Report of the field trip Perú– Stewart R. Wallance Fund Round 2017-I

SEG Student Chapter Universidad Nacional Mayor de San Marcos Field trip to San Vicente, Cerro Verde and Cuajone Mines.

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SUMARY:

In May and June of this year 2017, between the 27th of May and 15th and 16th of June our Student Chapter from Universidad Nacional Mayor de San Marcos, Lima - Perú realized two field trip, the first field trip was to the San Vicente Mine located in Junín-Peru and the second field trip could visit 2 of the world class porphyry deposits in our country, these were Cerro Verde Mine (Arequipa, Perú) and Cuajone Mine (Moguegua, Perú).

The Field trip was guided by Ing. Andres Yparraguirre, currently teacher of mineralogy in Universidad Nacional Mayor de San Marcos. The participants for the first trip were 13 students and the second field trip were 11 students from the SEG Universidad Nacional Mayor de San Marcos, Perú (who received the economic help from the Stewart R. Wallace found 2017-I).

We visit 2 diferent kinds of deposits like Mississippi-Valley type Pb-Zn deposits, and porphyries, located in the North and South of Perú respectively.

Continously, We are going to describe the technical knowledge learned in the diferent deposits.

SCHEDULE

Guides:

- **Ing. Andres Yparraguirre**
  Teacher of Mineralogy in
  Universidad Nacional Mayor
  de San Marcos

DATE	ITINERARY	DEPOSIT	COMPANY	ACTIVITY
	FIRST FIELD TRIP			
26-may	Lima-Vitoc			Traveling
27-may	Vitoc	MVT Pb-Zn	Compañía Minera San Ignacio de Morococha	San Vicente Mine
	SECOND FIELD TRIP			
14-june	Lima-Arequipa			Traveling
15-june	Arequipa	Porphyry Cu-Mo	Freeport Mc Moran	Cerro Verde Mine
16-june	Arequipa-Moquegua	Porphyry Cu-Mo	Southern Copper Perú Corporation	Cuajone Mine

VISIT TO SAN VICENTE MINE

LOCATION

The San Vicente Mine is located in the province of District of Vitoc, Province of Chanchamayo, Department of Junín, 17 km south of the city of San Ramón, on the western flank of the Eastern mountain range, and between 1,200 to 2,300 msnm.

GEOLOGY OF THE DEPOSIT

- The San Vicente is a stratoligado deposit of Zn and Pb type MVT (Mississippi-Valley) , located in calcareous rocks of mesozoic age with orientation N-S and dip to the west.

- **Outcrops** are stable old intrusive rocks of the Upper Paleozoic, represented by the granite San Ramón to the E and the granodiorite Tarma to the O. On these intrusive rests the detritic and volcanic sequence of the **Mitú group** of the Permian, and on it the calcareous sediments with horizons of mineralization of Zn and Pb of the **Pucara group**, from the Triassic to the lower Jurassic.

- **The mineralized layers** are in three stratigraphic horizons, from floor to ceiling are the following: San Judas – San Vicente – San Alfonso.

- **The minerals ore** are: galena and sphalerite, being the sphalerite the most abundant, they occur in lenticular bodies generally parallel to the stratification.

- **The ganga** is represented by dolomite and in smaller amount by calcita.

EXPLORATION GUIDES

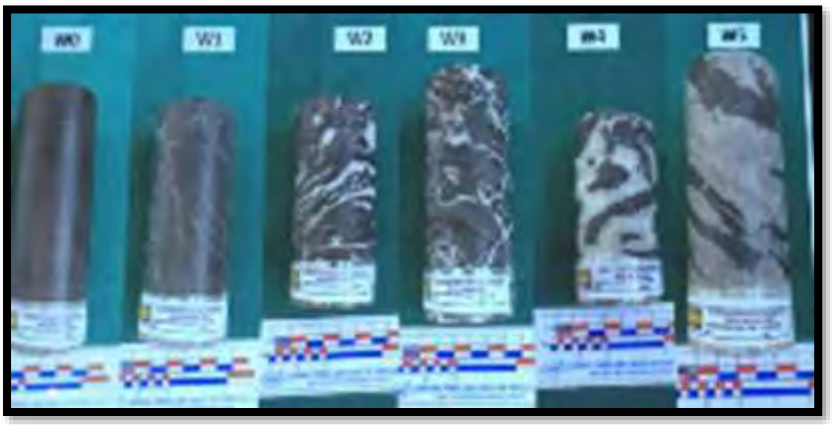
1. Granulometry

It plays an important role since the primary porosity determines the greater abundance to of mineralization in volume and law.

2. Color index

It is determined by the content of organic matter in dolomitic rocks.

3. Amount of fluid

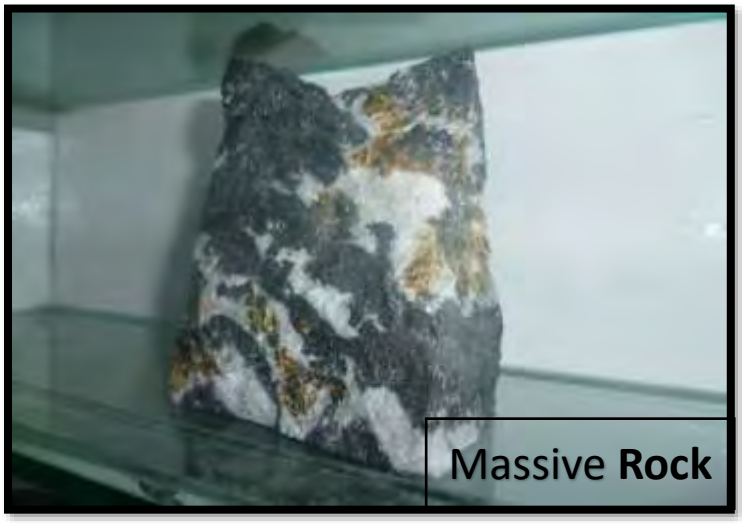


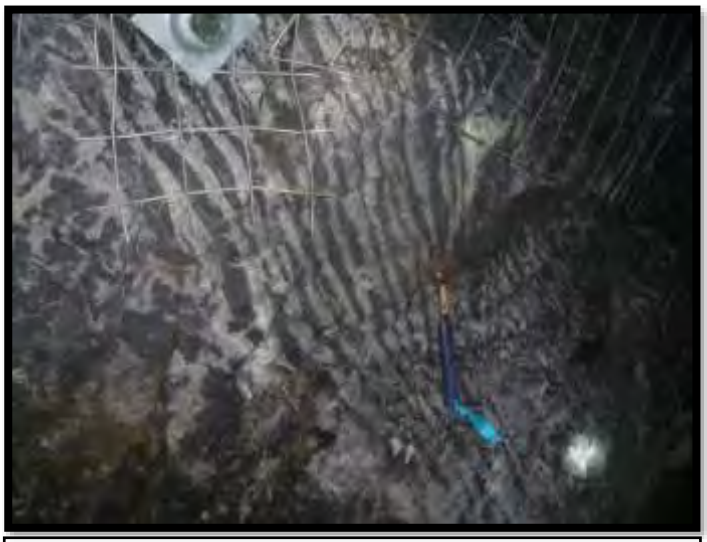
The GSD-WSD fluids (% white sparry dolomite) are the fluids that brought the mineralization or abundance. Lack of these sterile areas. hydraulic gaps, zebra, crack / e breccias and veins.

MINERALS EXPLORATION GUIDES

They indicate closeness to the mineralization mantles.

CHARACTERISTIC STRUCTURES OF SAN VICENTE MINE





Zebra Texture in outcrop inside of San Vicente Underground Mine

VISIT TO CERRO VERDE AND CUAJONE MINE

These visit were the second field trip and they were very interesting. Cuajone and Cerro Verde Mines is one of the most representatives of our country of the porphyry deposits with mineralization of Cu+ Mo. We had a presentation of the geology of the deposit, they explained us the geology of the mine open pit, they showed us some samples of drill cores, and we learned to recognized Alteration zoning and sequence of Copper Porphyric.

Therefone we saw and understood everything what we read in papers and books, and we could recognize different alteration minerals with the cores and learn about the activities done in a copper mine. This gave us a lot of tools to be creative and think about some ideas that we could apply in the exploration of this type of deposits, it was very important for us to know these historical mines and we thanks to the SEG for making possible this type of activities.

SEG Student Chapter UNMSM members visiting to Cerro Verde's Mine

SEG Student Chapter UNMSM members visiting to Cuajone's Mine