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Archean Orogenic Gold Mineralization in Wyoming, Exploring the Rifted Abitibi Subprovince of the Superior Province in Wyoming

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Orogenic gold deposits are outcomes of regional geological processes that occur in specific space and time. As an example, 2.7-2.6 Ga. orogenic gold deposits in greenstone belts of the Superior Province of Canada host >315 million ounces of gold. Utilizing paleogeographic reconstructions of the Earth's crust to discover rifted extensions of economically significant, metalliferous geologic terranes is a powerful tool for generative, exploration geologists. Paleogeographic research by Big Rock Exploration (BRE) determined that the southern portion of the Archean Wyoming Province may be the rifted extension of the Abitibi-Wawa Subprovince of the Superior Province. Relevant Gold Corp (RGC) was then created out of BRE leveraging these ideas to obtain extensive land positions in the ~2.7 Ga Archean, South Pass and Bradley Peak greenstone belts in Wyoming.

The South Pass greenstone belt is located along the southeastern end of the Laramide Wind River uplift and is dominated by metagreywacke with marginal komatiites, pillow basalts, mixed schists, and iron formation. Gold mineralization is associated with reverse sense wedge-shaped Reidel P-type shear zones, similar to the world-class Canadian Malartic deposit in the Abitibi. The Bradley Peak greenstone belt is located in the Laramide Seminoe Mountains uplift and is a classic metavolcanic dominated greenstone belt composed of amphibolitic pillow basalts, spinifex-textured komatiites, metagabbros, metaperidotites, quartz-feldspar porphyries, and iron formations overlain by greywacke-argillite. Gold mineralization at Bradley Peak is associated with sigmoidal Reidel P-type shear zones, similar to analog deposits in the Timmins and Red Lake districts of the Superior Province.

The presentation will begin by highlighting key aspects of the paleogeographic reconstruction and then focus on recent RGC exploration results for orogenic gold deposits in the South Pass and Bradley Peak greenstone belts of Wyoming.