Ryan Lode Project

Avalon Development Corporation
Summary Report 2015

PROPERTY NAME: Ryan Lode

Past Name(s): Ryan Lode, Curlew, Bartholomae Oil

Property Size:1,218 acres (493 hectares)

LOCATION:

State/Prov: Alaska

Mining District: Fairbanks

Lat-Long:/UTM: 64.863^{o} N Lat, 147.99 W Long^{o}

Local river, mountain range: on the ridge between Eva Creek and Saint Patrick Creek, on the southeast side of Ester Dome. The mine workings are marked on the Fairbanks D-2 quadrangle.

CURRENT OWNER(S): Gold Run Ltd., North Frost Bank Bldg., 1250 NE Loop 410, Suite 900, San Antonio, Texas, 78209

Primary Owner & Percentage: Gold Run Ltd., 100%

Secondary Owner(s) & Percentage: None

Government Ownership & Percentage: None

CURRENT LEASE or JV HOLDER(S): There are no current lease or JV holders.

Lessee Name & Percentage:N/A

Lease terms: N/A

Term: N/A

Adv. Roy.: N/A

NSR: N/A

Buyout: N/A

Work Commitment: N/A

Transfer Rights: N/A

Joint Venture Terms: N/A

LAND STATUS:

Alluvial Rights: Gold Run Ltd., 100%

Lode Rights: Gold Run Ltd., 100%

Surface Rights: State of Alaska (unpatented claims) and Gold Run Ltd. (patented claims)

TITLE VALIDITY:

Title Recorded/Registered: Not determined

ENCUMBRANCES:

Government Production Royalty: 3% NPI on State mining claims

Federal or State Claim rents: Federal rents of $1,875 for 15 unpatented federal claims

Property Taxes: unknown

Underlying Production Royalty: None

Work Commitments: $2.50 per acre per year on state claims, bankable to 4 years in future

Liens on property or equipment: None known

Debt encumbrances: None known

ENVIRONMENTAL/SOCIOLOGICAL CONSIDERATIONS:

Proximity to Mineral Closures: Adjacent to private residential land closed to mineral entry.

Proximity to population centers: 9 miles northwest of Fairbanks (population 75,000) and 2 miles from unincorporated village of Ester (population approx. 1,500).

Access: State maintained Parks Highway to Gold Hill Road and Henderson Road.

Environmental considerations: Proximity of subdivisions in the area, possibility of drinking water well impacts, and noise/dust pollution have been points of concern in past public meetings relating to possible surface mining at Ryan Lode.

GEOLOGIC SUMMARY:

History: Work was reported on the Ryan Lode property as early as 1911 (Brooks, 1912). In 1916 Kennecott Copper Corp. optioned the property and did extensive development work and exploration defining 800,000 tons grading 0.2 OPT Au, for 208,000 ounces of gold (Kinross, 2003). In 1931 J. M. Hill of the USGS estimated the total ore tonnage to be 1.3 millions tons grading .0.16 opt for a similar total reserve of 208,000 ounces Au. 1931-1938 several small companies sunk shallow production shafts, however high transportation costs and weak ground deterred production until 1938 (Hill, 1933).

In 1938 the Bartholomae Oil Corp acquired the property (Freeman and Schaefer, 2001). Between 1938 and 1942, more than 1,500 feet of shafts, 2,000 feet of drifts, adits and crosscuts, and more than 2,800 feet of trenching was completed (Warfield and Thomas, 1972). The property entered production but produced only 620 ounces of gold before the U.S. War Production Board halted operations.

From 1954 to 1958, there was minor trenching and drilling at Ryan Lode (Warfield and Thomas, 1972). In 1969-70, the U.S. Bureau of Mines conducted a drilling program that was a pilot study to compare the cost and environmental damage of rotary drilling versus bulldozer trenching (Warfield and Thomas, 1972). In 1974 Fourbear Enterprises acquired the lease on the property, and in 1978 built a 400 ton per day flotation mill and began surface mining. However, recovery problems quickly halted operations (Kinross, 2003). Between 1979 and 1982 St. Joe

American drilled 6000 ft of core and in 1981 drove a decline 500 ft down the strike of the Ryan shear zone. The decline collapsed due to the unstable nature of the ground and the effort was abandoned.

In 1985 St. Joe assigned their lease to Citigold Alaska Inc. From 1987 to 1990 Citigold heap leach mined 320,000 tons of ore from the two open pits with a cut off grade of 0.020 opt gold, and an average grade of 0.090 opt. Initial recovery was derived from run of mine ore followed by ore crushed to 4 inch-minus and finally by ore that was agglomerated after being crushed to 4 inch-minus. The recovery was 19,220 ounces (67%) and 14,330 ounces of silver (R. Hughes, written comm.., 1996). In 1991 a group of investors purchased control of Citigold and installed new management. The new company, La Teko Resources Ltd. began heap leach decommissioning and conducted detailed drilling and exploration from 1991 until 1993.

In 1999 Kinross Gold Corp. acquired La Teko and with it, their interests in the True North and Ryan Lode deposits. From 1999 until 2004 Kinross conducted drilling, resource estimates and engineering of the Ryan Lode and adjacent Curlew deposits. In mid-2006 Kinross terminated its lease and relinquished Ryan Lode to the current owners, Gold Run Ltd.

Past Production: 19,820 ounces of gold and 14,330 ounces of silver (R. Hughes, written comm., 1996).

District Geology: Bedrock geology of the Fairbanks Mining District is dominated by a N60 - 80E trending lithologic and structural trend covering a 30-mile by 15-mile area (Robinson and others, 1990; Newberry and others, 1996). Geologic maps of the Ryan Lode area suggest that the prospect may be situated on the southeast limb of a northeast trending antiformal structure centered on Ester Dome, the topographic high on which the prospect is located (Robinson and others, 1993). Alternatively, Newberry and others (1996) suggest the Ryan Lode is controlled by a district scale northeast-trending structure known locally as the Eldorado fault. The northeast extension of this structure is associated with the 1.3 Moz True North ore body 18 miles to the northeast of Ryan Lode.

Almost no bedrock exposures are present in the Ryan or Curlew area except for the open pits at Ryan Lode. Although this part of Interior Alaska was not covered by Pleistocene glaciation, the area is mantled with glacially derived loess which ranges from a shallow veneer to >50 ft in thickness in the Ryan Lode area. The Ryan Lode and Curlew deposits are hosted in the Proterozoic to Cambrian age Fairbanks Schist. This rock package consists of brown, green and gray mica schist, quartz mica schist and quartzites. Foliation in the schist is well developed. The schist at Ryan Lode has some graphitic schist in close proximity to the mineralized zone(s), the origin of which has been alternately ascribed to sedimentary protoliths and hydrothermal origin. Interbedded with the Fairbanks Schist is the Cleary Sequence, which has some calcareous and possible volcanic lithologies. Foliation in the schist at Ryan Lode generally dips 20 to 65° to the east.

A portion of the resources at Ryan Lode are hosted in a shear zone cutting a small quartz monzonite body known as the Curlew intrusive. This intrusion (90 to 93 Ma) appears to be sill-like, and in some places it is in fault contact with the surrounding schist. It has a core of quartz monzonite surrounded by a border of granodiorite to quartz diorite. There has been extensive sericitic alteration along shears and fractures within the intrusion (Freeman and Schaefer, 2001). From the drill hole cross sections the intrusion appears to be of irregular shape and may bifurcate at depth The sill-like intrusion(s) appear to strike northwesterly and dip moderately to the northeast.

District Structure: The main Ryan Lode gold deposit is hosted in a shear zone which strikes N22°E and dips from 20 to 65° to the southeast (Kinross, 2003). The mineralized shear zone is up to 100 feet thick and averages about 50 feet thick. The shear zone is defined for about 7,000 feet along strike, has a down dip extent of 1,000 feet and remains open-ended (Ristoricelli, 2004). . The deposit locally contains multiple stacked zones of mineralization in a vertical sense and anastomosing or "braided" gold-bearing quartz veins are present in a lateral sense. Structural analysis of surface and drill data suggest that the shear is composed of multiple cymoid loops and en echelon faults. Slickensides in the open pits indicate strike-slip movement on the shear zone. The pattern of the faulting and the quartz veins is suggestive of left lateral movement on the Ryan Lode shear zone.

The Curlew deposit strikes approximately N15°W and dips moderately to the east. The Curlew intrusion is about in the center of the Curlew gold deposit. Mineralization at Curlew also occurs as multiple stacked zones, with locally up to four subparallel zones of mineralization. Individual zones range up to 100 feet thick. The known strike length (from drilling) is approximately 3,000 feet (Kinross, 2003).

Mineralization: Hydrothermal mineralization and alteration at the Ryan Lode and Curlew consist of quartz veins with generally low sulfide content (<5%). The sulfide minerals are dominated by arsenopyrite in disseminated and veinlets (<2 mm) form followed by pyrite, commonly less than <2% of the rock mass. Stibnite is locally moderately abundant, but occurs sporadically as kidneys and shear-hosted pods that appear to cross-cut earlier forms of mineralization and alteration. Other minerals identified in lesser quantities in Ryan Lode hand specimens and by ore microscopy include marcasite, sphalerite, pyrrhotite, native gold, plagionite ($Pb_5Sb_8S_{17}$), chalcopyrite, boulangerite ($Pb_5Sb_4S_{11}$), chalcostibnite ($CuSbS_2$), tetrahedrite, bournonite ($PbCuSbS_3$), covellite, chalcocite, stibiconite, cervantite, scorodite, native bismuth, hammonite, galesobismutite and ustarasite ((PbSbBi)S) (Honea, 1993; Canon, 1990). The milky-white quartz associated with gold mineralization is locally brecciated, sheared, and fractured suggesting multiple structural and mineralizing events. At least three alteration assemblages have been identified: quartz-muscovite-siderite, quartz-muscovite-chlorite, and silicification (Ryan Lode Mines, Inc., unpublished report, 1996). Hanging-wall alteration tends to be dominated by sericite and while chlorite alteration with local calcite veinlets and pyrite and/or arsenopyrite is more prevalent in the footwall of the Ryan Lode shear (Kinross, 2003). Locally graphitic schist is present near the top of the shear zone, which contains clay gouge. A surface oxidation zone is present at both the Ryan and Curlew shears and varies in depth from 150 feet to more than 300 feet (Freeman and Schaefer, 2001). In the oxidized zone, sulfide minerals have been oxidized to limonite and scorodite.

McCoy and others (1997) dated both hydrothermal and intrusion-related minerals using the $^{40}Ar/^{39}Ar$ method. At the Ryan Lode the hydrothermal white mica has been dated at 89.1 ± 0.3 Ma, and white mica from hydrothermally altered schist has been dated at 87.6 ± 0.3 Ma. In the Curlew intrusive, hornblende from quartz diorite was dated at 90.6 ± 0.3 Ma while biotite from quartz diorite biotite was dated at 90.2 ± 0.3 Ma. Rock dated at Curlew is cut by mineralized shear zones and thus are younger than gold mineralization. Fluid inclusion temperature data from a sample of Ryan Lode quartz vein (sample 81 MIRL 15A) reveals temperatures of 290 to 355°C for primary inclusion. The average is approximately 325°C (Kinross, 2003).

Ore Reserves/Resources: The most recent resource estimate of the Ryan Lode gold deposit is 676,000 ounces of gold grading 0.066 opt contained in 10,167,000 tons of material. This estimate is based on a cut off of 0.030 opt and contained data from 274,481 drill geochemistry intervals (Ristorcelli, 2004, Table 1). There is a total geologic resource of about 2.4 million ounces of gold in 55.6 million tons of rock grading 0.043 opt (Swainbank and Szumigala, 2000). The deposit also contains some zones of high-grade mineralization as encountered in diamond drill holes, including some multi-ounce per ton gold assays. However, virtually all of the drilling conducted in the last 25 years has been targeted at defining surface-minable resources (See Recommendations).

Table 1: Ryan Lode deposit, Total *In situ* Mineralization (Ristorcelli, 2004)

Cutoff (opt Au)	Tons	Grade (opt Au)	Ounces Au
0.000	18,857,000	0.045	844,000
0.010	18,364,000	0.046	842,000
0.020	14,651,000	0.054	785,000
0.030	10,167,000	0.066	676,000
0.040	6,859,000	0.082	563,000
0.050	4,759,000	0.099	470,000
0.100	1,240,000	0.189	234,000
0.150	643,000	0.255	164,000
0.200	383,000	0.311	119,000
0.400	66,000	0.515	34,000

Extensive metallurgical work has been completed on material from Ryan Lode. Hazen (2000) reported that cyanide recovery from oxide samples averaged 66% for gold. Sulfide ore leaching averaged only 20% while mixed oxide – sulfide transition ore recoveries were 46%. Average overall process recoveries were 72%, 27%, and 52% for the oxide, sulfide and transition samples, respectively. Recoveries generally were not enhanced by decreasing the grind size or increasing the time the material was under leach.

Ore Deposit Model: Recent discoveries in Interior Alaska have outlined a series of distinctive mineral occurrences which appear to be genetically related to mid-Cretaceous

plutonic activity which affected a large area of northwestern British Columbia, Yukon, Alaska and the Russian Far East (Flanigan and others, 2000). This work, based on extensive geologic and structural mapping and analytical studies (major and trace element analysis, fluid inclusion microthermometry, $^{40}Ar/^{39}Ar$ geochronology, and isotope analysis) has provided new information regarding gold metallogenesis in the Fairbanks district (Burns et al., 1991; Lelacheur et al., 1991; Hollister, 1991; McCoy et al., 1994; Newberry et al., 1995; McCoy et al., 1995, McCoy et al., 1997, Hart et al., 2002). A synthesis of this information suggests an ore deposit model in which gold and high CO_2 bearing fluids fractionate from ilmenite series, I-type mid-Cretaceous intrusions during the late phases of differentiation. The gold is deposited in anastomosing pegmatite and/or feldspar selvage quartz veins. Brittle fracturing and continued fluid convection and concentration lead to concentration of gold bearing fluids in intrusions and schist-hosted brittle quartz-sericite shear zones. Carbonate and/or calcareous mafic metavolcanic horizons host W-Au skarns and replacement deposits. Structurally prepared calcareous and/or carbonaceous horizons may host bulk-minable replacement deposits. These occur most distal to the intrusions within favorable host rocks.

The above-described processes have resulted in a broad spectrum of gold deposit styles. Seven different potentially economic gold deposit types have been identified in the Fairbanks district. They are:

1. Gneiss or high-grade schist-hosted quartz veins or metasomatic replacement zones proximal to or within causative intrusives. Metals associated include Au, Bi, and As and possibly Cu and W. Pogo (5.6 Moz) and Gil (433,000 oz) are examples of such mineralization.
2. Stockwork-shear style mineralization hosted in porphyritic intermediate to felsic intrusives. Mineralization contains Au with anomalous Bi, Te, W and trace Mo. There is a strong genetic relationship between host intrusion and gold mineralization. Examples include Fort Knox (7.2 Moz) and Dublin Gulch (1.7 Moz).
3. Porphyritic stockwork with intrusion/schist shear hosted Au-As-Sb with a strong genetic relationship between host intrusion and gold mineralization. Ryan Lode (2.4 Moz) and Dolphin (+0.6 Moz) are examples of this type of mineralization.
4. Base metal ± Au, Ag and W intrusion hosted mineralization with a possible genetic relationship between precious metal mineralization and intrusion. Examples include Silver Fox prospects,
5. Structurally controlled mineralization hosted by schist-only high angle shear zones and veins. Associated metals include Au, As, Sb, Ag, Pb and W in low sulfide quartz-carbonate veins. Alteration adjacent to veins is pervasive quartz-sericite-sulfide alteration that can extend for up to one mile from the source structure. Deposits were mined heavily prior to World War II and are noteworthy because of their exceptional grades (+1 to +5,000 opt Au). Examples include Cleary Hill (280,000 oz production), Hi Yu (110,000 oz production), American Eagle (60,000 oz production) and Newsboy (40,000 oz production) veins.
6. Low angle, disseminated, carbonate-hosted Au-As-Sb mineralization associated with brittle thrust or detachment zones distal to generative intrusives. The True North deposit (1.3 Moz) is an example of this type of mineralization.
7. Shear-hosted monominerallic massive stibnite pods and lenses. Trace As, Au, Ag and Pb but these prospects are noteworthy because they appear to represent the most distal

and youngest end members of the intrusive-related gold systems. Examples include the past producing Scrafford and Stampede mines.

CONCLUSIONS

The Ryan Lode gold deposit is a road accessible intrusive-related gold deposit located 9 miles from Fairbanks, Alaska. The property is owned 100% by Gold Range Ltd., a San Antonio, Texas-based private corporation. The project was discovered in 1911 and has produced 19,820 ounces of gold and 14,330 ounces of silver, virtually all of which came from heap leaching of surface-mined ore in the late 1980's. Mineralization is hosted in Paleozoic schists and Cretaceous intermediate intrusives cut by a northeast striking, southeast dipping poly-phase shear zone that averages 50 feet true width and varies up to 100 feet in width. Low-sulfide gold-bearing quartz veins are associated with sericite alteration and elevated levels of silver, arsenic, antimony and locally bismuth, copper, tungsten, lead, molybdenum and zinc. Extensive diamond drilling and reverse circulation drilling conducted by several companies in the last 15 years has delineated surface minable resources of 248,000 ounces of gold grading 0.066 opt contained in 3,751,000 tons of material within a larger total geologic resource of about 2.4 million ounces of gold in 55.6 million tons of rock grading 0.043 opt. Limited exploration effort has been directed toward deeper, potentially underground minable resources. Delineation of resources may allow development and mining of the deposit with little or no surface impact and greatly reduced environmental permitting concerns. The property owners are seeking interest from financially responsible and technically capable parties interested in developing the Ryan Lode property.

RECOMMENDATIONS:

Based on the information available to the authors regarding the Ryan Lode property, the following recommendations are warranted:

1. Data compilation: Three companies (Citigold, La Teko and Kinross) have conducted extensive exploration of the Ryan Lode property since the late 1980's. All of the available drilling data along with surface geochemistry, ground and airborne geophysics, metallurgical data, environmental baseline data, etc., should be compiled to a single GIS-based database to allow future exploration and development to be efficiently managed.
2. Limited information is available regarding gold resources at Ryan Lode at depths below those considered minable from the surface. Evaluations should be completed on the potential for deeper gold resources (>500 below surface).
3. Once items 1 and 2 above are completed diamond drilling should be conducted to quantify the deeper resource potential at Ryan Lode. Since the upper 4-500 feet of the deposit are already well understood, pre-drilling of the upper 500 feet can be completed with reverse circulation techniques. These holes can then be cased and left for re-entry with diamond drilling techniques for the deeper resources.

INTERESTED PARTY CONTACT

Interested parties should contact Avalon Development (avalon@avalonalaska.com) regarding the Ryan Lode project.

DATED in Fairbanks, Alaska this 3rd day of December, 2014.

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