I. INTRODUCTION

Cooper-gold mineralization at the San Matías Project (SMP; Cordoba Minerals Corp., HPX Group) in NW Colombia comprises three distinctive styles: 1) Cu-Au-magnetite replacement mineralization (e.g. El Alacran Deposit), 2) Cu-Au porphyry stocks (e.g. Montiel East Deposit), and 3) Mesothermal to epithermal veins (e.g. Mina Ra) (Fig. 1).

The SMP lies in the northern sector of the Calima Terrane, composed of basaltic, flysch-type chemical and siliciclastic sediments and pyroclastic rocks accreted to continental terranes (i.e. Tahami-Fanzone) in Late Cretaceous times though the Romeral Fault Zone (Restrepo et al., 2009; Ordóñez-Carmona, 2001; Vinasco et al., 2006). The Calima Terrane rocks were intruded by a Late Cretaceous east-facing magmatic arc producing a series of calc-alkaline tonalitic intrusions (e.g. Buga Batholith, ~90 Ma; Villagomez et al., 2011). The age of magmatism in the SMP is markedly younger (Montiel East porphyry, 70.0 ±2.0 Ma; Leal-Meja and Hart, 2017).

II. EL ALACRAN DEPOSIT

Mineralization at the El Alacran Deposit (36.1M tonnes of Indicated Resources at 0.57% copper and 0.26 g/t gold (0.72% CuEq)) is hosted by a 550m-thick west-dipping succession comprising mafic volcanic rocks overlain by a volcano-sedimentary sequence and capped by post- and possibly syn-mineral dioritic intrusions (i.e. Alacran Norte and Oeste). This succession can be broadly divided into three major stratigraphy units from top to bottom: Unit 1 (Acid volcanics), Unit 2 (Volcano-sedimentary rocks) and Unit 3 (Mafic Volcaniclastic rocks) (Fig. 2). Cu-Au mineralization is preferentially hosted in Unit 2.

Characterization of hydrothermal alteration and mineralization assemblages of samples from the El Alacran Deposit reveal a clear transition from chlorite-dominated assemblages in the South (i.e. FeOx, chlorite, CBM-FeOx) to sericite-dominated assemblages in the North (i.e. CBM-Sph, CBM transition, sericite+carbonate) (Fig 3). A third alteration assemblage dominated by albita-clorite is spatially associated with the sill intrusions in the northeast part of the deposit. Low temperature assemblages (Propylitic, Sodic and FeOx-Clay) occurs either as distal or later overprint events (Fig 3).

III. MINERAL PARAGENESIS

Mineral Paragenesis of the El Alacran Deposit Cu-Au Mineralization, San Matias Project, Cordoba Department, Colombia

Julián D. Manco-Parra1,2, Hildebrando Leal-Mejía1, Craig J.R. Hart1, Eugene Schmidt2, Graham Boyd3

1 Mineral Deposit Research Unit - The University of British Columbia
2 Cordoba Minerals Corp.
3 High Power Exploration Inc.

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