

PART III CONCLUSIONS AND RECOMMENDATIONS

CHAPTER 1 CONCLUSIONS

Based on the results obtained during the surveys carried out in the first phase of the Cooperative Mineral Exploration in the Alta Floresta area, the second phase was executed during this fiscal year by undertaking the following tasks:

- Geochemical survey, drilling survey and geological survey in B block;
- Geochemical survey and drilling survey in C block;
- Geochemical survey, geological survey and drilling survey in F block;
- Geochemical survey in G block;

The survey results can be summarized as follows:

(1) B Block

The geology of block B is composed of Lower Proterozoic Pre-Uatuma Granite, Middle Proterozoic Uatuma Group, Dykes and Quaternary sediments (Fig. II-1-2).

The shearing zones are the most important geological structure in the survey area, being some of the primary gold garimpo located inside these zones. Some of them are the Satellite garimpo and Jacare garimpo with gold mineralization related to quartz veinlets and veins filling shearing planes. From the gold analysis of garimpo Jacare samples, it was found that innumerable samples presented high gold contents with maximum values of 379.36 g/t of Au. Also, a 6m wide channel sampling presented an average grade of 70.52g/t Au and 6.05g/t Ag.

The single element analysis carried out during the Phase II for the soil geochemical data, indicated the existence of three large gold anomaly zones in the Block B, namely, Northwest zone, Southeast zone and Northeast zone (Fig. II-1-9).

The multi element analysis applied to the soil geochemical data indicated a weak relation between Au and Cu. The factor analysis indicated the following metal signatures: The Factor 1 shows a relation between Pb-Zn-Fe and reflecting probably a gold mineralization distant from the intrusive center. The Factor 2 shows a relation between As-Fe-Cu, while Factor 5 shows a relation between Au-Cu. It is likely that association such as, Arsenium and Copper or Gold and Copper reflect gold mineralization adjacent to intrusive center (Fig. II-1-12).

From the auger geochemical survey it was found out that within the survey area, the gold distribution pattern in saprolite is different than the gold distribution in soil. In this respect, the gold anomaly in soil presents a large distribution and a low gold grade, however the gold anomalies in saprolite are narrow and locally presenting high gold anomalies (Fig. II-1-14). The auger geochemical results proved that this method is very useful to narrow considerably the gold anomaly and giving a more coherent

anomalous halo than the broad gold anomaly resulted from soil geochemical survey.

The drilling survey confirmed that gold is present in hard core and in saprolite, but the best intercepts were obtained in 4 boreholes, i.e., MJBA-8, MJBA-11, MJBA-12 and MJBA-13. Gold mineralization in borehole MJBA-8 is closely related to sub-vertical shearing zones. The most sheared section was detected in the borehole MJBA-8 between 43.00m and 69.00m, for which the analytical gold results within this 26m interval presented an average of 0.21g/tAu and a maximum gold value of 0.73g/t. Others boreholes such as, MJBA-11, MJBA-12 and MJBA-13, also presented gold mineralization related probably to sub-vertical shear zones. MJBA-11 presented a gold average of 0.78g/t between 11.00m and 14.00m, MJBA-12 with 0.32g/t between 26.00m and 30.00m and MJBA-13 with 2.71g/t between 22.00m and 25.00m.

The geology of the area to the south of B block is composed from Lower Proterozoic Pre-Uatuma granite, Middle Proterozoic Uatuma Group granite, Dykes and Quaternary sediments.

Three major shearing zones are observed along the directions WNW-ESE, NW-SE and NE-SW and gold barren quartz vein frequently fills these structures.

Gold alluvial garimpo are widespread in the survey area, indicating the existence of primary gold source within the survey area, however, during the geological survey, no primary gold garimpo were found in the survey area. Besides, some mylonitic rock samples and quartz veins samples taken within of the shearing zone presented only a weak gold mineralization.

(2) C Block

The geology of block C is composed of Lower Proterozoic Pre-Uatuma Granite, Middle Proterozoic Uatuma Group, Dykes and Quaternary sediments (Fig. II-2-2).

The shearing zones are the most important geological structure in the survey area because the gold mineralization is related to this shearing structure, as confirmed during the drilling survey.

Although the main shearing direction in the survey area is supposed to be along NW-SE direction, shearing zones along ENE-WSW and NNW-SSE directions were also observed. Gold garimpo (C8401700), located inside a shearing of NNW-SSE direction, presented samples with high gold and silver values. The soil gold anomaly represented by gold values of 25 ppb and 10 ppb, presents an elongated pattern along NW-SE direction that suggests that a shearing structure exists in this direction.

Results of factor analysis indicated the following metal signature: the factor 1 related with Pb-Zn-Fe-Cu is largely distributed in all survey area. The factor 3 related to Cu-Fe-Au is mostly distributed along the Rica and Buriti rivers that are the most important alluvial garimpo in the whole area. It is likely that metal associations such as, Copper, Gold and Iron reflect a gold mineralization adjacent to the intrusive center.

Results of auger geochemical survey in C block bears a similarity with the results of B block. The

gold anomalies within saprolite were also narrow with localized distributions containing some high gold values, as exemplified by the 14.8ppm Au on sample C112018504 (Fig. II-2-10).

Gold mineralization related to shearing zones of varied inclination was found in hard cores as well as in saprolite in the boreholes MJBA-3, MJBA-4 and MJBA-5 (Fig. II-2-13). The evidence of a relationship between shearing structure and gold mineralization open a good perspective for finding major gold deposits related to shearing structures in the survey area.

(3) F Block

Archean to Lower Proterozoic Xingu Complex (Px), Dykes and Quaternary sediment compose the geology of F block (Fig. II-3-3). Shearing zones along WNW-ESE direction is the main geological structure of F block and inside these shearing structures are observed some primary gold garimpo as exemplified by the Aluizio garimpo.

Result of soil geochemical survey confirmed the presence of two major trends for the gold anomalies in the F block, as observed in the compiled map on the Fig. II-3-8. NW-SE gold anomalies trend was observed in the southwestern part and WNW-ESE trend were observed in the central part and central north part of F block. These gold anomaly trends were interpreted as reflecting gold mineralization strongly controlled by shearing structures. The gold anomaly at the central north part of F block embodies the Aluizio garimpo that show the same shearing direction. The southwest gold soil anomaly that embodies the Serrinha do Guaranta garimpo area was interpreted as controlled by both, shearing structures and lithology. In Serrinha do Guaranta, the shearing structures and the outcrop of talc-chlorite-schist present the same NW-SE direction.

The multi element analysis indicated an association between Au and Cu in the southwestern gold soil anomaly and this metal signature possibly is reflecting gold mineralization adjacent to the intrusive center.

The auger survey confirmed that the gold anomaly in soil and in saprolite extends toward north and its results confirmed the wide gold anomaly in soil obtained by the regional geochemical survey. The auger survey also showed that the gold mineralization of Serrinha do Guaranta is not continuous and probably present a form of boudinage structure.

The borehole MJBA-1 (Fig. II-3-19) confirmed that gold bearing sulphide rich quartz vein fills the NW direction subvertical ductile shearing in talc chlorite schist. It also confirmed copper mineralization within schist and a maximum average grade of 1.41%Cu in 10m coring was obtained.

Gold mineralization in Aluizio Garimpo is related to parallel and sulphide rich quartz veins that fill a N80W direction-shearing zone. The parallel quartz veins are inserted in a shear zone that locally present 8 meters width and a confirmed length of more than 500 meters. The borehole MJBA-2 (Fig. II-3-21) confirmed that gold mineralization is associated to quartz veins and the core analysis results

presented an average gold grade of 0.87g/t between 9.00m and 11.00m and 0.61g/t between 30.00m and 33.00m. The drilling results confirmed a low grade and narrow gold mineralization in the Aluizio garimpo.

(4) G Block

The geology of G block is represented by Archean to lower Proterozoic Xingu Complex, middle Proterozoic Teles Pires Granite and Basic dykes (Fig. II-4-2).

The WNW-ESE direction shearing zones are widespread in the survey area, being some of the primary gold garimpo located inside these zones as are Zanete garimpo and Pezao garimpo. Edmar garimpo and Luizao garimpo are two others big garimpo located outside at the vicinities of the G block.

Evaluation survey made in these 4 garimpo, presented the following results. In the Zanete garimpo, gold results from 28.73g/t to 45.06g/t were obtained from quartz veins. The sulphide rich silicified rock of the Pezao garimpo presented gold values between 0.65g/t and 35.71g/t.

The Edmar garimpo presented gold results between 0.01g/t and 60.45g/t in py rich altered granite. The sulphide rich altered granite from Luizao garimpo presented 6.49g/t Au.

The above sampling results are a strong indication that G block hold high-grade gold mineralization and open a good perspective of finding a major gold deposit in the area.

The single element analysis of soil geochemical data indicated a large gold anomaly zone in the southwestern portion of G Block (Fig. II-4-7). The multi element analysis showed that Au is associated to Cu within gold anomaly zone. The distribution form of soil gold anomalies is broadly concordant with the direction of regional shearing and that suggests a shearing structure control for the gold mineralization of G block.

CHAPTER 2 RECOMMENDATIONS

The following surveys are recommended for B, C, F and G blocks in the Alta Floresta region during the Phase III survey.

(1) B Block

It is recommended at first, further grid auger geochemical survey to narrow the broad gold anomaly detected in soil during Phase II. A grid RC drilling is recommended in the narrowed gold anomalies to confirm the continuity of the gold mineralization in depth. At last, a DD drilling targeting the gold orebody is recommended.

In the southern area from B block is recommended a geochemical survey in the central part of the area, aiming to detect the source of the alluvial gold mineralization.

(2) C Block

It is recommended the same types of survey and sequence of survey as in B block.

(3) F Block

Further grid soil geochemical survey and auger geochemical survey is recommended in the vicinities of Serrinha do Guaranta garimpo, to detail the gold anomaly in soil. Later, a RC drilling is recommended to confirm the continuity of the gold mineralization in depth.

(4) G Block

Further grid soil geochemical survey and auger geochemical survey is recommended at southwest area from G Block, within of the large gold anomaly zone. Later, a RC drilling is recommended to confirm the continuity of the gold mineralization in depth.

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- Plate II-3-1 Geological map and cross section of the Serrinha do Guaranta in the Block F
- Plate II-3-2 Geological map and cross section of the Garimpo Aluizio in the Block F
- Plate II-3-3 Sample location in Block F
- Plate II-3-4 Location map of soil samples in Block F
- Plate II-4-1 Sample location in Block G
- Plate II-4-2 Location map of soil samples in Block G