

# STRUCTURAL CONTROLS IN SANGILO VEIN SYSTEM

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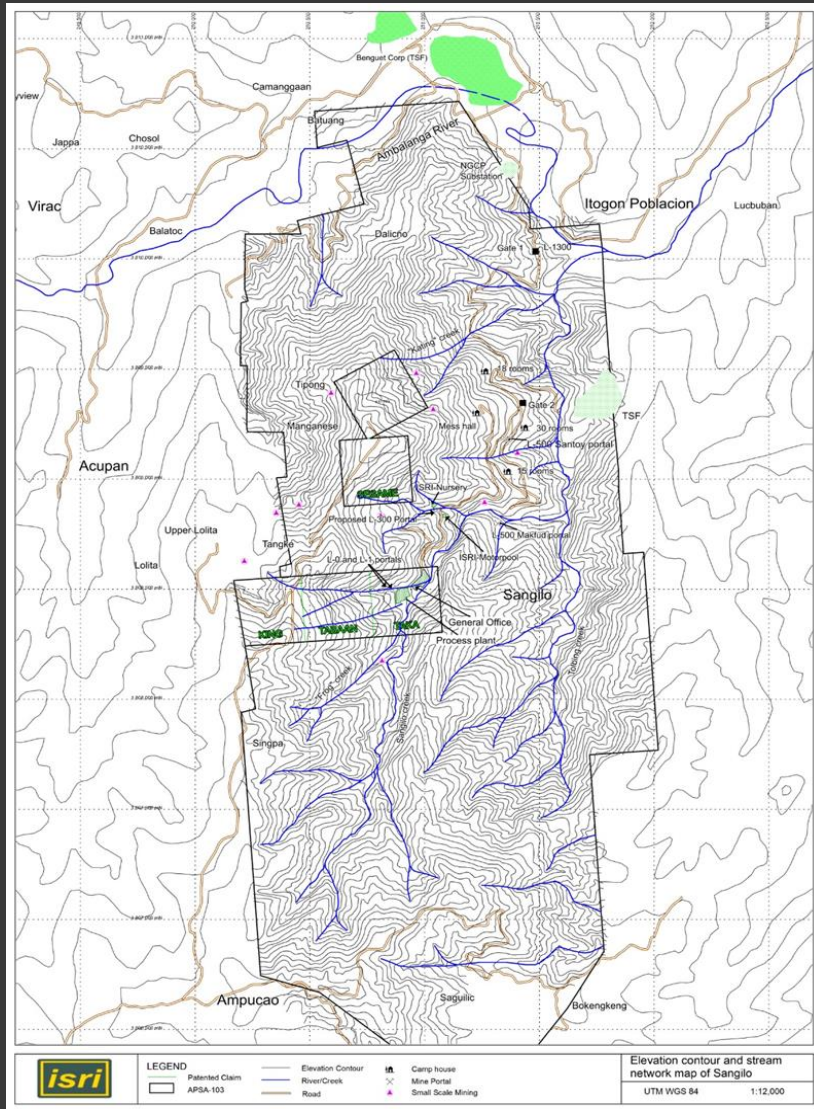
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# OUTLINE

- Project Background
- Regional Tectonic Setting
- General Stratigraphy
- Sangilo Geology
- Sangilo Vein Systems & Mineralization
- Structural controls
- Conclusions and Next Steps

# Project Background



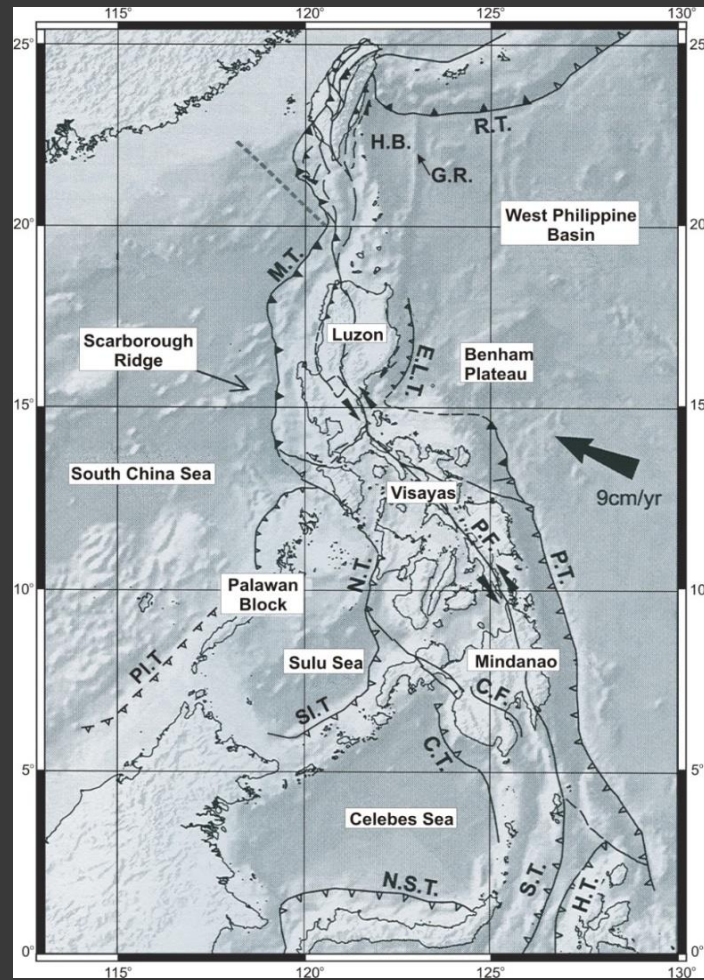
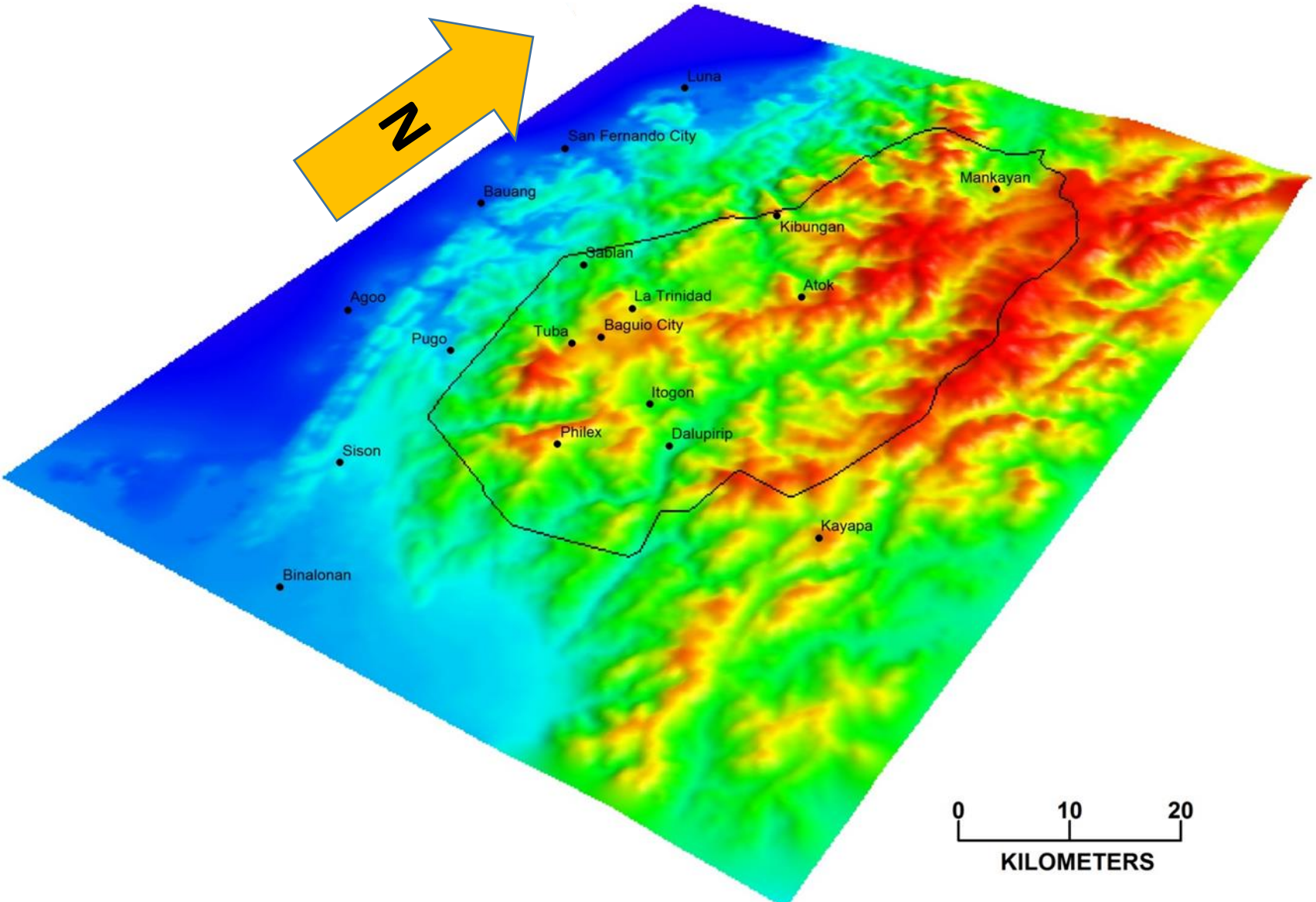
Total area of 4 mining patents = 35 hectares

Total area of APSA-103-CAR = 579 hectares

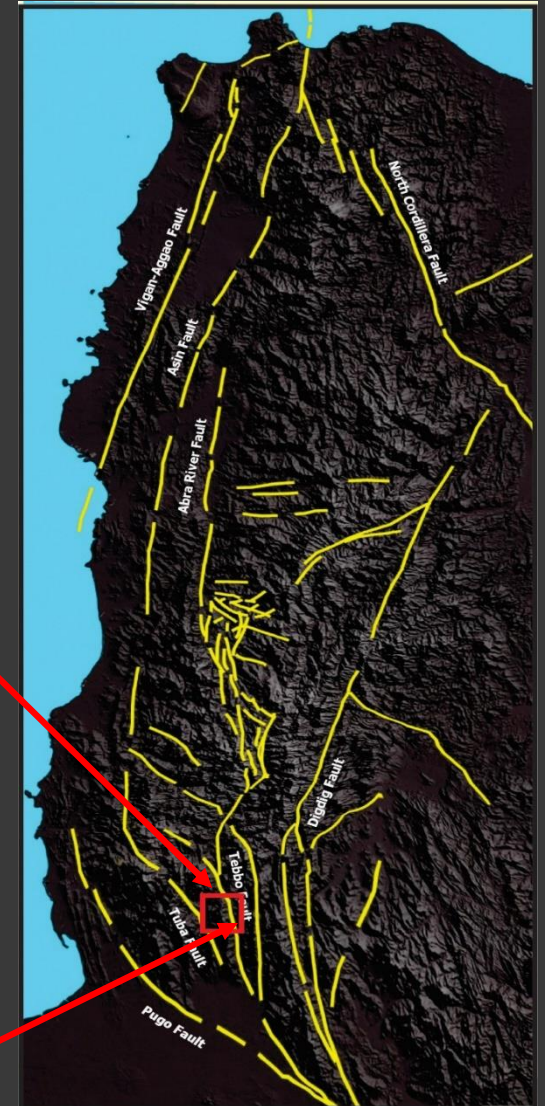
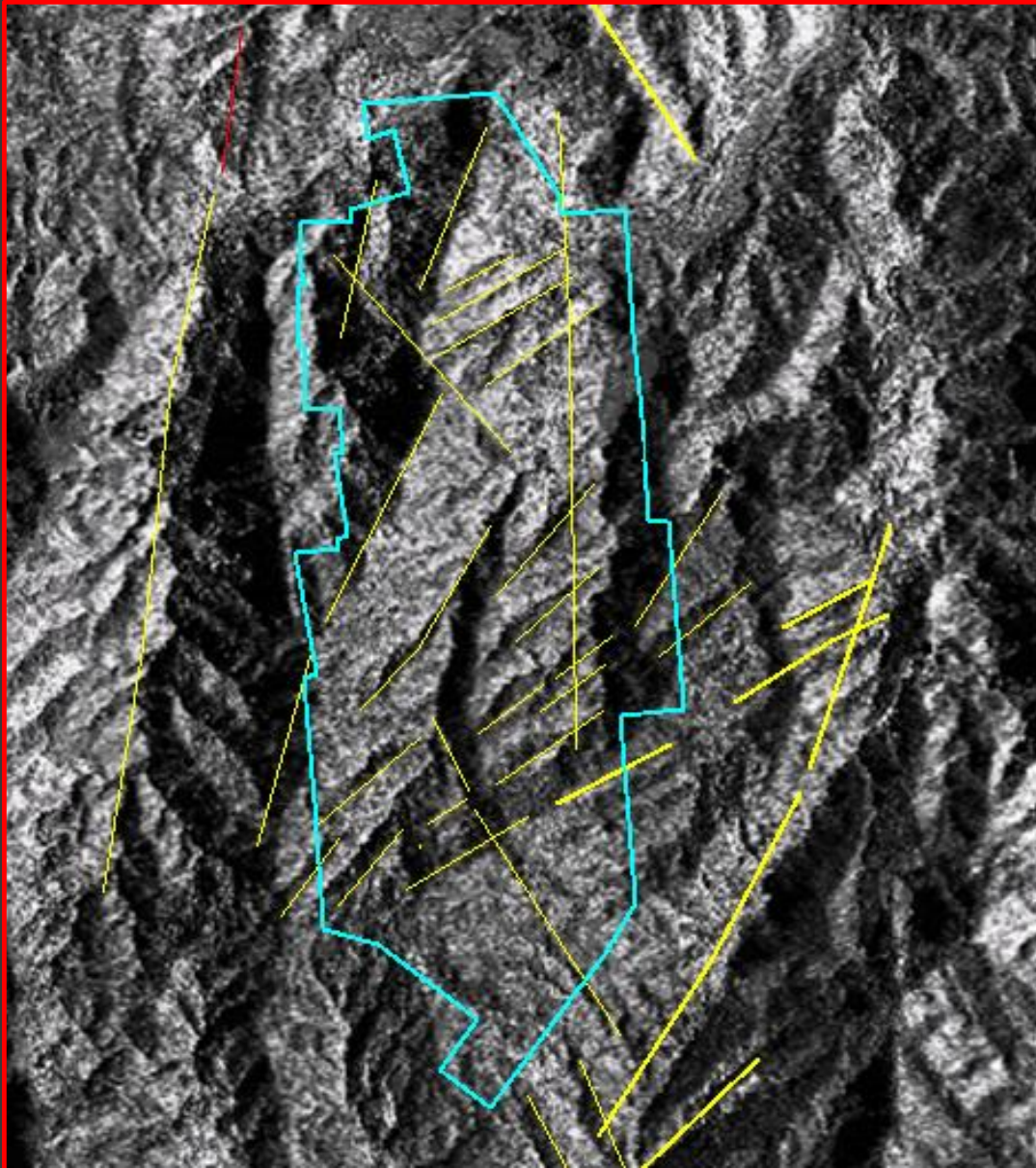
Remaining Resource = 11.93 MT @ 4.15 g/t Au  
(Based on in-house historical data and 3<sup>rd</sup> party review /  
For Validation)

Currently in development stage inside  
Patented Claims; to start mine production on  
February 2020 @ 200tpd

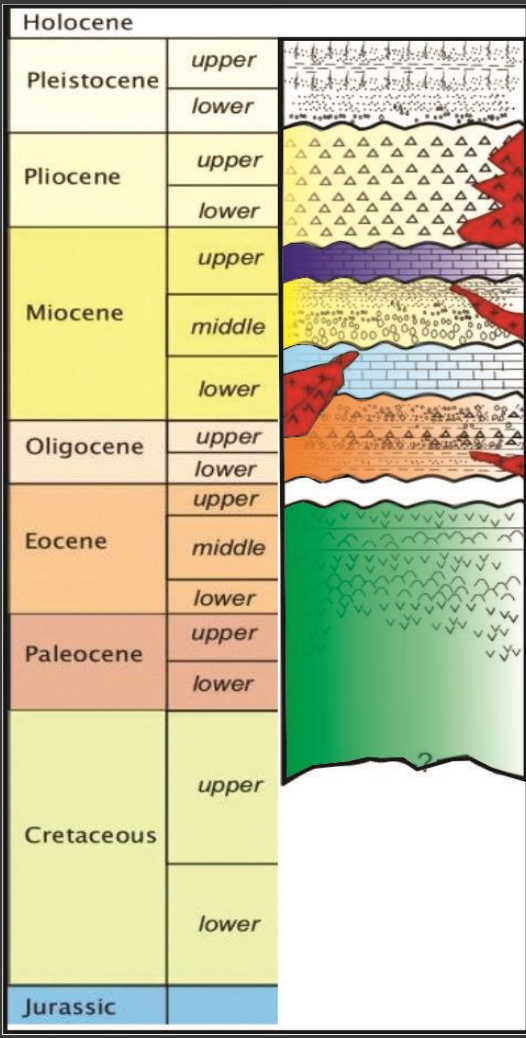
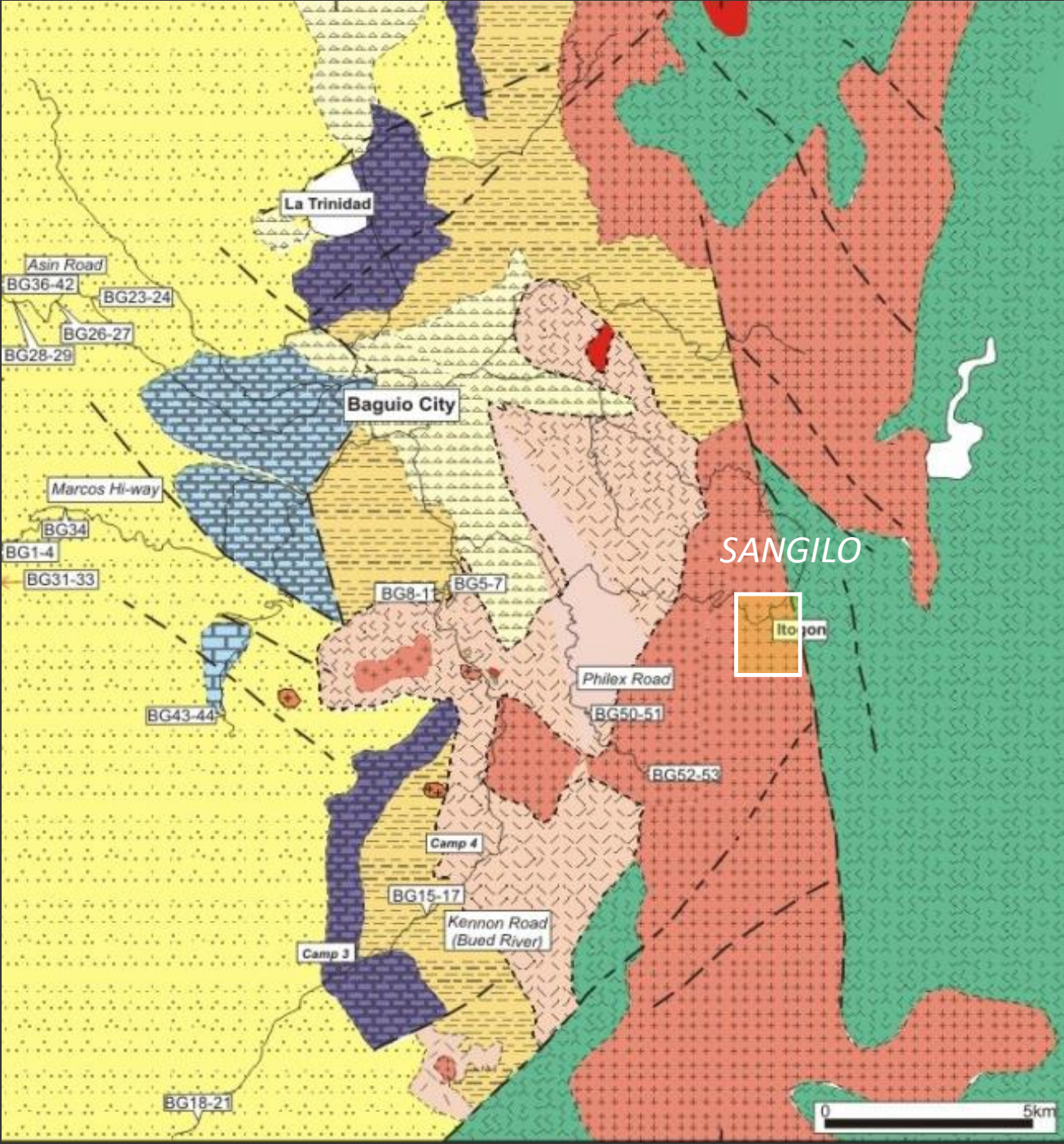
# Regional Tectonic Setting



# Regional Tectonic Setting



# General Stratigraphy



- Quaternary Alluvium
- Baguio Formation
- Mirador Formation
- Klondyke Formation
- Kennon Limestone
- Zigzag Formation
- Pugo Formation

Source: Updates on the Geology of Sangilo Mine, J.A. Buenafe (October 2018)

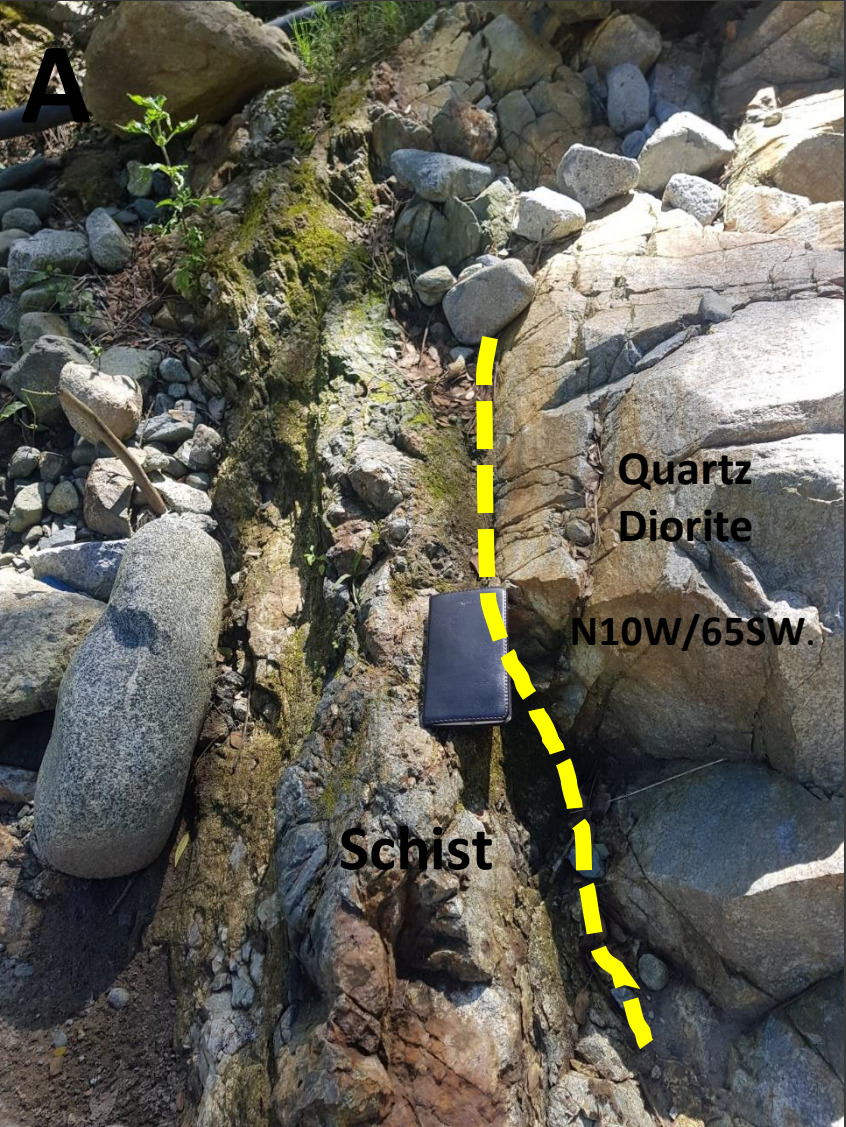


# General Stratigraphy

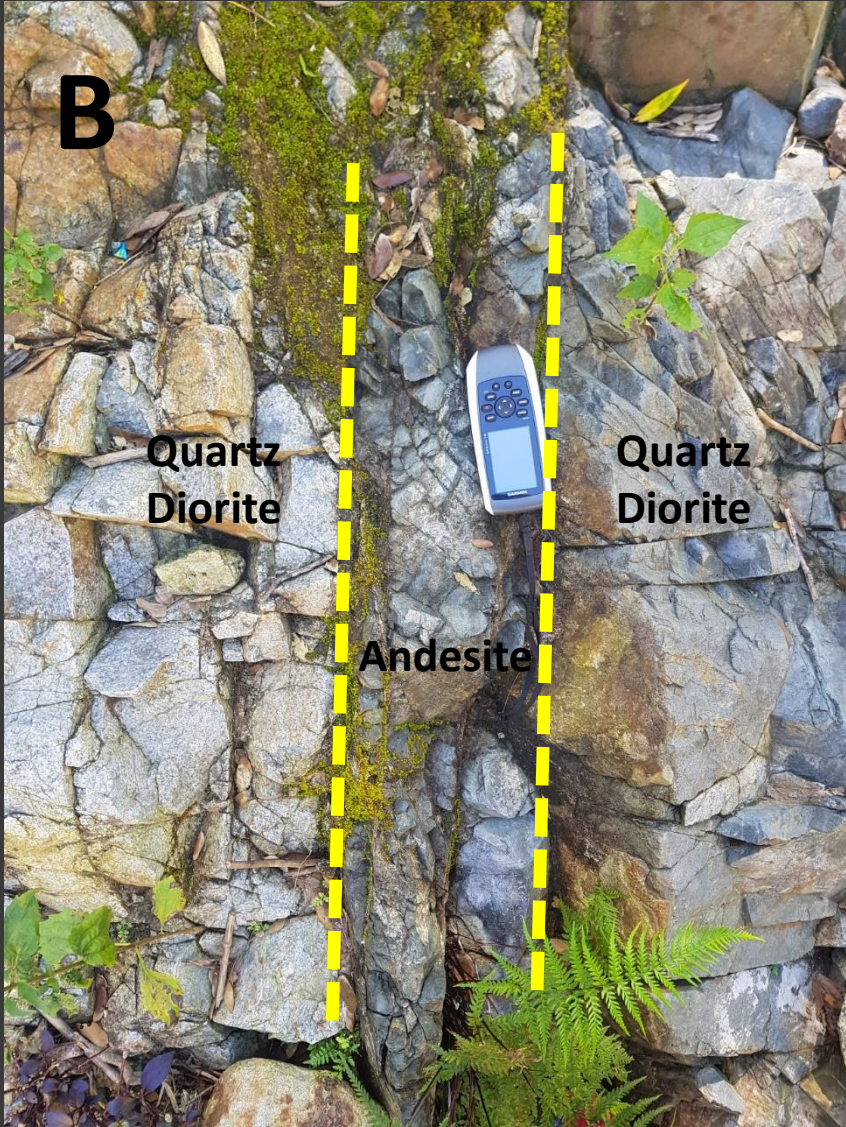


Outcrop of Dalupirip Schist near Mambolo Bridge  
(Ambalanga River) in Brgy. Tinongdan

# General Stratigraphy



N 16° 23' 00"  
E 120° 41' 29"

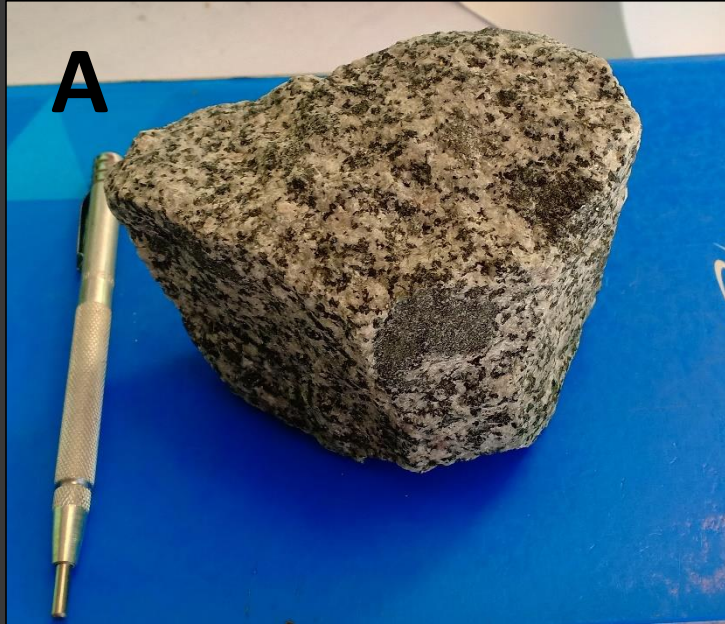


A. Schist intruded by quartz diorite

B. Quartz diorite cut by andesite dikes



# Sangilo Geology



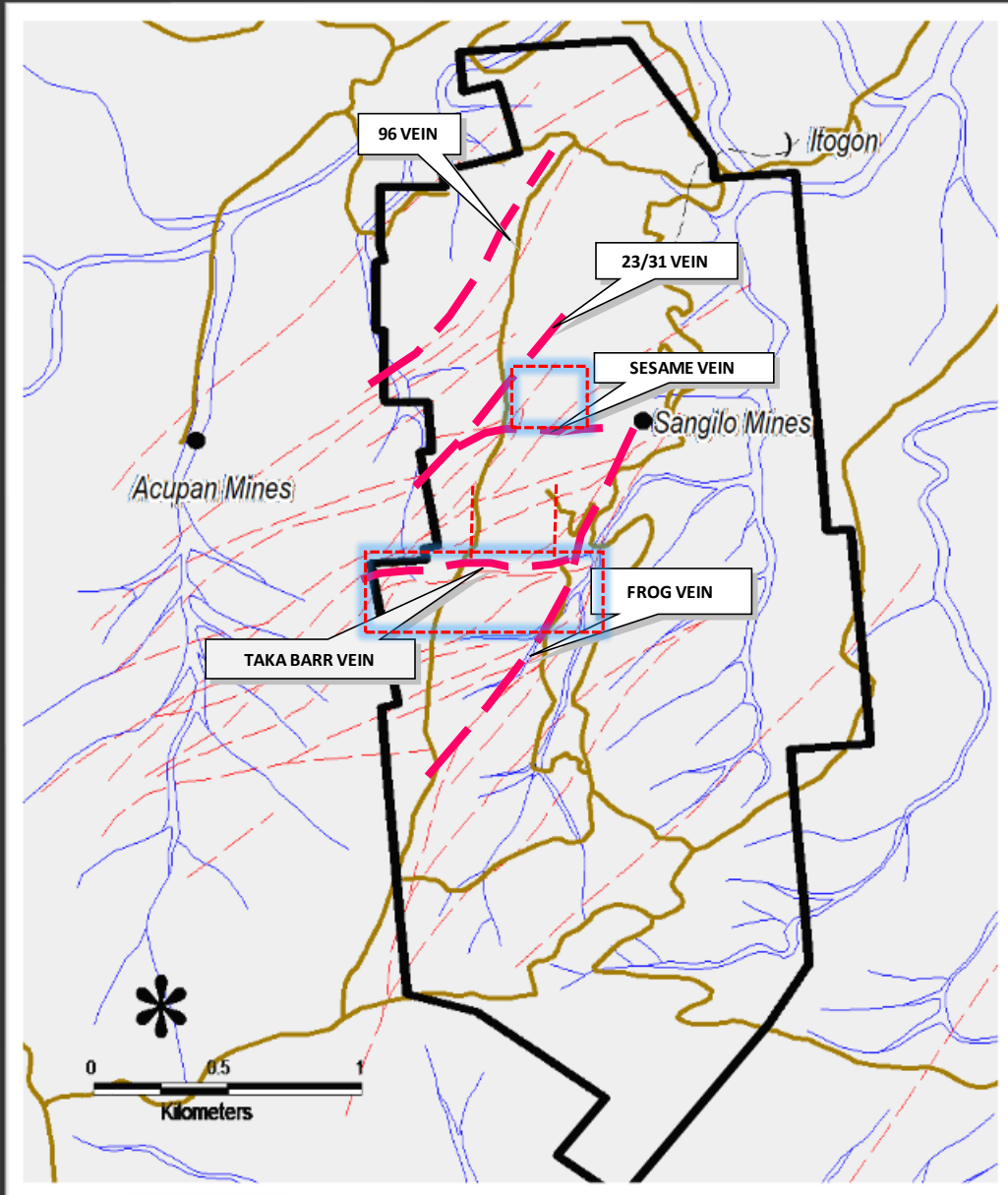
A. Felsic Quartz Diorite

B. Gabbro

C. Mafic-rich Quartz Diorite

D. Andesite

# Vein System and Mineralization



## 6 major veins

- Taka Barr Vein (364 Vn )
- Frog Vein
- Sesame Vein (231 Vn)
- Santoy Vein
- 23-31 Vein
- 96 Vein (99 Vn)

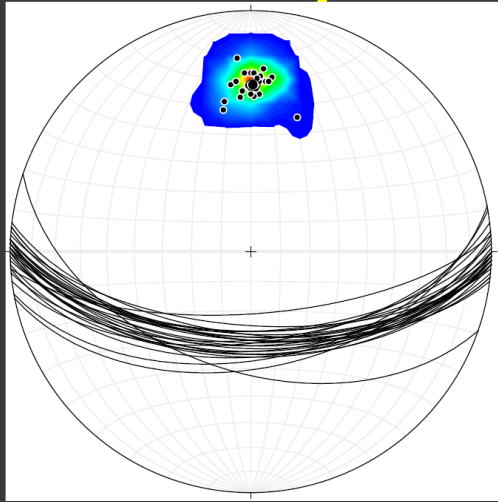
# Vein System and Mineralization

- Stage I: quartz + magnetite+ chalcopyrite-pyrite + sphalerite + orthoclase + biotite veinlets associated with K-silicate alteration.
- Stage II: anhydrite + chlorite + pyrite + quartz+ calcite + chalcopyrite veinlets crosscutting Stage I veinlets.
- **Stage III: dominated by cryptocrystalline gray quartz. *Early stage of epithermal mineralization.***
- **Stage IV: quartz + pyrite + adularia+ K-mica + rhodochrosite with minor mangano-calcite (Stage IV-A); calcite with lesser amounts of quartz and base-metal sulfides (Stage IV-B).**
- **Stage V: anhydrite with lesser quartz, calcite and pyrite. Anhydrite infills and crosscuts vein stages III and IV.**

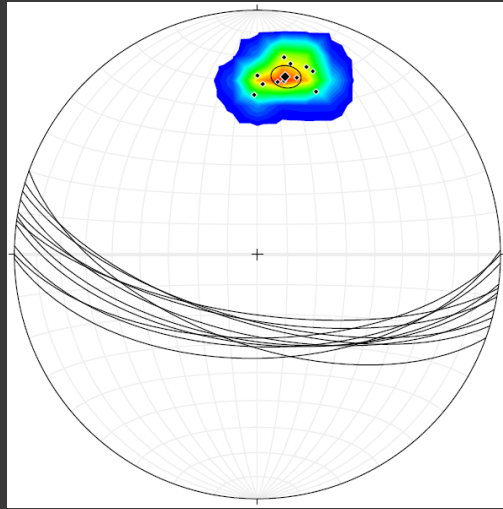
Cooke and Bloom, 1990



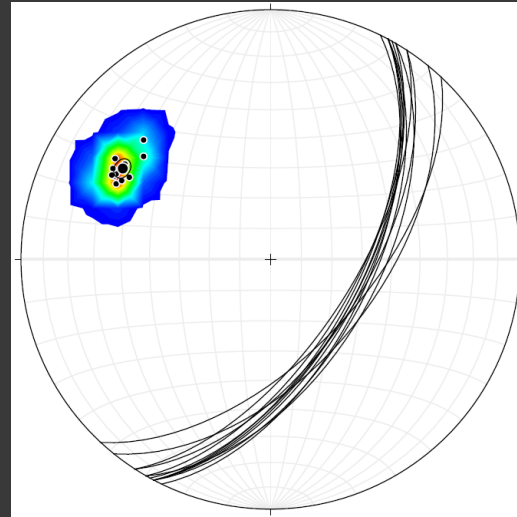
# Vein System and Mineralization



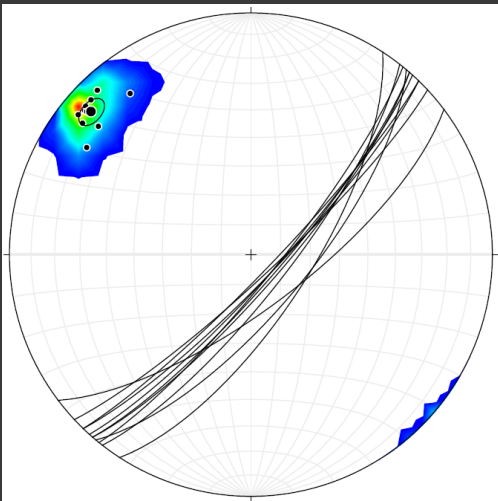
Taka Barr (91/59)



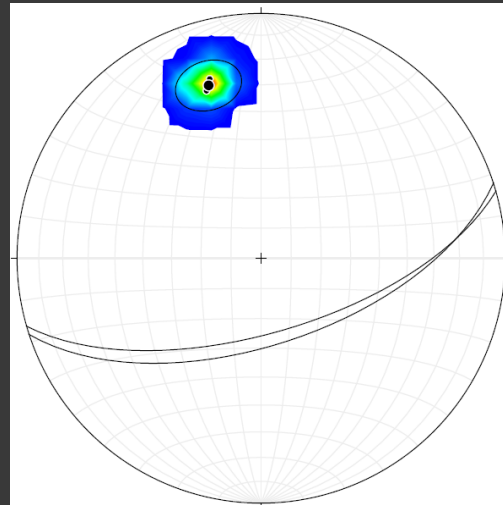
Sesame (99/63)



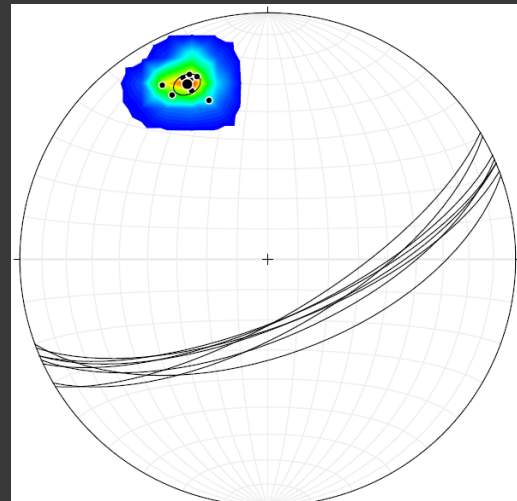
Frog (31/59)



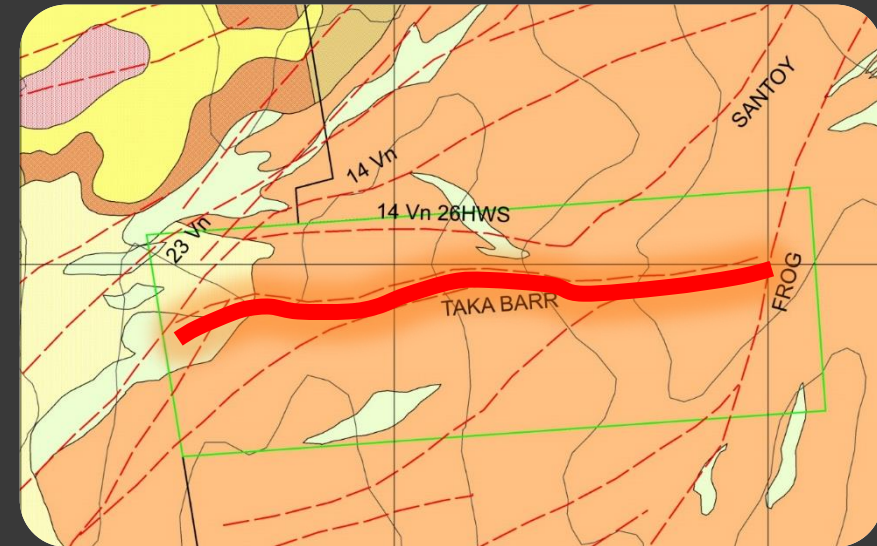
23 Vein (42/78)



31 Vein (73/63)



Santoy (65/67)



3 major structural directions:

- NE
- NNE
- Due EW

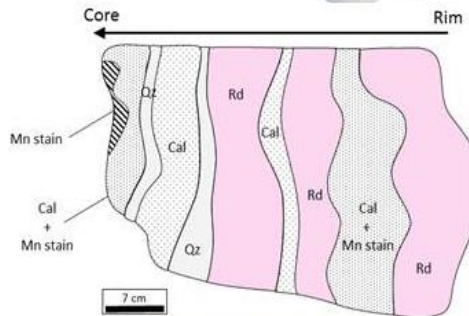
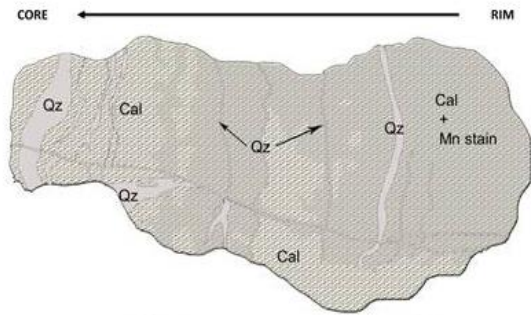
  
Apex Mining Co., Inc.



# Vein System and Mineralization

## Taka Barr Vein

- The most productive and highest grade vein within the patented claim
- Texture: banded, crustiform, colloform, vuggy (secondary)
- Mineralogy: calcite + quartz + manganese  $\pm$  rhodochrosite
- Ore Mineralogy: Pyrite, chalcopyrite, galena, sphalerite, native gold and gold telluride
- Trend: E-W
- Width = 6m average / 15m max



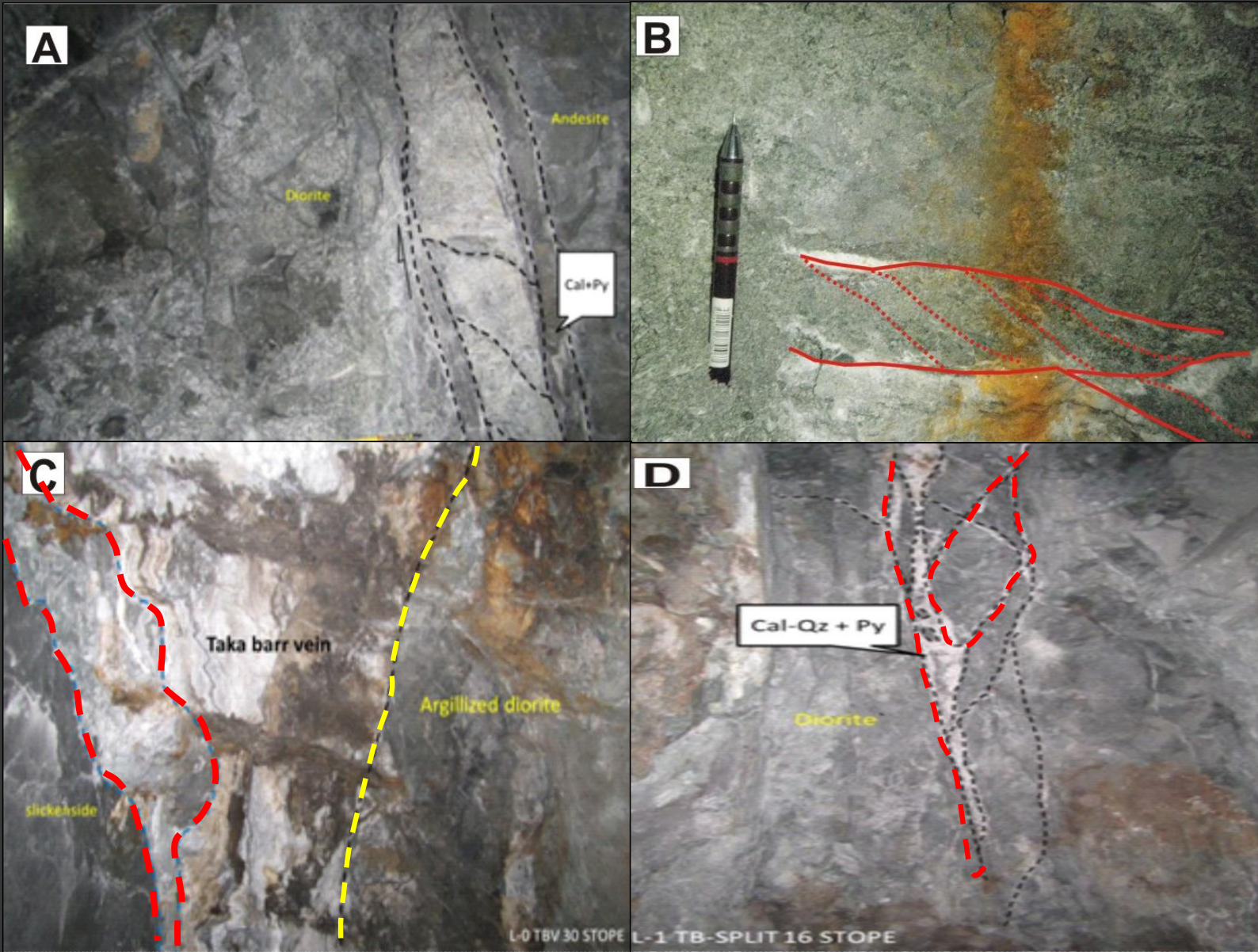
# Vein System and Mineralization

## Taka Barr Vein



- Exhibits Internal zoning
- These bands clearly reflect multiple pulses of mineralization.
- Au-rich zones are confined within the vein and in the argillized host rock

# Structural Controls



## Structural Features of TBV

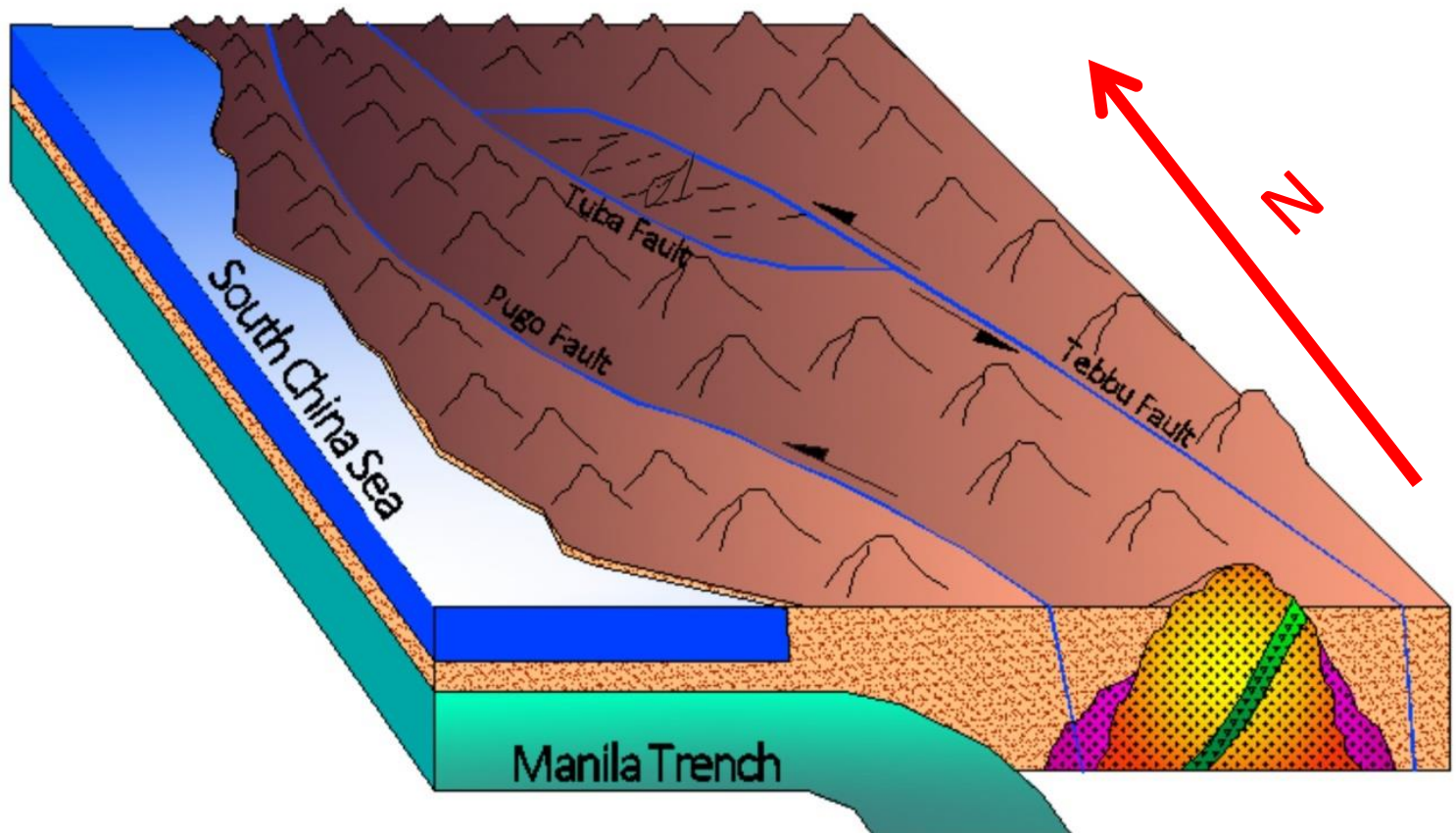
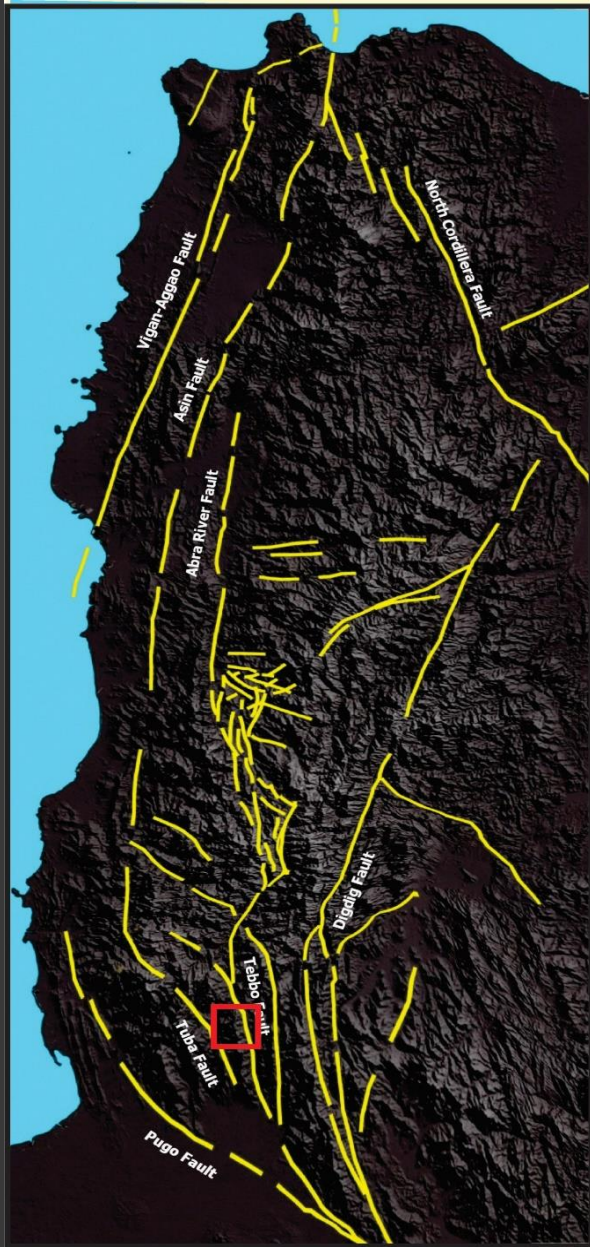
A. In fault contact with andesite dike

B. C/S fabric within the sheared matrix of vein-hosted fault breccia

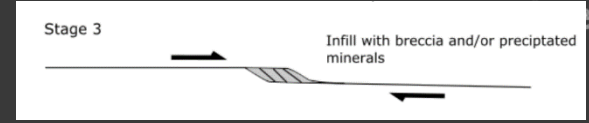
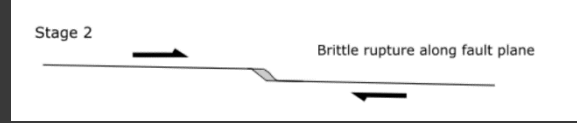
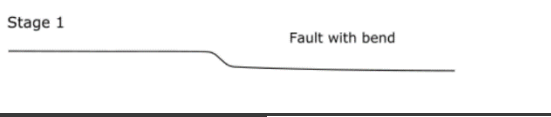
C. Sharp planar, argillized walls of the vein

D. Anastomosing veins and stringers

# Structural Controls



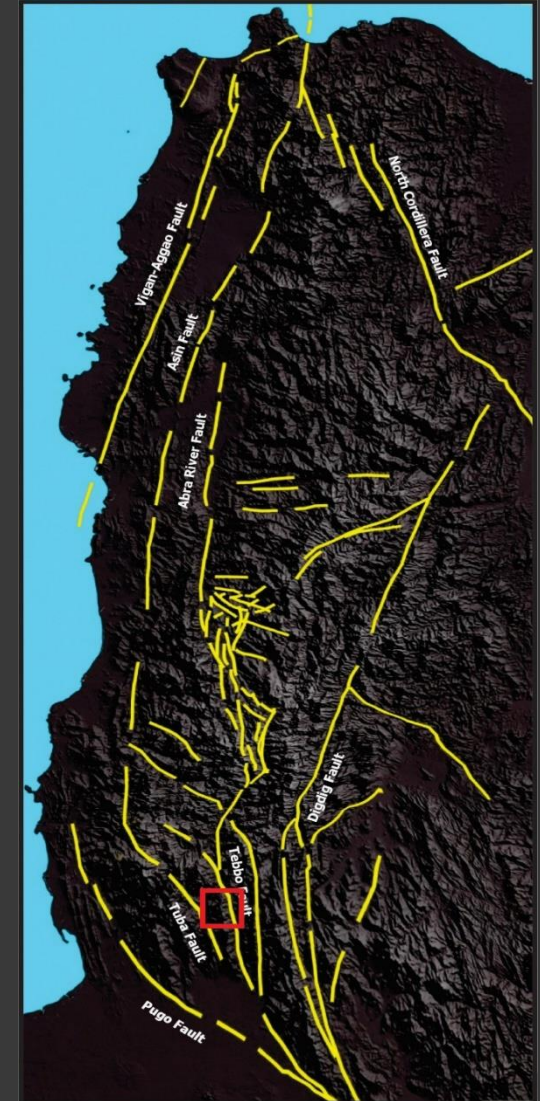
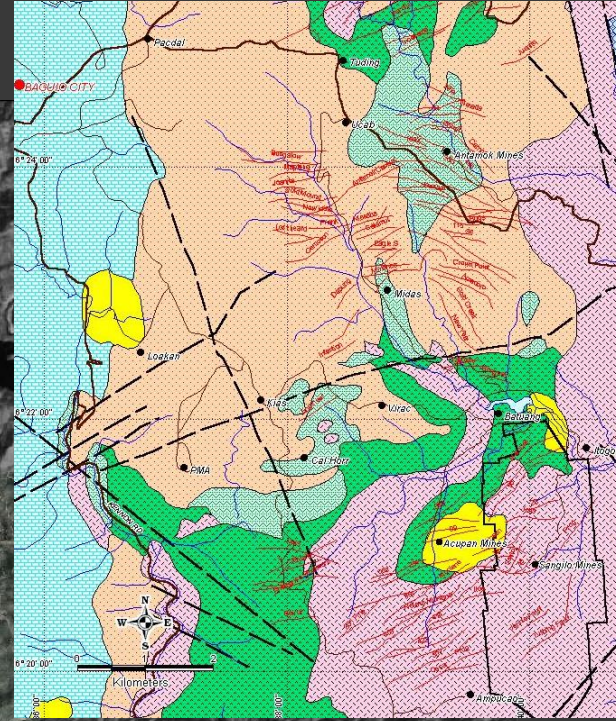
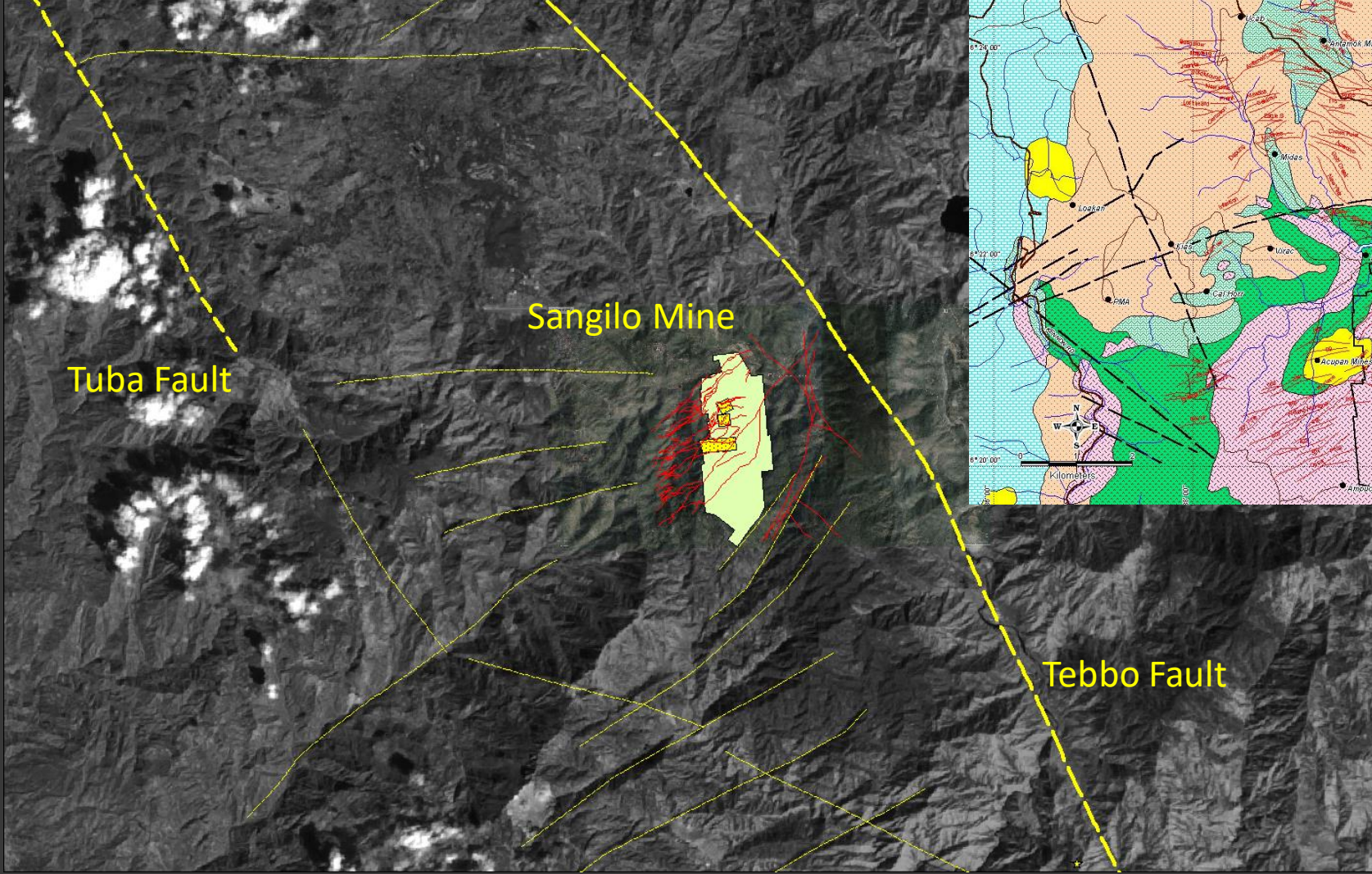
Regional Tectonics



ex Mining Co., Inc.



# Structural Controls



# Conclusion

## LITHOLOGIES

Quartz diorite, gabbro, and andesite.

Two varieties of quartz diorites noted: an older mafic-rich (~40% hornblende) diorite and a younger, more felsic (<10 hornblende ± biotite) type

## PRE-MINERALIZED AND MINERALIZED STRUCTURES

Earlier deformation is mostly expressed as joints and faults, usually oriented NW-SE with steep dips (50-70 to subvertical)

Mineralized brittle fabrics within the Sangilo mine are marked by NE, NNE and due west- trending veins. These structures clearly cut across gabbro, hornblende diorites and quartz diorite providing no genetic link between these bodies (as a causative event) and mineralization.

## RELATION TO REGIONAL / DISTRICT TECTONICS

Extension from dilational jogs formed between the northerly splays (probably related to the Tuba and Tebbo faults) of the Philippine Fault Zone likely provided the conduit for circulating mineralizing hydrothermal fluids in the region

# Next Steps

- Additional surface and UG fieldwork within and outside the Sangilo mine site
- Fault Kinematic Analysis to study the structures and microstructures that develop during faulting in order to identify the sense of motion across faults and shear zones
- Geochronologic and isotopic/fluid studies for better constraint on the linkage between the Balatoc plug/other magmatic episodes and the mineralization in the Sangilo mine site

# STRUCTURAL CONTROLS IN SANGILO VEIN SYSTEM

THANK YOU!