

The Orisyvo Discovery, Chihuahua, Mexico: Hidden Gold on a 1000 Meter Cliff

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Orisyvo is one of the newest large gold discoveries in Mexico, and is located in the Sierra Madre Mountains of Chihuahua. It is a high sulfidation epithermal center with gold values in a silicified phreatic breccia and underlying altered quartz diorite porphyry intrusive. Resources total 8.7 Moz of gold grading about 1 gpt, contained in an upper oxide zone (3.7 Moz) and a lower pyrite zone (5.0 Moz). Grades locally attain 3 oz gold per ton in the sulfide core. Mineralization has been drilled out over 1000 × 600 m area through a vertical distance of 500 m, in rugged Barranca terrain.

Although the deposit is located between the Maguarichic and Uruachic gold-silver mining camps (intermediate sulfidation veins), no historical workings were sunk on the Orisyvo deposit. The altered area was identified and staked during a helicopter prospecting program in 1997, when attention was drawn to the rugged topography and iron-stained outcrops. The overlying silicified volcanics are barren of gold, and underlying altered porphyry accessible in the canyon contains 0.1 gpt gold. Attractive gold values associated with residual vuggy silica were not discovered until three years later on the main cliff face, after regional mapping and systematic rock chip sampling were carried out over several kilometers of altered volcanic rocks. Early exploration drilling was carried out with two small portable core rigs transported through 3 km of access trails cut across the cliff outcrop; and later 10 km of road were built to connect the Orisyvo village with the upper levels of the project area, to reach follow-up conventional diamond drill stations. Drill movements were carried out with helicopter support.

The subhorizontal zone of highest grade gold mineralization accompanies intense silicification of the lower part of the multistage breccia, and also extends into the underlying porphyry displaying patchy and wormy quartz-dickite textures. There is a distinct association between gold values and disseminated molybdenite, as well as traces of galena, sphalerite, and energite in the deposit. The molybdenite was dated by the Re-Os method at 51.1 ± 0.3 Ma, reflecting the age of mineralization.

Community relations and respect for the local customs are a priority concern in the project; contact with the outside world was limited until recent years, especially for the village children. A pre-feasibility study is in preparation. The recently driven Chuyaivo adit crosses the oxide section and the lower Oroguerachi adit explores 2 km through the sulfides; gold grades show good continuity in both zones. Ore is amenable to low cost bulk mining methods with access from the adits. Conventional milling and cyanide dynamic leaching gives metallurgical recoveries of 90 and 65% in the oxide and sulfide material, respectively.