of the original Contract Area during the first 2 years of Exploration Period and at least 10% of the remaining Contract area annually during the extended Exploration Period and Pre-Feasibility Study Period.

The following terms, conditions and warranties shall be incorporated in the FTAA, namely:

1. A firm commitment, in the form of a sworn statement during the existence of the Agreement, that the Contractor shall comply with minimum ground expenditures during the exploration and pre-feasibility periods as follows:

<u>Year</u>	<u>US\$/Hectare</u>
1	2
2	2
3	8
4	8
5	18
6	23

and a minimum investment of US\$50,000,000.00 or its Philippine Peso equivalent in the case of Filipino Contractor for infrastructure and development in the contract

area. If a Temporary/Special Exploration Permit has been issued prior to the approval of the FTAA, the exploration expenditures incurred shall form part of the expenditures during the first year of the exploration period of the FTAA. In the event that the Contractor exceeds the minimum expenditures requirement in any 1 year, the amount in excess may be carried forward and deducted from the minimum expenditure required in the subsequent year. In case the minimum ground expenditure commitment for a given year is not met for justifiable reasons as determined by the Bureau/concerned Regional Office, the unexpended amount may be spent on the subsequent year(s) of the exploration period.

2. A stipulation that the Contractor shall not, by virtue of the FTAA, acquire any title over the contract/mining area without prejudice to the acquisition by the Contractor of the land/surface rights through any mode of acquisition provided for by law;
3. Representations and warranties that the Contractor has, or has access to, all the financing, managerial and technical capability and technology required to promptly and effectively carry out the objectives of the Agreement with the understanding to timely utilize these resources under its supervision pursuant to the periodic work programs and related budgets, and when proper, providing an exploration period up to 2 years, extendible for another 2 years, subject to annual review of the Secretary in accordance with the IRR;
4. Representations and warranties that, except for payments for dispositions for its equity, foreign investments in local enterprises which are qualified for repatriation, and local supplier's credits and such other generally accepted financial schemes for raising funds for valid business purposes, the Contractor shall not raise any form of financing from domestic sources of funds, whether Philippine or foreign currency, for conducting its mining operations for and in the contract/mining area;
5. A stipulation that the Contractor shall give preference to goods and services produced and offered in the Philippines of comparative quality and cost. In particular, the Contractor shall give preference to qualified Filipino construction enterprises, construction materials and skills available in the Philippines, Filipino sub-contractors for road construction and transportation and Philippine household equipment, furniture and food;
6. A stipulation requiring the Contractor to effectively use the best available appropriate anti-pollution technology and facilities to protect the environment and to restore or rehabilitate mined-out areas and other areas affected by mine waste/mill tailings and other forms of pollution or destruction in compliance with the Environmental Compliance Certificate (ECC) and Presidential Decree No. 984;
7. A stipulation that the Contractor shall furnish the Government progress reports of exploration activities accompanied by raw geologic, geophysical and geochemical data plotted in a 1:50,000 scale map, at a minimum; and annual reports of mining operations;
8. A stipulation that the alien employment shall be limited to technologies requiring highly specialized training and experience subject to the approval under existing laws;
9. A stipulation that the Contractor shall recognize and respect the rights, customs and traditions of local communities, particularly Indigenous Cultural Communities;

10. A stipulation that the Contractor shall comply with its obligations under its Environmental Protection and Enhancement Program (EPEP) and its Annual EPEP, including the allocation of the prescribed annual environment expense;
11. A stipulation that withdrawal by the Contractor from the FTAA shall not release it from any and all financial, environmental, legal and/or fiscal obligations including settlement of all obligations that should have accrued to the Government during the term of the FTAA.

While awaiting for the approval of the FTAA application by the President, the Secretary of the Department of Environment and Natural Resources (Secretary), upon the request of the FTAA applicant, may issue a one-time non-renewable Temporary Exploration Permit (TEP) with a term not exceeding one (1) year to undertake exploration. The term of the TEP will be deducted from the exploration period of the FTAA. However, in the event that the FTAA application is disapproved by the President, the TEP is deemed automatically cancelled.

The Contractor, its heirs or successors-in-interest shall have the right to exclusively conduct mining operations within the contract area with full rights of ingress and egress, the right to occupy the same, all other rights provided for in the Act and its IRR; and the obligation to fully comply with the terms and conditions of the FTAA.

Transfer or assignment of an FTAA application is allowed subject to the approval of the concerned Regional Director taking into account national interest and public welfare. Such transfer or assignment shall be subject to eligibility requirements and shall not be allowed in cases involving speculation.

A Contractor may file an application for the total or partial transfer or assignment of its FTAA to a Qualified Person(s) upon payment of the prescribed fee with the concerned Mines Regional Office (Regional Office) for evaluation. No application shall be accepted for filing unless accompanied by the pertinent Deed of Assignment that shall contain, among others a stipulation that the transferee/assignee assumes all obligations of the transferor/assignor under the FTAA. Upon endorsement by the Mines Geosciences Bureau (Bureau) Director, the Secretary may recommend to the President the transfer or assignment of rights and obligations under any FTAA for approval; Provided, That any transfer or assignment of an FTAA shall not be approved unless the transferor/assignor or Contractor has complied with all the relevant terms and conditions of the FTAA and the provisions of the Act and DENR Administrative Order NO.96-40 at the time of transfer/assignment: Provided, further, That any transfer or assignment shall be deemed automatically approved if not acted upon by the President within thirty (30) calendar days from official receipt thereof, unless patently unconstitutional, illegal or where such transfer or assignment is violative of pertinent rules and regulations: Provided, finally, That the transferee assumes all the obligations and responsibilities of the transferor/assignor under the FTAA.

If circumstances warrant and upon the recommendation of the Director, the Secretary may impose additional conditions for the approval of the transfer/assignment of the FTAA.

The Contractor may, at its option, convert totally or partially its FTAA into a Mineral Agreement subject to verification and validation by the MGB and to the final approval by the DENR

Secretary, where the economic viability of the ores in the contract area is found to be inadequate to justify large-scale mining operations, In such cases, the Contractor shall manifest its request for conversion by filing a Letter of Intent with the DENR, copy furnished the concerned Regional Office. All revisions to the FTAA required by its conversion into a Mineral Agreement shall be submitted to the DENR Secretary within six (6) months from the date of filing the Letter of Intent. In the case of a foreign Contractor, it shall be given a period of one (1) year from the date of filing the Letter of Intent to satisfy the sixty percent (60%) Filipino equity requirement, subject to an extension of another one (1) year as may be approved by the Secretary taking into consideration the economic and other relevant factors. Upon compliance by the Contractor with all the requirements and payment of conversion fee, the application for conversion shall be evaluated and approved. The term of the new Mineral Agreement shall be equivalent to the remaining period of the FTAA. A copy of the Mineral Agreement shall be submitted to the President.

Failure of the Contractor to meet the sixty percent (60%) equity requirement within the prescribed period shall cause the forfeiture of the Contractor's right to such conversion.

The Government Share in an FTAA shall consist of, among other things, the Contractor's corporate income tax; excise tax; Special Allowance; withholding tax due from the Contractor's foreign stockholders arising from dividend or interest payments to the said foreign stockholder in case of a foreign-owned corporation; withholding tax on interest payments on foreign loans; value added tax on the purchase of imported goods and services; documentary stamps taxes; capital gains tax; royalties due the Government on Mineral Reservations, if any; royalty payments to any Indigenous People(s)[IP]/Indigenous Cultural Community(ies) [ICC], if any.

* Special Allowance refers to payment to the claimowner or surface right owner particularly during the transition period from P. D. No. 463 (Old Mining Law) and Executive Order No.279, Series of 1987.

The Government Share in an FTAA shall be negotiated by the Government and the Contractor taking into consideration:

- Capital investment of the project;
- Risks involved;
- Contribution of the project to the economy;
- Technical complexity of the project;
- Contribution to the community and Local Government; and
- Other factors that will provide for a fair and equitable sharing between the parties

The collection of Government Share shall commence after the FTAA Contractor has fully recovered its pre-operating, exploration and development expenses, inclusive. The period of recovery, which is reckoned from the date of commercial operation shall be for a period not exceeding five (5) years or until the date of actual recovery, whichever comes earlier.

* Pre-Operating Expenses refers to all exploration expenses, special allowance, administrative costs related to the project feasibility and environmental studies and all costs of mine construction and development incurred prior to commercial production.

The Government Share shall be paid to the nearest Bureau of Internal Revenue (BIR) office where the mining/contract area is located and in accordance with existing BIR rules and regulations.

The taxes and fees that must be paid by the FTAA Contractor are as follows:

1. Income Tax- After the lapse of the income tax holiday, as provided for in the Omnibus Investment Code of 1987, as amended, the Contractor shall pay income tax provided for in the National Internal Revenue Code, as amended.
2. Excise Tax on Mineral Products - The Contractor shall pay the excise tax on mineral products as provided for in Section 151 of the National Internal Revenue Code, as amended, i.e., on all metallic minerals, a tax based on the actual market value of the gross output thereof at the time of removal or the value used by the Bureau of Customs in determining tariff and customs duties, net of excise tax and value-added tax in the case of importation in accordance in the following schedule;
 - a. For copper and other metallic minerals except gold and chromite

Period of Production	Excise Tax Rate
June 24, 1997 - June 23, 1999	1.5%
June 24, 1999 and onwards	2.0%

b. Gold and chromite - a tax of two percent(2%)

3. Occupation Fee - Contractors on public or private lands are required to pay an annual occupation fee of Fifty Pesos (PhP50.00) per hectare or fraction thereof per annum.

The Secretary is authorized to increase the occupation fees when the national interest and public welfare so require, upon the recommendation of the Director.

The occupation fees must be paid on the date the FTAA is registered with the appropriate office and on the same date every year thereafter. It shall be paid to the Treasurer of the Municipality/City where the onshore mining areas are located. If the fee is not paid on the date specified, the Contractor shall pay a surcharge of twenty-five percent (25%) of the amount due in addition to the occupation fees.

If the applied area lies in several municipalities, the concerned Regional Offices shall determine the amount to be paid by the Contractor based on the official maps available in the respective offices and endorses the same to the concerned Municipal/Treasurer. If disagreements arise from this payment later, the Provincial Governor shall decide on the proportionate amount to be paid to the municipalities.

4. Other Local Taxes and Fees

The Contractor shall be allowed to avail of the fiscal and non-fiscal incentives as provided under the Mining Act and the IRR, and under Executive Order No. 226 or the Omnibus Investment Code of 1987. The Contractor may avail of the incentives provided hereof by filing an application with the Bureau. The Contractor's rights to avail of these incentives shall be subject to the conditions provided in Section 228 of the IRR and other pertinent laws, rules and regulations. These incentives include:

1. Incentives under Executive Order No. 266, as Amended;
2. Incentives for pollution control devices;
3. Incentives for income tax-carry forward of losses;
4. Incentive for income tax-accelerated depreciation;
5. Deduction of exploration and development expenses;
6. Investment guarantees;
7. Incentives for expansions and modifications to existing facilities and for development of new mineral resources

Withdrawal from the FTAA - The contractor shall manifest in writing its request to the Secretary, copy furnished the Director, for withdrawal from the FTAA, if in its judgment the mining project is no longer economically feasible, even after it has exerted reasonable diligence to remedy the cause(s) or situation(s).

After verification and validation by the Bureau and upon compliance with or satisfaction of all the Contractor's financial, fiscal, environmental and legal obligations at the time of withdrawal, the Secretary, within a period of thirty (30) calendar days, shall send an acceptance notice of withdrawal to the Contractor, cause the opening of the subject area to mining applications and release the Contractor's financial guaranty/performance bond.

IV. MINERAL AGREEMENT (MA)

A Mineral Agreement is an agreement under which the government grants the contractor the exclusive right to conduct mining operations within, but not title over, the contract area during a defined period. Mining operations that are allowed under Mineral Agreements include exploration, development and utilization of mineral resources. Mineral Agreements are classified into:

1. Mineral Production Sharing Agreement (MPSA)- wherein Government shares in the production of the Contractor, whether in kind or in value, as owner of the minerals. In return, the Contractor shall provide the necessary financing, technology, management and personnel for the mining project.
2. Co-Production Sharing Agreement (CA) – wherein Government provides inputs to the mining operations other than the mineral resources; and
3. Joint Venture Agreement (JVA) – wherein the Government and the Contractor organize a joint venture company with both parties having equity shares. For its

share, the Government is entitled to a share in the gross output of the mining project aside from its earnings in the equity of the company.

The maximum area that a Qualified Person may apply for or hold at any one time under a Mineral Agreement shall be as follows:

1. Onshore, in any one province –
 - a. For individuals- 10 blocks or approximately 810 hectares and
 - b. For corporations, partnerships, associations or cooperatives – 100 blocks or approximately 8,100 hectares.
2. Onshore, in the entire Philippines –
 - a. For individuals – 20 blocks or approximately 1,620 hectares
 - b. For corporations, partnerships, associations or cooperatives – 200 blocks or approximately 16,200 hectares.
3. Offshore, in the entire Philippines, beyond 500 meters from the mean low tide level –
 - a. For individuals – 50 blocks or approximately 4,050 hectares
 - b. For corporations, partnerships, associations or cooperatives – 500 blocks or approximately 40,500 hectares.
 - c. For the Exclusive Economic Zone – a larger area to be determined by the Secretary upon the recommendation of the Director.

In addition to the mandatory requirements for MA application (documentary requirements), the following are required: (1) National Commission on Indigenous Peoples (NCIP) Certification that the area does not overlap any certified or claimed ancestral land/domain; and (2) Where the area overlaps any certified or claimed ancestral domain, the Free and Prior Informed Consent of the concerned ICCs/IPs and the pertinent Memorandum of Agreement executed by and between the MA applicant, the concerned ICCs/IPs and the NCIP, in a form and substance consistent with Section 8 of Part III, Rule IV of NCIP Administrative Order No. 1, Series of 1998.

The approved MPSA has a term of 25 years renewable thereafter for another term not exceeding 25 years. It gives the right to the Contractor to explore the MPSA area for a period of two (2) years renewable for like periods but not to exceed a total term of eight (8) years, subject to annual review by the Director of the Mines and Geosciences Bureau (MGB) to evaluate compliance with the terms and conditions of the MPSA. The Contractor is required to strictly comply with the approved Exploration and Environmental Work Programs together with their corresponding budgets. The Contractor is likewise required to submit quarterly and annual accomplishment reports under oath on all activities conducted in the Contract Area. The reports shall include detailed financial expenditures, raw and processed geological, geochemical, geophysical and radiometric data plotted on a map at 1:50,000 scale, copies of originals of assays results, duplicated samples, field data, copies of originals from drilling reports, maps, environmental work program implementation and detailed expenditures showing discrepancies/deviations with approved exploration and environmental plans and budgets as well as all other information of any kind collected during the exploration activities. All the reports submitted to the MGB shall be subject to confidentiality clause of the MPSA.

The Contractor is further required to pay at the same date every year reckoned from the date of the first payment, to the concerned Municipality an occupation fee over the Contract Area

amounting to PhP50.00 per hectare. If the fee is not paid on the date specified, the Contractor shall pay a surcharge of 25% of the amount due in addition to the occupation fees.

The MPSA may be suspended for failure of the Contractor to comply with any provision of the Act and to pay taxes, fees and/or other charges demandable and due the Government. In addition, the said Agreement may be terminated for the following causes: (a) expiration of its term whether original or renewal; (b) withdrawal from the Agreement by the Contractor; (c) violation by the Contractor of the MPSA's terms and conditions; (d) failure to pay taxes, fees or financial obligations for two consecutive years; (e) false statement or omission of facts by the Contractor; and (f) any other cause or reason provided under the Act and its IRR, or any other relevant laws and regulations.

If the results of exploration reveal the presence of mineral deposits economically and technically feasible for mining operations, the Contractor, during the exploration period, shall submit to the Regional Director, copy furnished the Director, a Declaration of Mining Project Feasibility together with a Mining Project Feasibility Study, a Three Year Development and Construction or Commercial Operation Work Program, a complete geologic report of the area and an Environmental Compliance Certificate (ECC). Failure of the Contractor to submit a Declaration of Mining Project Feasibility during the Exploration Period shall be considered a substantial breach of the MPSA.

Once the ECC is secured, the Contractor shall complete the development of the mine including construction of production facilities within 36 months from the submission of the Declaration of Mining Project Feasibility, subject to such extension based on justifiable reasons as the Secretary may approve, upon the recommendation of the Regional Director, through the Director.

Any portion of the contract area, which shall not be utilized for mining operations shall be relinquished to the Government. The Contractor shall also show proof of its financial and technical competence in mining operations and environmental management.

The Contractor shall submit, within 30 days before the completion of mine development and construction of production facilities, to the Director through the concerned Regional Director a Three-Year Commercial Operation Work Program. The Contractor shall commence commercial utilization immediately upon approval of the Work Programs. Failure of the Contractor to commence commercial production within the period shall be considered a substantial breach of the MPSA.

V. EXPLORATION PERMIT (EP)

An EP is an agreement under which the government grants the contractor the exclusive right to conduct exploration within the contract area during a defined period. The term of an EP is two (2) years from the date of the issuance, renewable for like periods but not to exceed a total term of eight (8) years. Provided, that no renewal of the Permit shall be allowed unless the Permittee has complied with all the terms and conditions of the Permit, and has not been found guilty of violation of any provision of the Mining Act and its IRR: Provided, further, that in cases where

further exploration is warranted and on condition that the Permittee has substantially implemented the Exploration and Environmental Work Programs as verified by the Bureau/concerned Regional Office, the Secretary may further grant renewal of the Exploration Permit: Provided, furthermore, that the Permittee shall be required to set up a performance surety equivalent to the expenditure requirement of the Exploration and Environmental Work Programs: Provided, finally, that the conduct of the feasibility studies shall be included during the term of the EP. Unlike the MPSA, an EP is limited to exploration.

The maximum area that a Qualified Person may apply for or hold at any one time under an Exploration Permit shall be as follows:

4. Onshore, in any one province –
 - a. For individuals- 20 blocks or approximately 1,620 hectares and
 - b. For corporations, partnerships, associations or cooperatives – 200 blocks or approximately 16,200 hectares.
5. Onshore, in the entire Philippines –
 - a. For individuals – 40 blocks or approximately 3,240 hectares
 - b. For corporations, partnerships, associations or cooperatives – 400 blocks or approximately 32,400 hectares.
6. Offshore, in the entire Philippines, beyond 500 meters from the mean low tide level –
 - a. For individuals – 100 blocks or approximately 8,100 hectares
 - b. For corporations, partnerships, associations or cooperatives – 1,000 blocks or approximately 81,000 hectares.

The Permittee shall annually relinquish at least 20% of the permit area during the first 2 years of exploration and at least 10% of the remaining permit area annually during the extended exploration period. However, if the permit area is less than 5,000 hectares, the Permittee need not relinquish any part thereof. A separate report of the relinquishment shall be submitted to the Bureau/concerned Regional Office with a detailed geologic report of the relinquished area accompanied by maps at a scale of 1:50,000 and results of analyses and corresponding expenditures for the remaining area of relinquishment shall be based on the approved Exploration Work Program.

A Permittee who has conducted preliminary exploration activities may, at its option, convert totally or partially its EP to a MA or FTAA by filing a Letter of Intent with the Bureau prior to the expiration of the EP, copy furnished the concerned the Regional Office. Said Letter shall also provide therein its intention over the area that may not be covered by the conversion to a MA or FTAA: Provided, that the MA or FTAA application shall be filed with the concerned Regional Office within 30 days upon filing of the Letter of Intent: Provided, further, that the failure of the Permittee to file the MA or FTAA application within the prescribed period shall be construed that the Permittee elects to continue operation until the expiration of the EP.

Upon compliance by the Permittee with all the mandatory requirements and upon payment of the required conversion fee, the application for conversion shall be evaluated and approved subject to Chapter VI (Mineral Agreement) and Chapter VII (Financial and Technical Assistance Agreement) of the IRR and all other applicable provisions of the Act and its IRR: Provided, that

the term of the EP shall be deducted from the terms of the Exploration/Feasibility Study/Feasibility Study Period of the MA or FTAA.

VI. ENVIRONMENTAL MATTERS

The Philippine Government grants EP's, MPSA's or FTAA's on the condition that the subject mining activities are managed in a technically, financially, socially, culturally and environmentally responsible manner to enhance the national growth and welfare of the Philippines. DENR requires an Environmental Clearance Certificate (ECC) for any mining activity. The ECC refers to the document issued by the Secretary of the DENR certifying that based on the representations of the proponent and the preparers (the proponent's technical staff of the competent professional group commissioned by the proponent to prepare the Environmental Impact Statement (EIS) and other related documents), as reviewed and validated by the Environmental Impact Assessment Review Committee (EIARC), the proposed project or undertaking will not cause a significant negative environmental impact; that the proponent has complied with all the requirements of the Environmental Impact Assessment System (EIAS); and that the proponent is committed to implement its approved Environmental Management Plan in the EIAS or mitigation measures in the Initial Environmental Examination (IEE).

The issuance of the ECC by the DENR, which is necessary prior to the conduct of any mine development work and construction of the production facilities in the Contract Area, involves the commissioning of the Environmental Impact Assessment (EIA) and the preparation of the EIS. The EIA refers to the process of predicting the likely environmental consequences of implementing projects or undertakings and designing appropriate preventive, mitigating and enhancement measures. On the other hand, the EIS refers to the documents of studies on the environmental impacts of a project including discussions on direct and indirect consequences upon human welfare and ecological and environmental integrity. The Environmental Management Bureau (EMB)/DENR-Regional Office in coordination with the Mines Geosciences Bureau, shall take the primary responsibility for the acceptance, processing, evaluation and monitoring of the EIS and the IEE. The EMB/Environmental Management and Protected Areas Services (EMPAS) shall have the authority to recommend to the Secretary any appropriate action on applications for an ECC.

The ECC is the basis for the Environmental Protection and Enhancement Program (EPEP), which every party to an MPSA must undertake within the subject area of the MPSA. The EPEP refers to the comprehensive and strategic environmental management plan for the life of a mining project on which the Annual Environmental Protection and Enhancement Programs (AEPEP) are based and implemented to achieve the environmental management objectives, criteria and commitments including protection and rehabilitation of the disturbed environment. The EPEP must be submitted by the company within 30 days from receipt of the ECC. To effectively implement an approved EPEP, the AEPEP is required to be submitted 30 days prior to the beginning of every calendar year. Minesite inspections and quarterly monitoring are conducted by the DENR and a multipartite monitoring team composed of local government units, host communities, non-governmental organizations, the DENR and the company to ensure compliance with the AEPEP.

Companies are required to rehabilitate technically and biologically all areas that are excavated, mined out, covered with tailings or otherwise disturbed and to establish a mine rehabilitation fund, based on their work program. Such a fund must be deposited as a trust fund in a government depository bank and is used for the physical and social rehabilitation of areas and communities affected by mining activities as well as for research on the social, technical and environmental enhancement aspects of rehabilitation.

VII. THE ROLE OF THE MINING CONTRACTOR

The Philippine National Minerals Policy outlines the role of the mining contractor, thus, the mining contractor shall, at the very minimum, perform the following:

- r Coordinate with proper authorities in providing development plans for the mining community and neighboring communities;
- r Help create self-sustaining income-generating activities, such as reforestation and production of goods and services needed by the mine and the community. Where traditional self-sustaining, income-generating activities are identified to be present within the host and/or neighboring communities, the company shall work with such communities towards the preservation and/or enhancement of such activities;
- r Give preference to qualified Filipino citizens in the hiring of personnel for its mining operations – the majority of which shall originate, according to priority, from the host and neighboring communities, the host municipality and the province where the mine is located. Company-organized skills enhancement programs shall be established in the absence of the needed skills; and
- r Give its firm commitment to skills re-formation and entrepreneurship development for people in the mining communities as an integral part of the mine closure process.

VIII. CORPORATE SOCIAL RESPONSIBILITY DURING EXPLORATION

It is to the benefit of the minerals industry if a high level of public involvement is maintained from the onset. The traditional acknowledgement of the rights must give way to the unequivocal recognition of moral imperatives, from paternalistic to sustainable social investments. Adoption of a pro-active social responsibility principle shall mean the anticipation and prevention of the social impacts of mining with cradle-to-grave public involvement. As such, is encouraged that social profiling be undertaken during exploration. A social profile is considered as the most appropriate tool for mutual education where the company benefits from an understanding of the structure and dynamics of the communities including attitude towards nature/environment, change and growth, knowledge of and attitude towards the exploration project while the communities benefit from first-hand information about the project. Ideally, this should be conducted prior or during the early stages of exploration to serve as the foundation for mutual trust.

APPENDIX B

Laboratory Procedures

McPHAR GEOSERVICES (PHILIPPINES) INC.



OFFICE : P & L BLDG. 116 LEGASPI ST., LEGASPI VILLAGE, MAKATI CITY
LAB : BJS COMPOUND, 1869 P. DOMINGO ST., MAKATI CITY

P O BOX 7356
DOMESTIC AIRPORT POST OFFICE
1300 DOMESTIC RD., PASAY CITY
METRO MANILA, PHILIPPINES

November 05, 1997

Mr. Cesar Ramos
MRL Gold
Room 1406, Cityland 10, Tower 11
Ayala Ave., cor. H.V. dela Costa,
Makati City

Dear Cesar,

Our external ISO 9002 auditors are now requiring us to more fully document each job order or analysis request. Because MRL Gold uses our lab on a regular basis, we propose to keep your "normal" requests on file to minimize any inconvenience this may cause you. We also want to make sure we're doing what you think we're doing, particularly after the recent problems of Bre-X in Indonesia.

The attached flowsheet outlines your "usual" sample preparation requirements. Drying, crushing and fine pulverizing are charged for under SP-1, SP-2, SP-6, SP-7 and SP-9 of our Services Price List.

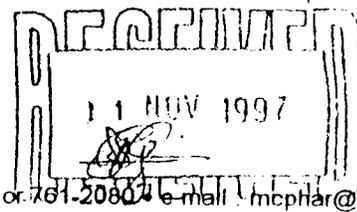
Your normal rock/soil analysis requirements are:

	Code
Cu, Pb, Zn, Ag by AAS following hot HCl leach and HCl/HNO ₃ leach in latter stages for 1 hour on 0.25g sample	GA-1
Au by Fire Assay on 30g sample (det. limit - 10ppb)	PM-3
As, Sb by Vapor Generation/AAS from the acid leach	VG-2
Mo by Modified Dithiol Method following Potassium Pyrosulfate leach on 0.2g sample	GC-1
Hg by Flameless AAS	GA-3

Your normal stream sediments analysis requirements are:

	Code
Cu, Pb, Zn, Ag by AAS following hot HCl leach and HCl/HNO ₃ leach in latter stages for 1 hour on 0.25g sample	GA-1
Au by solvent extraction/AAS/GTA following aqua regia leach on 20g sample (det. limit - 5ppb)	PM-2

26th Year



As, Sb by Vapor Generation/AAS from the acid leach	VG-2
Mo by Modified Dithiol Method following Potassium Pyrosulfate leach on 0.2g sample	GC-1
Hg by Flameless AAS	GA-3

Sample rejects will be retained for six (6) months. We'll then notify you before discarding them.

If the above is correct, we would appreciate your indicating this by signing the conforme below and returning the attached copy of this letter to us. However, should it need modification, please advise us of your changes. We'll then send a corrected version of this letter to you for your final acceptance.

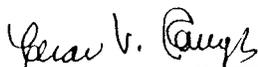
Please don't hesitate to call if this requires any further discussion.

Best regards,

McPHAR GEOSERVICES (PHILIPPINES), INC.


ART C. DEL MUNDO
Chief Chemist

Conforme:



Cesar Ramos

11 NOV. 1997

Dated

Encl.: Sample Prep Flowsheet
: Chemistry Division Services Price List
cc : Art del Mundo

PKS/mac

MRL GOLD

ROCK SAMPLES



DRY
(SP2)



CRUSH - ¼
(SP7)



SPLIT 1 KILO



FINE PULVERIZE -200 M
(SP9)



SAMPLING

SOIL/STREAM
SEDIMENTS



DRY
(SP1/SP2)

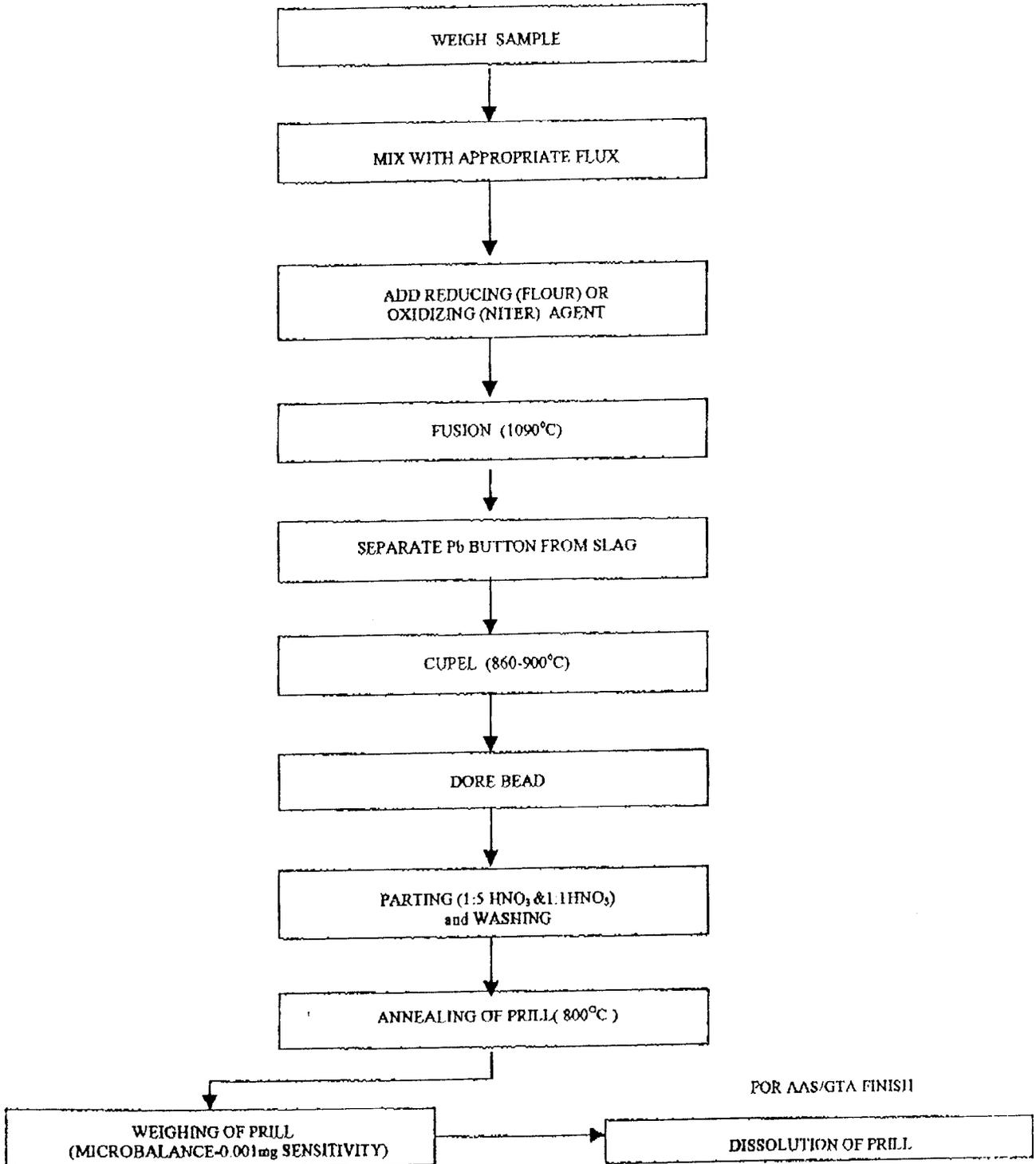


SIEVE -80 M
(SP4)



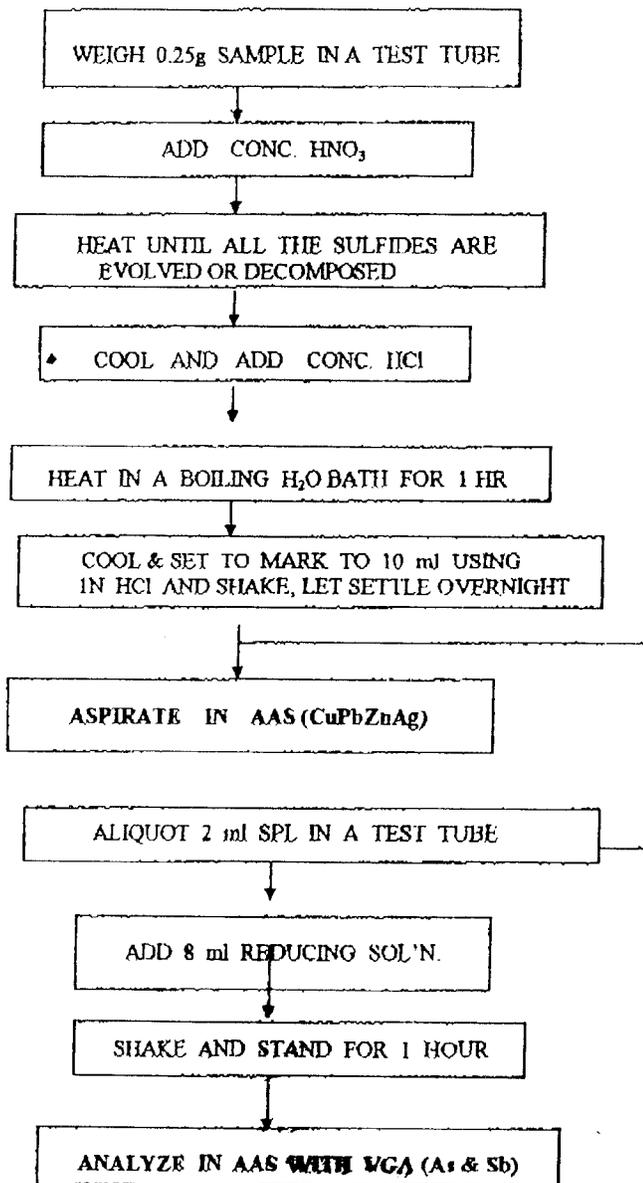
SAMPLING

FLWSHEET OF FIRE ASSAY OPERATION



PROCEDURE FLOWSHEET FOR CuPbZnAg (GA-1) and AsSb (VG-1)

PROCESS AREA



PROCEDURE FLOWSHEET FOR GOLD (Au) BY ACID DIGESTION (PM1, PM2)

