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TOS → St.
Eugene

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to NWMA 02/1)

ORE CONTROLS FOR ST. EUGENE STYLE VEIN MINERALIZATION

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EXECUTIVE SUMMARY

The St. Eugene Project

Background

The St. Eugene Zn-Pb-Ag mine is situated, near the village of Moyie, approximately 20 miles south of the city of Cranbrook in southeastern British Columbia. Provincial Highway No.3 and the Crows Nest rail line of the CPR pass by the mine workings. The St. Eugene mine, and the neighbouring Aurora property to the west are included in a large land position consisting of 100 crown granted mineral claims covering approximately 6 square miles. For approximately 50 years this land position was subject to a joint venture agreement between Cominco Ltd and St Eugene Mining Corporation, a company controlled by Falconbridge Ltd. In 2001 Falconbridge sold its majority share position in St Eugene Mining Corporation (81.6%) to R. T. Trenaman, the author of two papers dealing with the controls to sulfide mineralization in the St Eugene area.

During its main operating period between 1900 and 1911 the mine produced 1.1 million tons of ore grading 5%Zn, 15%Pb, 7 oz of silver per ton from three main ore shoots, the Lakeshore, Moyie and St. Eugene, that are aligned along the north west trending St. Eugene mineral structure. Following 1911, there was minor production by lessors until 1921, when all mining was suspended.

During the 1930's the St. Eugene and adjacent mineral deposits, east and west, were assembled under the umbrella of St. Eugene Extension Mines Limited (SEEM), including an option on the Cominco owned St Eugene Mine claims. In 1939, the assets of SEEM were rolled into a new company St Eugene Mining Corporation Ltd. that was controlled by Ventures-subsequently Falconbridge Ltd. Between 1939 and 1950, this company expanded the property holdings and carried out detailed surface mapping, and completed a few diamond drill holes to the north and south of the mine workings. In 1963 Cominco supervised a diamond drill programme that confirmed the extension of the St. Eugene mineralised structure to a depth of at least 4,000 feet below the level of Moyie Lake. For the last close to forty years there has been no co-ordinated exploration effort applying modern thinking and exploration methods. In 1995, Cominco undertook a programme of sealing all openings that might pose a hazard to the public.

In 1999, R Gifford, P Eng. and the author, received permission from Cominco Ltd. to review all old records and files on the St. Eugene project. This review proceeded for approximately 10 months, concluding in 2000, and led to the development of a model that explains the location of the existing ore deposits and confirms that the geology of the area surrounding the mine is favourable for a number of other St Eugene style ore deposits. Within a circle of approximately two mile radius, centred on the Moyie shaft, this model predicts there is a potential resource of 15 to 20 million tons grading 8% Zn, 12 %Pb, and 6 opt Ag

St. Eugene Style Ore Deposits and Similarity to Coeur d'Alene Camp

The St. Eugene ore deposits occur within rocks of the same Middle Proterozoic sediments as the Sullivan mine, 30 miles to the north, and the Coeur d'Alene mining district, 150 miles to the south. The Sullivan deposit formed on the surface within a deepwater basin, and the Coeur d'Alene and St. Eugene were formed somewhat more recently as vein deposits. The Sullivan mine closed in 2001, with production totaling approximately 150 million tons at a grade of 6% Zn, 6%Pb, and 2 opt Ag. The Coeur d'Alene has mined approximately 150 millions tons to date, grading 3%Zn, 6% Pb, and 8opt Ag, and operations are planned for another 13 years at least. The value of production to date from each of this world class deposits is 16 billion dollars US.

The Coeur d'Alene is a mature mining camp and well studied. All mineralization falls within and towards the west end the Lewis and Clark line, a deep seated north-west trending zone of fracturing and

shearing up to twelve miles wide that has been traced 95 miles from central Montana, to Coeur d'Alene, Idaho. Within this line, mineral deposits are found in a number of roughly parallel zones called mineral belts that may be identified by aligned mineral occurrences and vein type ore shoots. Production has been derived from twelve belts. Ore bearing sections of belts may extend along strike for twelve miles and vertically more than 8500 ft. Ore bodies are steeply plunging, rod like, and are constrained to more quartzitic sections of bedding. Beside rock type, other important controls to ore location are planes of weakness associated with tightly folded beds and a pervasive cleavage.

The St. Eugene mining camp, relatively speaking, is in its infancy, and has not been well studied, or explored. Based on what is presently known, the geological environment of the St. Eugene mine and area bears many similarities to the Coeur d'Alene camp. For example, mineralization is of similar age, and the alignment of mineral deposits, mined, as well as undeveloped, is indicative of a mineral belt similar to those in the Coeur d'Alene camp. Like the Coeur d'Alene camp, ore shoots are vein type and favor quartzite sections of the bedding. Perhaps the characteristic which most closely ties the two deposit styles, (and this was not apparently understood until the present study) is the importance of folding in controlling the location of ore bodies. Along the north-west trending St. Eugene belt, all significant ore shoots are located where the belt has developed a path across the axial plane regions of north trending folds that have their loci tied to north trending synrift faults. These faults and associated folds appear to repeat at predictable intervals to the east and west, and offer the potential for a number of additional St. Eugene style deposits along the path of the belt. The undeveloped Aurora, Society Girl, and John Dee are three such probable deposits.

Looking north and south of the St. Eugene belt, parallel structures, exhibiting many of the characteristics of the St. Eugene, have been identified, but are essentially unexplored. These potential parallel belts fall within a zone 4.5 miles wide, and when considered in the light of the other evidence, provide strong support for a deep-seated break, similar to the Lewis and Clark line. The potential belts within this line (referred to as the Moyie line) cut across the family of north trending folds, and provide a mosaic of favorable centres for St. Eugene style ore deposits. See Figure A. The inferred resource potential of this segment of the Moyie line, which would fall within a circle of approximately two mile radius, centered on the Moyie shaft, is 6 million tons within the St. Eugene belt alone, and an additional 12 to 15 million tons from other belts. In summary, a resource of 15 to 20 million tons grading 8% Zn, 12 %Pb, and 6 opt Ag, for a mining operation centered on the St. Eugene shaft, and above a depth of 2000 feet, appears an attainable goal. The majority of these potential mineralized centres may be tested by standard exploration techniques, and diamond drill holes less than 2500 feet in length.

The Proterozoic rocks of the East Kootenay have attracted exploration interest for most of the last 110 years. However for the last fifty years, the principal focus of exploration has been directed on the search for "sedimentary" style sulfide deposits at the Lower-middle Aldridge contact, because of the rewards associated with finding a second "Sullivan". There does not appear to have been much study, and certainly not much exploration effort, devoted to the recognition of a Coeur d'Alene style mineralization environment in this region, even though there is much evidence for it.

Further information concerning the Company and the mineral potential of St Eugene property may be obtained by contacting:

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