

COMPREHENSIVE TECHNICAL REPORT ON THE FIRST TWO-YEAR EXPLORATION PERIOD COVERING JULY 2010 TO JUNE 2012 OF MPSA-336-2010-XI

July 1, 2010 to June 30, 2012

(DECEMBER, 2012)

COMPREHENSIVE TECHNICAL REPORT OF THE EXPLORATION WORK PROGRAM IMPLEMENTATION OF THE MINERAL PRODUCTION SHARING AGREEMENT

NO. 336-2010-XI

COVERING THE FIRST TWO-YEAR EXPLORATION PERIOD OF JULY 1, 2010 TO JUNE 30, 2012

I. INTRODUCTION

- Napnapan Mineral Resources Inc. (NMRI), a corporation duly organized and existing under the laws of the Republic of the Philippines, was awarded by the government the contract to explore, develop and utilize parcels of mineral land in the Municipality of Pantukan in the Province of Compostela Valley. This contract is a Mineral Production Sharing Agreement (MPSA), denominated as MPSA No. 336-2010-XI. The MPSA was approved by Department of Environment and Natural Resources Secretary Horacio C. Ramos on June 8, 2010 and was registered at the Mines and Geosciences Bureau in Davao City on July 9, 2010.
- Under the Agreement, the area has a coverage of approximately Four Thousand Nine Hundred Twenty and 3209/10,000 (4,920.3209) hectares, divided into two (2) parcels. The contract also provides for the initial exploration period of two (2) years, where all the activities undertaken during the said exploration period shall be reported and submitted on a quarterly basis to the Mines and Geosciences Bureau.
- This report will discuss the accomplishments made by NMRI during the First Two-Year Exploration period 336-2010-XI covering the period from July 1, 2010 to June 30, 2012.

II. TENEMENT DETAILS

The Agreement covers a Contract Area of 4,920.3209 hectares situated in Pantukan, Compostela Valley has the following technical descriptions:

Parcel – 1

Corner	Latitude	Longitude
1	7-09-30.00	125-56-30.00
2	7-11-00.00	125-56-30.00
3	7-11-00.00	125-57-30.00
4	7-10-30.00	125-57-30.00

5	7-10-30.00	125-58-00.00
6	7-09-30.00	125-58-00.00

Parcel 2

Corner	Latitude	Longitude
1	7-10-30.00	125-58-00.00
2	7-10-42.69	125-58-00.00
3	7-10-42.72	125-58-13.74
4	7-10-32.95	125-58-13.74
5	7-10-32.93	125-59-12.44
6	7-11-51.08	125-59-12.44
7	7-11-50.58	125-59-41.54
8	7-12-49.68	125-59-41.54
9	7-12-49.68	126-00-00.00
10	7-13-48.18	126-00-00.00
11	7-13-48.28	125-58-52.74
12	7-12-39.92	125-58-52.74
13	7-12-39.92	125-58-13.54
14	7-12-00.86	125-58-13.54
15	7-12-00.85	125-57-34.54
16	7-12-00.00	125-57-34.53
17	7-12-00.00	125-57-30.00
18	7-13-30.00	125-57-30.00
19	7-13-30.00	125-58-30.00
20	7-16-00.00	125-58-30.00

21	7-16-00.00	125-59-30.00
22	7-14-30.00	125-59-30.00
23	7-14-30.00	126-00-00.00
24	7-15-00.00	126-00-00.00
25	7-15-00.00	126-01-00.00
26	7-10-30.00	126-01-30.00

III. LOCATION AND ACCESSIBILITY

- The host town of Pantukan is located some 100 kilometers northeast of Davao City and accessible by an hour and a half drive through the Maharlika Highway via the Province of Davao del Norte. From the town proper of Pantukan, one has to take a motorcycle ride for another one and a half hour passing the old logging and dirt roads going to the direction north of the town to the mountain ranges. (Figure 1)
- The port of entry is also Davao City, which is classified as a highly urbanized and chartered city and serves as the regional hub of Davao Region. It is also considered as the *de facto* capital of the island of Mindanao and the gateway to Brunei-Indonesia-Malaysia-Philippines East Asian Growth Area (BIMP-EAGA). The Francisco Bangoy International Airport serves regular flights to various destinations like Manila, Cebu, Zamboanga, Ilo-ilo, Cagayan de Oro, Hongkong and Singapore.
- The Davao international port is one of the busier ports in the country, having been blessed with a deep harbor along the Davao Gulf. Regular local and international ship calls are made in this port to serve the export-driven industries of Davao Region.

IV. REGIONAL GEOLOGY AND PHILIPPINE GEOTECTONIC AND METALLOGENIC SETTING

The Geotectonic Map of the Philippines shows the major copper-gold metallogenic provinces highlighted. The major controls for mineralization for copper and gold are, 1) the Philippine fault system traversing from the Baguio Copper-Gold District in the north running southeasterly and then southerly to the Davao Copper-Gold District where the subject NMRI

MPSA area is located and 2) the subduction-related Tertiary Intrusives and Upper Miocene-Quaternary Volcanics (and Volcaniclastics) found in all these Mineral Districts.

- The north-northwest-trending East Mindanao Ridge, bordered by the Philippine Sea on the east and Agusan-Davao Trough on the west, attains elevations over 2400 meters. It continues northwards through the island of Samar, and southwards from the Pujada Peninsula of southeastern Mindanao along a submarine horst to Talaud Island.
- The broad valley of the Agusan-Davao Trough is underlain by at least 5 kms. of gently folded Cenozoic predominantly clastic strata with an eastward-inclined Eocene limestone at or near the base. The nature of the boundary between the East Mindanao Ridge and Agusan-Davao Trough is to some extent obscured by the Philippine Fault.

V. PREVIOUS WORKS

- Naungayan (1994) cited an unavailable report of A. G. Casasola entitiled "Petroleum and Geological Field Investigation of Western Davao, 1955" where some rock formational units where described. Naungayan (1994) probably covered only the western fringes of this subject tenement because he described only interbedded siltstone and sandstone outcrops without mentioning the extensive mineralized intrusives in the NADECOR area and the bedded to massive volcaniclastic rocks with minor basaltic andesite flows recognized by this author in the subject MPSA. The interbedded units described by Naungayan(1994) are probably Unit D in Annex 1 of this report showing a photogeological map describing well-bedded units of sandstone and siltstone (see Annex 1).
- Sosa (1987) surveyed the gold deposits in the Boringot portion of the MPSA and covered a relatively gold-rich area therein. He described a thick sequence of volcanic conglomerate, siltstone and sandstone intruded by andesite porphyry. The coarse clastics described by Sosa (1987) are probably similar to Unit B in Annex 1 Photogeological Map in this report. The andesite porphyry where also encountered in, for example, the Rescuer Tunnel and Annie Demiray Tunnel in Biasong and Lit-ag portions of the tenement and similar to Sosa's(1987) assessment are deemed post-mineral.
- Benguet Corporation geologists thru an agreement with then Pantukan Minerals Corporation who were the previous owner of this tenement application around 2003, conducted vein sampling in Boringot, Panganason and Diat portions of the current MPSA. Nineteen (19) significant,

albeit narrow, gold-bearing structures were delimited with a computed combined resource of 91,740 metric tons @ 8.95 g/t(weighted) average grade.

- The eastern Mindanao ridge or Diwata Range runs from northern Minadanao in Surigao-Agusan provinces southwards to Pujada Peninsula in Davao. From various surveys conducted by this author, the geology of the east Mindanao Ridge from Agusan thru Diwalwal in Monkayo and then thru this Pantukan tenement show similarities in terms of stratigraphy and rock types. In this regard, Mitchell, et. als. (1984) report on the Geology of Northern Agusan (for which this author was a project participant) is cited here to correlate their described rock types, stratigraphy and timing of mineralization. Mitchell et. al. (1984) described an Upper Eocene unit composed of conglomerates and calcirudites which are overlain by andesites, andesitic wackes and plagiophyric basalts of probable Oligocene age. To this author. This Upper Eocene and Oligocene units are correlative to the bedded to massive volcaniclastics observed in the tenement and described in the chapters below.
- Discussions on the gold mineralization in this subject tenement will not be complete without describing the adjacent Kingking porphyry copper-gold deposit shown in the figure below.

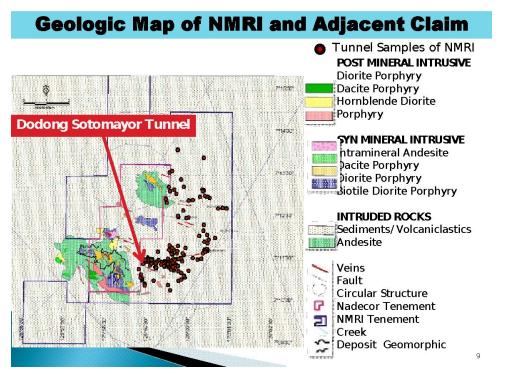


Figure 1. NMRI Tenement and Adjacent NADECOR Tenement With Summary Geology

- Figure 1 above shows the outline of the Kingking deposit hosted in various intrusive diorite complex and intruded to what NADECOR regard as sediments but demonstrated in the NMRI survey as volcaniclastics.
- Figure 2 below shows that the tenement gold deposits is part of an "elephant country", i.e. large gold and porphyry deposits located in the Diwata range or East Mindanao Ridge from Agusan (Co-O gold deposit) thru Diwalwal (Monkayo gold deposits) thru Maco near the Boringot gold deposits of the tenement. The Kingking porphyry copper-gold deposit is considered geologically coeval and cogenetic with the belt of deposits below most specifically the gold veins in this adjacent subject MPSA following models of Sillitoe and Gappe (1984) and and Corbett (2009?).

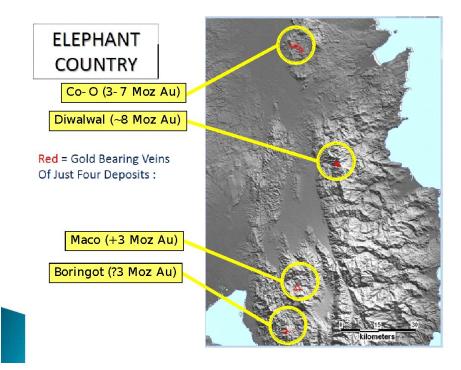


Figure 2. Belt of Gold Deposits in the Diwata Range

NADECOR-BENGUET(1992) have shown that the Kingking porphyry copper-gold deposits are along a NE-trending trend of mineralized intrusives along a 6 kms. long and 3 kms. wide belt. The intrusives, and probably the related epithermal gold veins both in the NADECOR and NMRI tenements are considered middle to late Miocene in age. In the NADECOR tenement, intrusions are polyphasal from biotite diorite porphyry to quartz diorite porphyry and diorite porphyry. Andesite porphyry seems the latest stage of intrusion even later than epithermal gold mineralization.

VI. RESULTS OF THE FIRST TWO-YEAR EXPLORATION PERIOD IN MPSA-336-2010-XI

EXPLORATION METHODOLOGY

- NMRI did not make use of soil and stream sediment surveys since the tenement has been the site of extensive artisanal mining since the 1970's with current small-scale mining population of around 8,000 people (both within NADECOR and NMRI) as estimated by Pantukan town LGU, thereby disturbing the natural soil profiles and stream geochemistry.
- It was prudent and proved more useful to utilize the extensively widespread tunnels of existing small-scale operators as common sense should follow that these are sites where gold veins occur and therefore available for sampling and characterization.
- NMRI utilized the software ArcGIS version 9.3 to encode all data with AUTOCAD software in encoding tunnel details.

NMRI utilized aerial surveys to view extent of small-scale operations and physiography of the area.

- When it was apparent that very few surface rock outcrops were accessible for observation and that the very rugged terrain precluded systematic lithological mapping, NMRI utilized aerial photograph interpretation to create a tenement lithologic map supported by limited ground observations. Lithological observations within the tunnels were physically difficult due to the sub-standard size of these and the very limited lighting within the tunnels.
- Therefore, the methodology used was to get 1) GPS locations of tunnel portals, 2) compass and tape surveys of the tunnels controlled by the GPS locations, 3) chip sampling of the gold veins, 4) recording the attitudes of the sampled gold veins and 5) encoding in ArcGIS tunnel portal locations after digitizing from NAMRIA maps tenement boundaries and topography and drawing by AUTOCAD all tunnel surveys and vein directions. All the maps shown below were encoded this way.
- A total of 186 tunnels and 24 surface vein outcrops (Annex 5, Tunnel Drawings) were sampled and encoded creating a database of 912 samples distributed as shown in the ensuing maps. This is the first time that this was done in the tenement and should vastly improve the government database on these artisanal tunnels.

For each tunnel map, the following data are included :

- Area
- Tunnel length
- Tunnel Name
- Surveyor
- Date sampled and surveyed
- Elevation
- Northing and Easting
- Encoder
- Bar scale

For the ArcGIS colored maps, the following data are included :

- Tenement boundaries
- Coordinates
- GPS surveyed roads and trails (access)
- Tunnel portals with assay result for the highest grade yield in the tunnel
- Topography
- Local locations (e.g. Tanguile, Nato, etc.)
- Gold assay ranges
- Location Map
- Photogeological Map

SURVEY RESULTS

1.0 Prospect Geology

Photogeological interpretation covering the whole tenement was done for this period with the end result of a photogeological map shown in the **Annex 1**.

The resulting photogeological map shows the tenement to be underlain by six units with varying air photo characteristics.

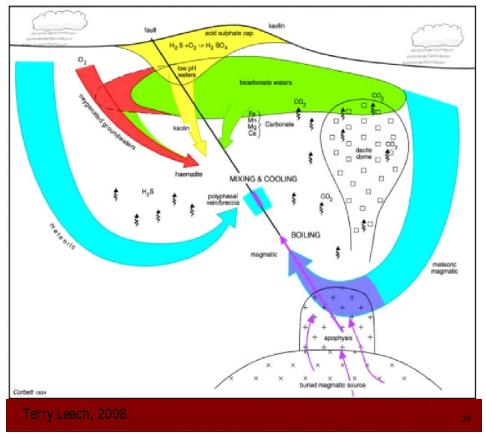
Unit A lies in the central portion of the tenement and is characterized by sharp peaks and ridges and medium to coarse grained photo textures. On the ground, these are prevalent in almost all the tunnels surveyed and is actually a massive-bedded volcaniclastic rock unit composed of lappili tuff and minor tuff breccias and rare interbeds of basaltic andesite flows. In the Rescuer tunnel in Biasong 3, this unit is intruded by altered andesite porphyry which appears to be post epithermal gold deposition. This unit is the most prevalent country rock for the numerous epithermal gold veins being worked by the small-scale miners.

- Unit B lies in the eastern extremities of the tenement. It is characterized by elongated ridges and dendritic to angular drainage pattern. Because some sub-horizontal bedding is discernible, the unit is most probably a conglomerate, sandstone or bedded volcaniclastic. The previous works have not reached these areas due to alleged absence of gold workings and hence this unit needs ground checking.
- Unit C lies in a NNW trending sub-linear body along the contact of Units A and B. It is about 5 kilometers long and 0.5 to 2 kms. wide. This unit is characterized by medium photo tone, short drainage lines and low resistance to erosion. Elongated ridges are well-developed that slopes gradually. In the field, this unit was observed as a wide clay-silica alteration zone which also hosts epithermal gold veins. In the field, alteration contains relict textures but are sometimes completely fabric-destructive. This unit is quite significant in the mineral exploration of the area as it could signify a lithocap of a buried porphyry system beneath the epithermal gold veins now being exploited. This porphyry system, if indeed existent, could host porphyry copper mineralization.
- Unit D lies in the western part of the area. It is characterized by trellis to dendritic drainage pattern, well-developed bedding planes forming flat iron-shaped bodies and are folded. The road from Tibagon to Diat shows good exposures of this well-bedded sedimentary unit of sandstones and siltstones.
- Unit E occurs in the western portion of Parcel 1. It is characterized by small knobs and ridges and fine texture with definite bedding planes. In the field, this unit are bedded and massive limestones west of Buko-buko sa Anay road junction to NADECOR and Biasong/Lit-ag area.
- Unit F occurs as small patches less than 500 meters in diameter. Within the tenement, they are photogeologically evident in Lit-ag and Biasong and perhaps are outcropping bodies of intrusive andesite porphyry similar to that observed in Rescuer tunnel.
- All of the above photogeological units need to ground-truthed and characterized as to petrology and relationships to known mineralization. It is therefore planned that the tunnels previously sampled be mapped in detail geologically to firm up the prospect geology.

2.0 Results of Tunnel Sampling

Annex 2 shows an Excel spreadsheet summarizing the data for the 912 samples collected.

The veins are characteristically clay-calcite-quartz veins with quartz ranging in content from 10% to 90%. Banding is very rare and when present is characterized by galena-sphalerite bands alternating with quartz. All of the banded ores are very high grade (> 10 g/t Au) and are probably produced by boiling and fluid mixing to form bonanza zones as described in Corbett (2009?) from the model of Terry Leach shown below :



Above model by Terry Leach (2008) in Corbett (2009?) shows the importance of kaolin from descending meteoric fluids and their mixing and cooling with ascending magmatic fluids. Sosa (1987) showed the almost ubiquitous presence of kaolinite from XRD analyses of unlocated portions of veins in the Boringot area.

- The galena and sphalerite and chalcopyrite in the rich zones are therefore the magmatic components of the ascending fluids which mixed with the kaolin rich meteoric waters to produce bonanza zones.
- Supergene manganese and limonite in the form of botryoidal and dusty masses appears to have enriched some portions of the veins although the absence of Mn analyses preclude a conclusive correlation. The database however shows the conclusive positive correlation of Pb, Zn and Cu with high gold grades (>10 g/t Au).
- NMRI submitted to REVALUTE Company in Australia the database for desk review and below are the resulting conclusions by their geologist Robert G. Adamson.
 - Sampled quartz veins range in thickness from 0.12m to 2.4m with a mean thickness of 0.72m and standard deviation of 0.45. Gold grades range from below detection level up to 227 g/t Au with a mean grade of 5.7 g/t Au and standard deviation of 14 g/t Au.
 - Calculation of grade-width multiples shows 111 of the sampled veins (c.12% of total) equal to or exceeding 5 gram-meters in value. Plotting of these veins (Figure 1) show that they comprise three well-defined linear zones each approximately 1.5km in length and trending NW to WNW.
 - The most northeasterly zone (c. 1,800m long) is centred on the Boringot prospect where a study by the Mines and Geosciences Bureau (Sosa, 1987) suggested there were 11 identified veins which constitute a resource of 4.079M tonnes at 12.74g/t of gold. This was only a preliminary geological evaluation with no drilling or systematic investigation.
 - A northern zone (c. 1,500m long) lies west of and en-echelon to the Boringot group, and extends northwesterly into the Kingking property.
 - Approximately three kilometres southwest of the two northern zones, a strongly define almost 2,000m long zone of >5 gram-meter veins strikes ESE from the Kingking deposit; its western end may be within 500m of the Kingking porphyry.
 - Three or more small clusters of >5 gram-meter veins occur within the area between the two "Boringot" groups and the "Kingking" zones.

• Each of the linear zones appear to be situated on extensions of major southeast-striking alteration trends and probable structures that have been mapped in the Kingking tenement.

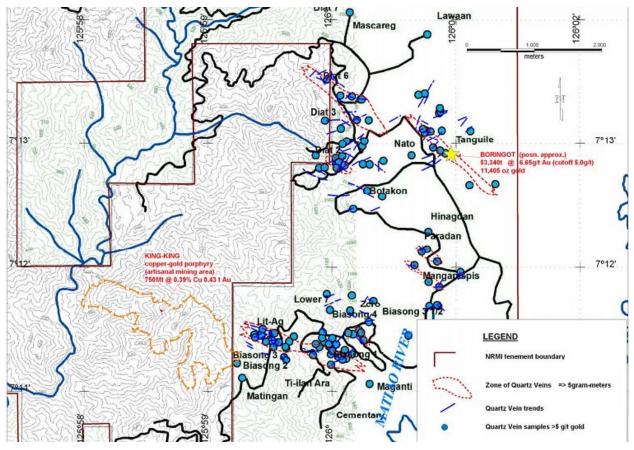
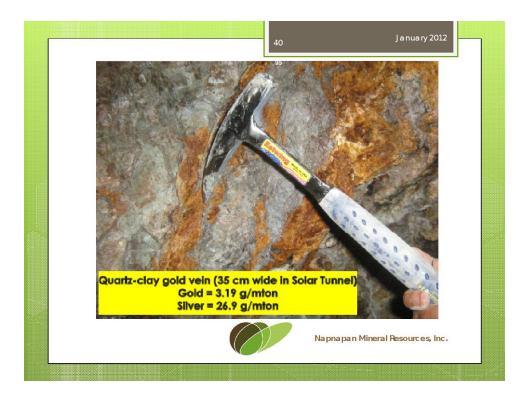


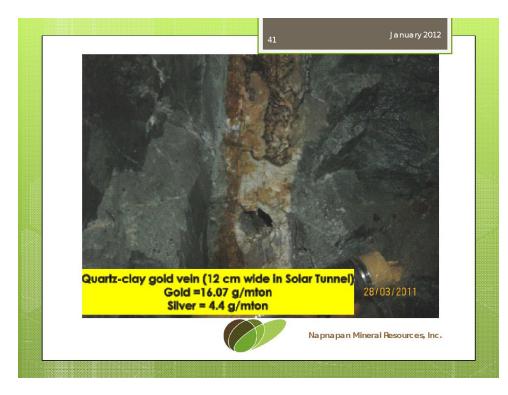
Figure 3. Summary Assay Map of Revaluate Company (Robert G. Adamson)

- Robert G. Adamson concludes that this portion of the Tenement is significantly mineralised in gold (and to a lesser degree, silver) with mineralisation apparently concentrated in geologically coherent zones that appear to be extensions to the structures and alteration zones related to intrusion of the Kingking mineralised porphyry system and therefore, that further exploration is well warranted.
- Annexes 3 and 4 show the distribution of gold assays and tunnels and outcrops sampled. These show the concentration of veins in the eastern portion of the tenement where the photogeological map and ground observations show they are underlain by probably Eoceone to Oiligocene volcaniclastic rocks and minor flows. Annex 1 shows that the western portion is underlain by folded and well-bedded siltstones and sandstones greatly exposed from Tibagon to Diat Road. Mitchell, et. al. (1984) mentions of Upper Miocene

to Pliocene folded conglomerates and wackes overlying unconformably Lower Miocene rocks in the Agusan portion of the Diwata range. This author conclude that the western section of the MPSA is underlain by younger rocks similar to that described by Mitchell, et. al. and that they are post porphyry and epithermal mineralization following a hiatus in the Pliocene or latest late Miocene.

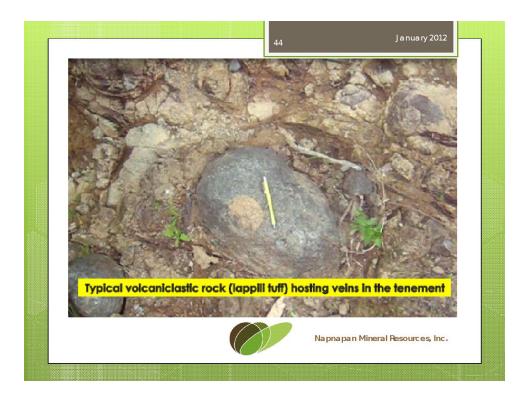
- The accompanying thick volume of tunnel maps below show two (2) most significant tunnels which have bearing on exploration. These are Botsoy 700 tunnel in Diat 2 and Solar tunnel in Biasong 1 where veins extend to 700 meters and 200 meters respectively. Both tunnels show rich and relatively wider and longer veins disposed in an E-W direction. Following major hyphotheses that the left-lateral Philippine Fault produced splays and wrench tectonics with E-W dilated structures, it is suggested here that EW structures are timed exactly during or immediately before epithermal gold and/or porphyry copper mineralization. It is therefore good for exploration to search for this EW structures.
- Having observed above rich EW structures, NMRI rehabilitated the EW drifts of the abandoned Solar tunnel resulting in the observation and sampling of rich zones in this tunnel. (See Solar tunnel autocad map). Having said that, there is probability of finding vein extensions at depth following the dips of the veins.
- Shown in the ensuing pages are some field photos with explanations to show general conditions in the area and some vein chatracteristics.



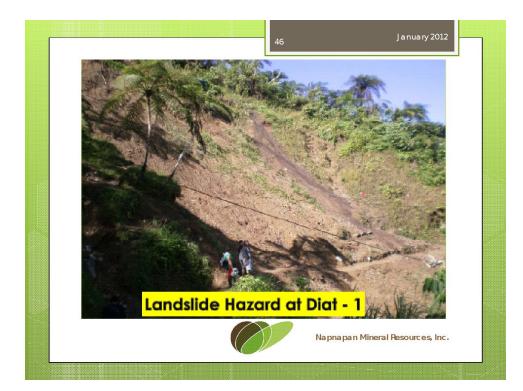


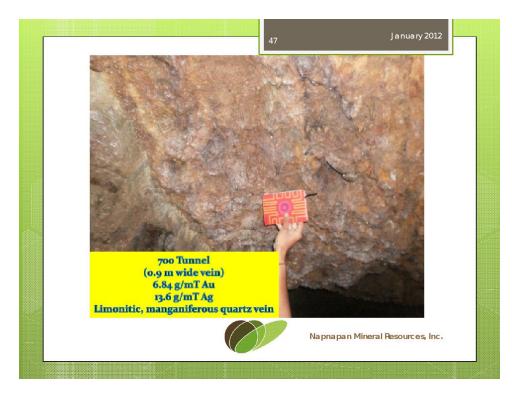


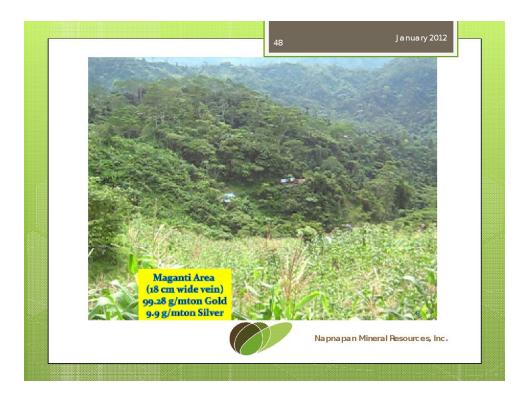


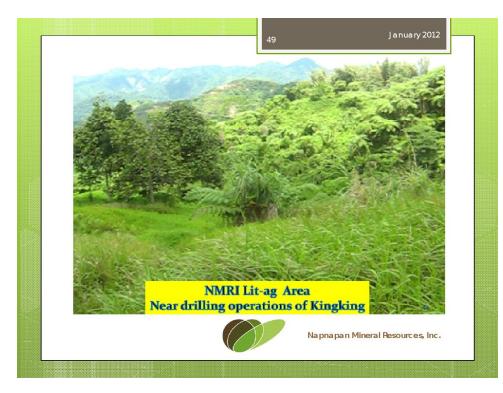


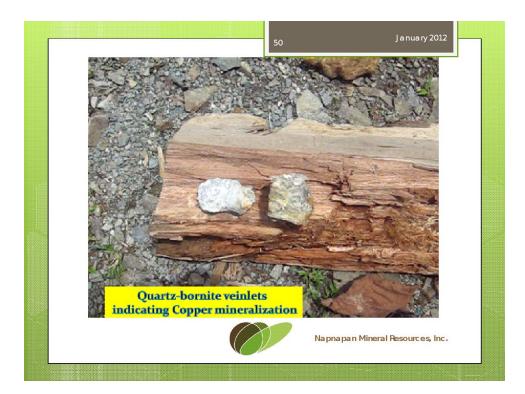


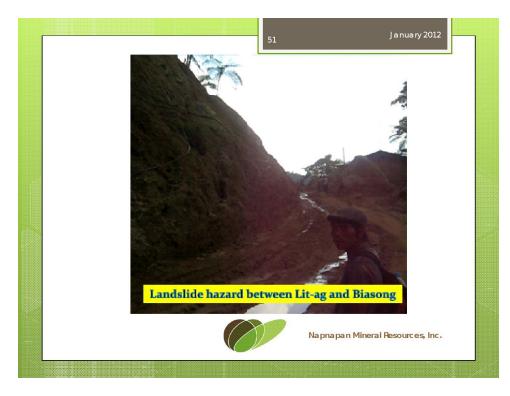


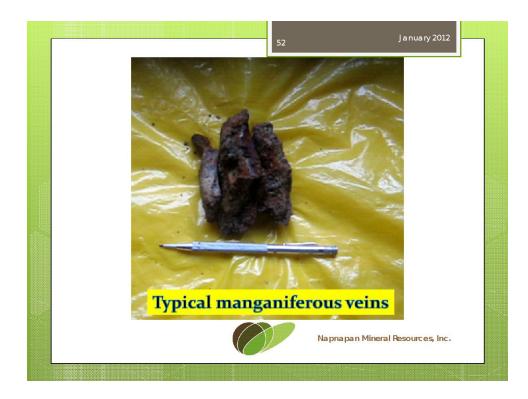












Corbett (2009?) and Sillitoe and Gappe (1984) described the genetic relationships of epithermal gold veins and porphyry copper-gold. Corbett's(2009?) conceptual model is shown below.

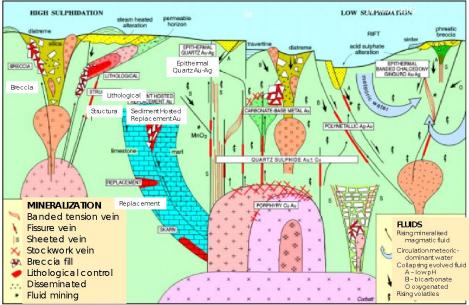


Figure 1. Conceptual model illustrating different styles of magmatic arc porphyry and epithermal Cu-Au-Mo-Ag mineralisation (from Corbett, 2008 and modified from Corbett 2002, 2004).

Although no acid alteration was observed in the field, the photogeological map shows Unit C which is probably a widespread alteration zone. The red soil observed in the field in these areas probably connotes supergene alteration of a formerly pyrite rich clay alteration (thereby the subdued topography) and may therefore be a lithocap of a buried porphyry copper-gold deposit.

VII. Exploration Expenditures

- Annex 5 shows the exploration expenditures for the activities described above. A total of Php 24, 590, 121.97 was spent for exploration alone. The approved Exploration Work Program was Php 17,400,000.00. Therefore a positive deviation 41.3% was incurred. The positive deviation is due to high cost of geological and technical services, cost of Australian consultants (REVALUATE Company) and cost of usage of helicopter and lear jet.
- Although there is positive deviation in the cost, the numerous artisanal miners who have anti-large scale mining sentiments and the very rugged topography have not allowed a complete exploration of the tenement to allow identification of drill targets. Therefore, the next two-year exploration period with an accompanying Exploration Work Program will plan for systematic geophysical surveys to identify drill targets.

VIII. Conclusions and Recommendations

- The first two-year exploration period have accessed never before sampled systematically veins from existing artisanal miners. The resulting database is a boost to the database of the Mines and Geosciences Bureau in their regulatory function.
- The distribution of tunnels, and therefore gold veins, are concentrated in an approximately 2,000 hectare cluster in the eastern portion of the tenement. The absence of tunnels in the western section is probably due to post mineral younger (latest late Miocene or Pliocene) younger rocks unconformable over the intrusives (with porphyry copper-gold) and the gold veins dated by previous workers as Middle to Late Miocene.

Three main targets are evident :

- Wider, longer and high grade veins most probably EW directed still not found
- Bulk-mineable stockworked epithermal veins as demonstrated above by Robert Adamson as consultant; and
- Buried porphyry copper-gold deposit continous or discrete from the adjacent Kingking porphyry deposit.

It is therefore recommended that the next exploration programs should include

- Geophysical surveys (ground and airborne)
- Lithological mapping of tunnels; and
- Exploration and Resource Definition Drilling.

Prepared by :

Concurred By :

Alvin M. Matos

Geologist PRC Licence No. 0000925 PRC Reg. : February 1, 1984 Valid Until : December 31, 2012 PTR No. : 3597550 Issued On : October 31, 2012 Issued At : Antipolo City PMRC CP No.: 09-06-0 **Francisco V. Cancio** President and CEO

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