

# SEG 2023 Conference: Resourcing the Green Transition

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## Greenfield Porphyry Copper Prospects in Peru

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Three porphyry copper prospects in Peru are presented at different erosion levels; from top to bottom, these are:

### **Arcopunco, Huancavelica**

Junior operator, ALTITUDE, drilled a single 852-m hole in 2021 and intersected strong phyllic alteration with quartz stockwork and breccias, anomalous in Cu + Au sulfides, 400 to 500 m below a barren alunite-pyrophyllite lithocap. Ongoing studies include alteration logging and mapping, detailed geochemistry, ore mineralogy, and the design of a pertinent geophysical survey.

The metallogenetic setting of Arcopunco is the Miocene to Pliocene subaerial volcanic arc with peripheral, Ag-rich polymetallic veins of the Huachocolpa mining district. The blind Arcopunco porphyry center remains to be tested by additional 1- to 2-km-deep holes.

### **San Cristobal, Ancash**

Located 50 km northeast of the ANTAMINA Cu + Zn skarn deposit of mid-Miocene age, San Cristobal consists of sericite-altered tonalite and monzodiorite plutons of the Cordillera Blanca batholith, cut by a central diatreme with hydrothermal breccias. Strong Mo (Au) anomalies characterize the leached oxide capping of a porphyry copper deposit that crops out emplaced in folded Cretaceous sandstones.

First-pass drilling was done in 1997-1998 by RTZ/CRA. Prospectivity remains at intermediate depths in the porphyry center and laterally into other targets.

### **Alto Quemado, Arequipa**

The prospect is located 20 km east of TECK's Zafranal Cretaceous porphyries and 60 km northwest of FREEPORT's Paleocene to Eocene Cerro Verde porphyries. At Alto Quemado, Jurassic and Cretaceous plutons and high-level porphyritic stocks of the Coastal Batholith intrude pre-Cambrian gneiss basement, overlain by Mesozoic sandstones and shales. Regional faults of the Sincha-Lluta-Guanaco systems dissect the Totorayoc porphyry copper leached capping and control ore shoots in associated quartz-chalcopyrite-gold veins.

Core logging of a 6,000-m drilling campaign done in 2020, surface alteration mapping, and IP/magnetometry surveys for district-scale target generation are in place.