Preliminary Field and Petrographic investigations on the Klaza Au-Ag-Pb-Zn-Cu deposit, Dawson Range, Yukon

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The Klaza deposit is a structurally controlled, polymetallic gold-silver-base metal intermediate sulphidation epithermal system, located within the Dawson Range Gold Belt, central Yukon. The Klaza deposit has four zones with varying vein complexity, ore grade and interaction with local porphyritic quartz-feldspar (‘QFP’) dykes. This study aims to develop a clear understanding of the genesis and fluid evolution of the Klaza deposit. Preliminary field observations include that the high gold-grade intervals of stockwork and sheeted quartz pyrite veins display two dominant structural orientations and phyllic (quartz-pyrite-sericite) alteration. Massive quartz-pyrite ± chalcopyrite gold bearing veins cut the stockwork and sheeted veins. Silver-rich base metal sulfide veins at Central Klaza cut both vein types, indicating an early, high grade gold mineralization event followed by a later Ag-rich event. The main mineralization stage is followed by late stage carbonate veins, which are largely unmineralized in the Central Klaza zone, but contain euhedral sphalerite and galena in the Western BRX zone. High resolution re-logging of drill core revealed subtle textural and compositional differences between dykes previously logged as undifferentiated ‘QFP’ across the Central Klaza zone. Three types of dyke compositions are distinguishable in the field based on quartz phenocryst abundance and cross cutting relationships. A Type 1 mafic dyke is cut by Stage 1 early quartz-pyrite veinlets. The Type 2 felsic dykes are cut by Stage 4 base metal veins, while the Type 3 intermediate dyke is in contact with Type 2 dykes and is uncut by mineralization.