A report prepared for GoldQuest Mining Corporation

COMMENTS ON GEOLOGY AND EXPLORATION OF THE ROMERO GOLD-COPPER PROSPECT AND ENVIRONS, LAS TRES PALMAS PROJECT, DOMINICAN REPUBLIC

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EXECUTIVE SUMMARY

- Inspection of representative drill core from the recently discovered Romero prospect at Las Tres Palmas shows that the gold-copper mineralization is completely blind and overlain by calcite-veined, but sulphide-free rocks. The gold-bearing chalcopyrite mineralization is hosted by silicified and illite-altered dacitic tuffs and underlain by a largely barren, vertically extensive pyritic stockwork developed in andesitic rocks.

- Upwards and laterally at Romero, the chalcopyrite gives way to sphalerite and a gold-zinc association predominates. Much of the previously defined mineralization in the Hondo Valle and Escandalosa sectors, south along the mineralized trend from Romero, displays this distal gold-zinc association, suggesting that additional, proximal, copper-rich centres may exist.

- Romero and the rest of the Las Tres Palmas mineralization are assigned to the intermediate-sulphidation epithermal category, although it appears to have been deeply formed. The mineralization is not of volcanogenic massive sulphide (VMS) type as well as lacking any obvious porphyry copper association.

- The pyritic feeder stockwork beneath the Romero gold-copper zone appears to coincide well with a bell-shaped IP chargeability high. Another similar high just north of the known Escandalosa zinc-gold mineralization could underlie a second gold-copper centre.

- The exploration priority at Romero is to determine by further drilling the northern limit of the gold-copper body. It appears to be closed off to the west and south and becomes lower grade eastwards towards the Hondo Valle sector. Further deep drill testing of the chargeability high is not recommended.

- It is hoped that the ongoing deeply penetrating IP survey reveals additional chargeability features of Romero type. In the meantime, the chargeability anomaly just north of Escandalosa merits immediate drill testing. Consideration should also be given to drill testing a Romero-like chargeability high defined previously ~1 km north-northeast of Hondo Valle.

- The existing GoldQuest drainage geochemical database needs additional scrutiny in search of subtle anomalies that might chart the presence of poorly exposed Las Tres Palmas-type mineralization. Any such anomalies would merit detailed follow-up work.

INTRODUCTION

At the request of Bill Fisher, the writer spent three days at the Las Tres Palmas project in the Dominican Republic to provide comments on the newly discovered Romero gold-copper prospect on behalf of GoldQuest Mining Corporation. The work focused on inspection of the core from selected drill holes in the Romero, Hondo Valle and Escandalosa sectors, complemented by brief field inspections of the Romero prospect and environs.

This report, prepared at site, briefly summarises the key geological observations and interpretative model for the Romero gold-copper mineralization as a basis for recommendations relevant to district-wide exploration. The field and drill-core inspections were guided by Norverto González, Marcela Barber, Maria Morera, Jesús Romero and Marco Pérez who, along with Jeremy Niemi, Julio Espaillat and Bill Fisher, are thanked for valuable instruction and discussions.

GEOLOGICAL BACKGROUND

The Las Tres Palmas project area is hosted by the Late Cretaceous Tireo Group, a mafic to felsic volcano-sedimentary sequence accumulated under subaerial to shallow-water conditions. Las Tres Palmas appears to be located within a northwest-trending, regional fault zone, which is intersected within the project area by several east- to northeast-striking faults of probable late-mineral timing. A number of low-angle faults, possibly thrusts, have also been mapped in the project area, but their relative displacements are difficult to ascertain.

The Las Tres Palmas mineralized trend, defined by a prominent chargeability high and geochemical anomalism, extends north- to northwestwards for ~5 km from Escandalosa, in the south, to Romero, in the north. Although structural localisation of the trend is suspected, controlling faults have not been identified.

The gold-copper mineralization at Romero is hosted by a shallowly dipping package of dacitic tuffs, at least 380 m thick, which is underlain by a >300-m-thick andesitic unit dominated by fine-grained flows and minor intercalated tuffs (Fig. 1). Similar dacitic tuffs also host the previously explored gold mineralization at Hondo Valle and Escandalosa. High ground nearby Romero is occupied by fine-grained rhyodacitic to rhyolitic rocks, which display local spherulitic texture – the result of devitrification, as well as flow foliation. The rocks are believed to be part of a flow-dome complex, an interpretation supported by their overall morphological expression. The presence of a 5- to 10-m-thick sill of the same composition drilled near surface in the eastern part of the Romero prospect certainly confirms proximity to an eruptive centre.

ROMERO MODEL

Shallow features

The Romero prospect is blind and fails to attain the present surface (Fig. 1). It is overlain by pervasively chloritised dacitic tuffs, which are cut by numerous, barren calcite veinlets. The calcium for veinlet formation is assumed to have been derived by plagioclase destruction in the underlying mineralized zone. The tuffs are sulphide free and contain their original magmatic magnetite content, as reflected by the relatively high magnetic susceptibility readings.

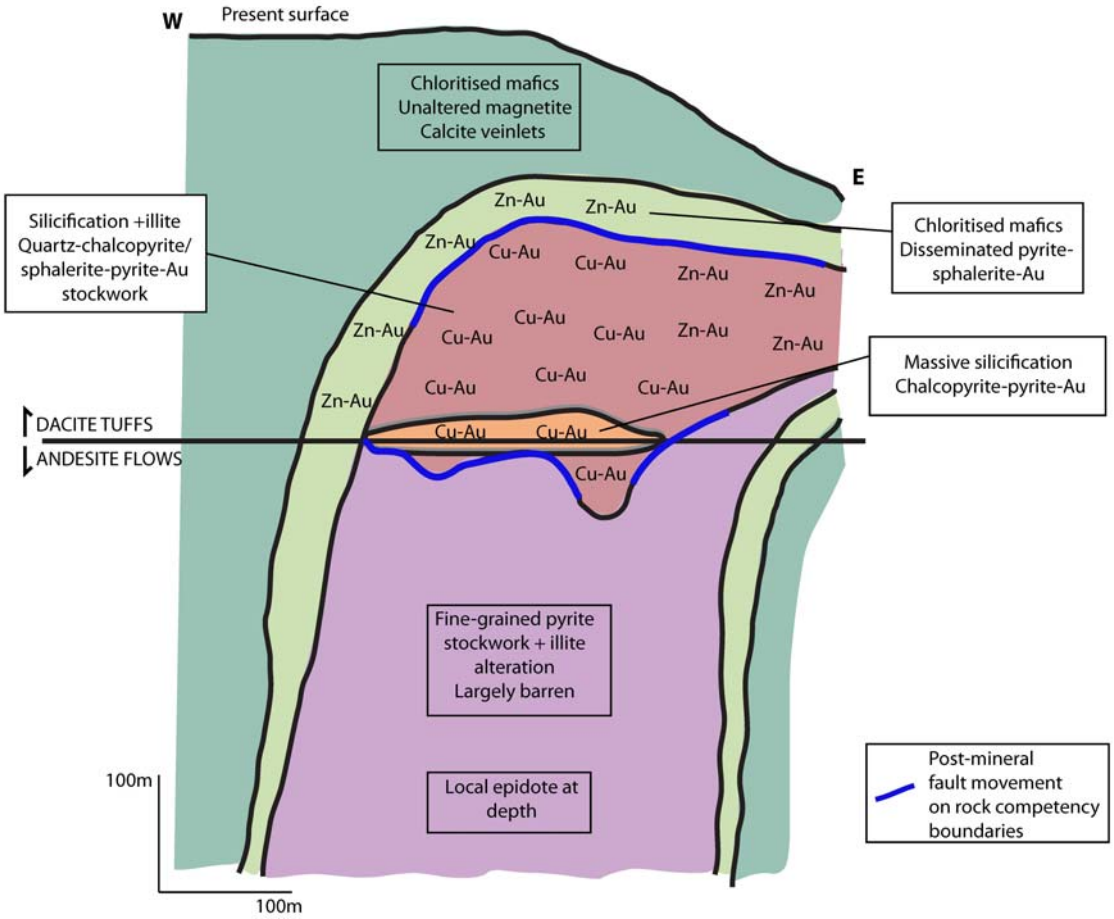

Fig. 1 Schematic geological section, Romero prospect

Marginal gold mineralization

The periphery of the Romero prospect is denoted by chloritised dacitic tuffs containing disseminated pyrite, some of which replaced the former magmatic magnetite content. Parts of this pyritic fringe also contain minor amounts of illite, disseminated sphalerite and associated gold mineralization.

Main gold-copper zone

The pyritic fringe is abruptly transitional downwards to the main gold-copper zone, which attains thicknesses of up to 200 m (Fig. 1). The zone is silicified and characterised by associated illite alteration along with 10-30 volume % of sulphides. Early pyrite tends to be fine grained and developed pervasively. Much of the chalcopyrite and associated pyrite is coarser grained, accompanies quartz and subordinate barite and overprints the early fine-grained pyrite, commonly in the form of a stockwork of centimetre-scale veinlets. High gold and copper values commonly occur together, although intervals in which there is copper without much gold or gold with little copper are also present.

The uppermost and outermost parts of the gold-copper zone also contain coarse-grained, low-iron sphalerite, which is commonly intergrown with the chalcopyrite. However, there is evidence for an early generation of disseminated pyrite and sphalerite that is overprinted by

the quartz-chalcopyrite-pyrite veinlets, suggesting that the copper mineralization may have prograded over a former zinc zone as paleo-fluid temperatures increased.

The base of the gold-copper zone approximates the contact between the dacitic tuffs and underlying flow-dominated andesitic package, although locally (e.g. hole 100) the gold-copper mineralization can be developed in the upper parts of the latter unit (Fig. 1). The contact zone is marked by intensely silicified rock containing varied, but commonly elevated amounts of chalcopyrite, pyrite and gold (Fig. 1). The silicification appears to result from coalescence of closely spaced quartz-sulphide veinlets, in places interspersed with brecciation. Some of the brecciation may be of tectonic origin, as suggested by fabric development in some of the clasts.

The upper and lower contacts of the silicified zone commonly display post-mineral tectonic brecciation and subhorizontal gouge development (Fig. 1), which is attributed to differential motion induced by the competency contrast between the silicified and non-silicified rocks. However, there is currently no evidence to support appreciable offset on either of these low-angle fault surfaces.

Pyritic feeder stockwork

The andesitic package to a depth of at least 320 m beneath the silicified zone hosts a pyritic stockwork (Fig. 1). Much of the pyrite is present as centimetre-scale, multidirectional bands composed of >50 volume % finely disseminated grains, which surround remanent patches of illite-altered andesite. Steep pyritic feeder veins are notable by their absence. The pyrite lacks copper, zinc and gold values. Epidote appears locally deep within the stockwork (Fig. 1), charting paleo-temperatures exceeding ~240°C. The pyritic stockwork clearly coincides with the bell-shaped chargeability high defined recently beneath the Romero gold-copper zone.

In places, however, scattered veinlets of quartz, chalcopyrite and pyrite, identical to those in the overlying gold-copper zone, cut the fine-grained pyrite stockwork, giving rise to isolated gold ± copper values. The presence of these veinlets strongly suggests that the pyritic stockwork acted as a feeder to the overlying gold-copper zone. The marked concentration of the quartz, copper and gold in the immediately overlying dacitic tuffs may be due to a sharp reduction of paleo-fluid temperature as the ascendant fluid mixed with meteoric water in the tuff aquifer.

Lateral transitions

The partly exposed Hondo Valle mineralized zone is believed to be hosted by the southeastward continuation of the Romero dacitic tuff sequence. However, the mineralized interval, although marked by similar silicification and illite alteration, is much thinner and contains far more sphalerite than chalcopyrite in association with the gold. This lateral transition from copper-gold to zinc-gold, schematised in Figure 1, is believed to be due to a component of lateral flow and consequent cooling of the mineralizing fluids.

MINERALIZATION STYLE

There is a marked strata-bound flavour to the Las Tres Palmas mineralization, as appreciated previously at both Hondo Valle and Escandalosa. However, the recent deep drilling at Romero has enabled definition of one of the feeder zones – the andesite-hosted pyritic

stockwork. It is notable that the thickest, highest-grade and most copper-rich mineralization encountered to date directly overlies this feeder. Others are suspected to exist farther south along the Las Tres Palmas trend and potentially also elsewhere.

There is no obvious 'off-the-shelf' deposit model that readily fits the geological features described above at Romero. Nonetheless, it seems reasonable to assign Romero and the rest of the Las Tres Palmas mineralization to the intermediate-sulphidation epithermal category. Notwithstanding the fact that Romero is blind and clearly did not approach a paleosurface, the dominance of illite alteration and local presence of crustiform and colloform textures in a minority of the quartz-sulphide veinlets combine to support an epithermal affiliation, albeit probably developed relatively deeply (say, 500-1,000 m). The abundance of sulphide minerals and base metals along with the low-iron composition of the sphalerite support the intermediate-sulphidation assignation, although the lack of carbonates in the mineralized zone and dominance of copper over zinc are atypical features.

The felsic volcanic rocks, tentatively interpreted above as part of a flow-dome complex, are everywhere unaltered and unmineralized where observed at surface. Nonetheless, their proximity to Romero suggests the possibility that they could be genetically related and derived from the same parental magma chamber as the mineralizing fluids. This possibility can only be confirmed once the temporal relationship of the felsic volcanic rocks and mineralization is determined.

The location of Las Tres Palmas in the Tireo magmatic arc raises the obvious question of a relationship with a porphyry copper centre. With the data at hand, any such relationship remains unsupported. There is no evidence for the existence of porphyritic intrusive rocks of the type observed in all porphyry copper deposits, although the presence at depth of an intrusion of some type beneath the pyritic feeder stockwork would be unsurprising. Furthermore, there is no evidence for any of the veinlet types characteristic of porphyry copper deposits or for the ubiquitous molybdenum geochemical signature.

The abundance of sulphide minerals at Romero and the position of the gold-copper zone above a pyritic stockwork could be taken by some observers to suggest the existence of a volcanogenic massive sulphide (VMS) system. However, this possibility appears to be ruled out by the clear upward transition from mineralized to non-mineralized dacitic tuff and the absence of any stratigraphic hiatus, such as a sedimentary or exhalite horizon, on top of the mineralized body.

EXPLORATION IMPLICATIONS

Romero prospect

The Romero mineralization appears to have been closed off to the west and south; it also weakens eastwards although, as noted above, a transition to the Hondo Valle gold-zinc zone appears likely. The mineralized zone remains open northwards, in which direction the felsic volcanic rocks dominate at surface. The subsurface relationship of the mineralization and any dome feeder remains to be determined.

Las Tres Palmas trend and nearby areas

Although subsidiary chalcopyrite mineralization, typically associated with quartz, is present at both Hondo Valle and Escandalosa, both prospects display a clear gold-zinc relationship. If the dominance of copper over zinc at Romero is due to its proximity to the main feeder stockwork, as proposed herein, then additional feeders may be anticipated farther south along the Las Tres Palmas trend.

By analogy with Romero, any such pyritic feeder stockworks may be represented by prominent chargeability features, like that recently defined at depth just north of Escandalosa. Others may remain to be identified elsewhere along the trend.

It also needs to be asked if the chargeability high located ~1 km north-northeast of Hondo Valle, along the Río San Juan, could also represent another Romero-type mineralized centre. No exposed alteration or mineralization is reported there but, by analogy with Romero, it could be entirely blind. Furthermore, the anomaly abuts mapped felsic volcanic rocks, of possible dome origin.

EXPLORATION RECOMMENDATIONS

Clearly, the priority at Las Tres Palmas is to complete delimitation of the Romero prospect, specifically along its northern side. Additional in-fill drilling is not recommended at this stage of the programme nor is further deep drilling. The three holes drilled to test the deep chargeability anomaly, the response to the andesite-hosted pyritic stockwork, do not contain metal values of interest. In future, holes may be stopped once 100 m or so of the pyritic stockwork have been intersected.

Based on the evidence for locally exposed as well as concealed gold-zinc mineralization farther south along the Las Tres Palmas trend, the isolated, deep chargeability feature north of Escandalosa is an obvious target for immediate drill testing in search of high-grade gold-copper mineralization in its upper parts. The similarity of this chargeability feature with that defined at Romero is the main justification for this recommendation.

The current extension of the deeply penetrating IP coverage is strongly endorsed, and any resulting deep chargeability highs similar in form to that at Romero would constitute compelling drill targets. The anomaly north-northeast of Hondo Valle could be either drill tested immediately or following confirmation with a line of deep IP. The IP results may also assist with definition of the subsurface extent of the suspected flow-dome complex, which is anticipated to be resistive.

Reappraisal of the GoldQuest drainage geochemical results, which led to the original discovery of Las Tres Palmas, would be a worthwhile exercise, with a view to identifying subtle zinc, copper and/or gold anomalies that might warrant follow-up using more detailed drainage as well as soil geochemistry. Anomalies might be subtle because of limited exposure of formerly blind Romero-type systems.

It might be asked if the calcite veinlets in the chloritised tuffs above Romero give rise to any sort of leakage anomaly. For example, the veinlets might contain trace amounts of zinc or some other element (e.g. manganese) that could be determined geochemically in surface

samples. This possibility could be investigated further by collecting drill-core samples of calcite veinlets from above Romero and analysing them for a variety of elements.

Hondo Valle camp
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