Symunay Morrison 93B

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THE KEY PROPERTY - A POTENTIAL PORPHYRY COPPER PROSPECT

Property

The Key property is made up of 18, two-post mineral claims recorded in the Kamloops Mining Division and owned 100% by the writer.

Location and Access

The Key property is located on the south side of the Thompson River in sagebrush country at the 850 metre elevation, 9 km northeast of Ashcroft, B.C.

<u>History</u>

The property has seen only sporadic exploration activity over the past twenty years.

<u>Geology</u>

The property features a spectacular gossan on a steep sagebrush slope on the south side of the Thompson River. The gossan overlies intensely clay altered and pyritized rock coincident with a strong fault zone separating a stock of Guichon Hybrid on the east ~ from Upper Triassic Nicola Group andesites on the west. Rocks on both sides of the fault are pyritized.

The gossan zone has been deeply leached and yields no anomalous values for copper. However, the southern limit of the gossan is concealed by a mantle of till on a wide bench reaching 2 km back from the steep gossan slope. It is speculated that the pyritic zone could follow the margin of the Guichon Stock east, or continue southeast with the strike of the fault (in both instances prospecting is hampered by the till cover). It is further suggested that somewhere along the fault structures copper may

Continued

THE KEY PROPERTY - A POTENTIAL PORPHYRY COPPER PROSPECT - Continued

Geology - Continued

increase to economic limits (there are many case histories in exploration where the pyritic portion of a system is removed some distance from the copper portion; often the pyrite forms a halo around economic mineralization).

A series of I.P. lines run across the strike of the projected southeasterly fault could easily define the southeast extension of the gossan zone on the till covered benchland. A series of 3 or 4, low cost, reverse circulation percussion drill holes could then be used to test the I.P. anomalies for copper content. The property is readily accessible most seasons of the year.

Nurray Morrison, B.Sc.

December 10, 1990 Kelowna, B.C. Telephone: 764-4073



Thom pson < River C. P. R. strong Guichon gossa n Hybrid Intrusive Nicola Group Volcanics overburden - till Possible cross fault Prosected J. Saddle Shallow Kamloops vols. Kamloops Growp Volcenics Key Property Potential Porphyry Copper

KEY PROPERTY

Proposed Program and Cost Estimate

The Program

- to trace the strong pyritized fault zone southeast of the exposed gossan zone on to an area of the property covered by overburden, and
- to try to locate a copper-enriched zone at some point along the strike of the strong fault zone.

<u>Phase I</u>

- 1. Conduct geophyscial surveys (I.P., VLF-EM and magnetometer) over a 0.75 square kilometre area on the Key 5 to 9 mineral claims.
 - (a) establish 1.5 km of baseline along the projected southeast extension of the fault.
 - (b) cut 15 x 500 metre (7.5 km) of I.P. grid line in sagebrush country.
 - (c) conduct 7.5 km of I.P., VLF-EM, and magnetometer surveys over the new grid.

Estimated Cost of Phase I =

\$ 22,000.00

<u>Phase II</u>

Drill targets outlined by the Phase I surveys:

- 1. establish drill sites and surveys:
 - (a) one day of backhoe work.

Estimated Cost: \$1,000.00 \$ 1,000.00

2. Drill 1500 feet (457 m) of Reverse Circulation Percussion Drilling, 5 holes of 300 feet (91 m):

1500 ft. @ \$12.00/ft \$	18,000.00
mob. and demob.	1,000.00
Assaying 150 samples @ \$20.00 each	3,000.00
Supervision of all phases	5,000.00
Reclamation	1,000.00
Estimated Cost: \$	28,000.00
Total Estimated Costs of Phase	ТТ

\$ 29,000.00

THE VENT PROPERTY - AN EPITHERMAL GOLD PROSPECT

Property

The Vent property is made up of six, 4-post mineral claims (Vent 1-6), totalling 42 units, all in good standing until December 11, 1992. The claims, recorded in the Osoyoos Mining Division, are owned 100% by the writer.

Location and Access

The Vent property is located at Riddle Creek, 16km southwest of Summerland, or 22 km northwest of Penticton, B.C., and can be reached from either center via logging roads (45 minutes driving time).

<u>History</u>

The mineral claims were staked by the writer in 1986 and optioned to Zygote Resources Ltd. (1987-1989). Preliminary geological and geochemical surveys carried out over limited portions of the property were financed by Zygote. Follow-up reverse circulation percussion drilling, totalling 492 metres in eight drill holes, was conducted in 1989 and also financed by Zygote Resources Ltd. No significant precious metal values were intercepted during the 1989 drill program and the property was returned to the vendor.

<u>Geology</u>

The property is underlain by gently dipping flows and pyroclastics of Tertiary Age that are intruded by comagmatic syenite intrusives. A thick (up to 60 metres) tuff and lapilli tuff unit lies "sandwiched" between trachytic flow rocks over an area of at least one square kilometre on the Vent 2 & 5 mineral claims. The very porous tuff unit has been in-

THE VENT PROPERTY - AN EPITHERMAL GOLD PROSPECT - Continued Page 2

Geology - Continued

tensely clay altered and silicified by late hydrothermal solutions.

Some of the 1989 drill holes intersected <u>thick zones of low</u> <u>temperature silicification</u> (up to 60 metres) and <u>argillic altera-</u> <u>tion</u> (up to 50 metres) within the tuff unit and also within wellfaulted flow rocks. Two major faults were identified during the drill program.

Discussion

The 1989 drill program on the Vent property was directed towards zones of intense clay alteration and silicification of the tuff unit that were exposed by a large window in the upper trachyte flow unit. It is now realized (from experiences on the Vault and Gold Star properties) that intense clay alteration and low temperature silicification can extend hundreds of metres from the primary hydrothermal conduits on Okanagan epithermal gold properties and that the alteration zones should not be considered first order drill targets.

Present data indicates that the <u>Okanagan epithermal model</u> ideally consists of: (a) <u>a gold-bearing quartz vein system</u> located within or near the primary conduit, (b) <u>a strong argillic</u> <u>halo</u> extending 100 to 200 metres out from the conduit, and (c) <u>a</u> <u>widespread kaolinite and low temperature silica halo</u> extending up to 1000 metres out from the conduit within porous tuff units that are capped with impervious flow rocks.

The very impressive clay alteration and silica replacement zones within the tuff units have misled explorationists on many of the Okanagan epithermal properties and several drill holes have been

THE VENT PROPERTY - AN EPITHERMAL GOLD PROSPECT - Continued Page 3

Discussion - Continued

collared in alteration zones that we now understand to be peripheral to the main hydrothermal vents.

The secret to finding gold values on the Okanagan epithermal properties is to first delineate the conduits by using geophysics (I.P. surveys) to find the argillic alteration halos adjacent the conduits in highly porous rocks.

In the case of the Vent property two fault systems have already been crudely outlined by the 1989 drill program, and it is expected that <u>an I.P. survey would give better definition of these</u> <u>faults and their argillic alteration halos</u>. Much of the target area has been recently strip-logged allowing for easy survey conditions.

The low precious metal values encountered during the 1989 drill program are easily explained when it is realized that all of the silica intercepted during the program was chalcedony or low temperature silica. No quartz veins were seen. It is believed that the gold-bearing quartz vein systems of the property lie at some depth below the 1989 drilling.

In addition to the Vent property drill holes the writer has viewed, or logged, several drill holes on both the Vault property at Okanagan Falls and at the Gold Star property at Whiteman Creek that looked fascinating in terms of alteration and silicification, but which yielded negligible precious metal values. The Vault property has since yielded some very impressive precious metal drill cores, and we now know that the difference between positive or negative results relates to the distance of the drill holes from the primary hydrothermal conduits as outlined earlier in this report.

Discussion - Continued

All of the data generated by the Zygote Resources Ltd. programs, including rock chip samples from the eight RCDHs are available for review.

Footnote:

The writer staked the Vault (1982), Gold Star (1983), and Vent (1986) properties, and has witnessed the exploration history of each property since. Each property is similar to the other geologically and the difference in exploration progress at each property seems to be related to the length of exploration history and expenditures more than anything else. The Vault property is now a mature gold prospect with exploration expenditures exceeding 4 million dollars; the Gold Star property is at the "threshold of discovery" after expenditures of \$300,000.00; and the Vent property is still at initial stages of exploration after expenditures of \$40,000.00. In the writer's opinion all three properties have the potential to host producing gold mines.

November 29, 1990 Kelowna, B.C. Telephone: 764-4073

Murray Morrison - B.Sc.

16 Km S.W. of

Summerland.

Summerland 16 Km Lower Trachyte flows • 3 •2 •1+8 V-2 fault alt'd tuff Cap of Upper 2 Trachyte Flows Vent Property +2 norts alt'i tuff Faulted, Altered, Tertiary Volcanics (requires I.P. and deeper 1.1 Km drilling) · 1989 drill holes 100 m = deepest hole Tertiary Epithermal Gold Prospect. (73m vertical) Sept 6/90 M.M.

approximate intersections trachyte flows of RCDH's upper 1,5+6 #8 #2+7 tuff and lapilli tuff low temperature silica voolacement lower trachyte flows argillic alteration to 73m lower trachyte flows (fresh) gold - bearing grantz stockwork / Vent Property Vent 2+5 Mineral Claims 5 X, V-2 fault zone is 35 m wide. Epithermal System semi-hypothetical section looking west Dec 10/90 M.M.

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FIG. 1. Schematic cross section of the epithermal model in volcanic host rocks. This portion of the epithermal model includes the following segments: sinter, silica cap, bonanza zone, base metal zone, and clastic cemented ore. Precious metal ore can occur in the silica cap (e.g., Round Mountain, Divide, and Borealis, Nevada); in the bonanza zone (e.g., Cripple Creek, Colorado; Comstock, Red Mountain (Esmeralda Co.) and Tonopah, Nevada; and Pachuca, Mexico); and in the base metal zone (e.g., Silverton, Colorado). Flat veins can occur with any of these zones. Clastic cemented ore, the geothermal reservoir of some modern hot spring systems, is common in many districts (e.g., Creede, Colorado; Talapoosa, Nevada; and Trench, Arizona). Whereas simple sulfides like stibnite, realgar, or argentite can be found with oxide minerals and native gold and silver in the silica cap, silver sulfosalts characterize most bonanza ores. Electrum, native silver, and silver sulfide can occur with the sulfosalts in the bonanza zone.

VENT PROPERTY

Proposed Program and Cost Estimate

The Program

to delineate mineralized fault zones with strong argillic haloes within
a ¹/₂ square kilometre area, centred over the boundary between the Vent
2 & 5 mineral claims.

<u>Phase I</u>

- Conduct geophysical surveys (I.P., VLF-EM and magnetometer) over a ¹/₂ square kilometre area.
 - (a) establish a baseline parallel to the strike of the V-2 Fault (100 degrees azimuth).
 - (b) cut 10 km of grid line running from 100 metres north of the V-2 Fault to 700 metres south of the V-2 Fault.
 - (c) conduct 10 km of I.P., VLF-EM and magnetometer surveys over the new grid.

Estimated Cost of Phase I = \$ 25,000.00

<u>Phase II</u>

Drill targets outlined by Phase I surveys:

- 1. establish road access to drill sites.
 - (a) 2 days of powersaw work.
 - (b) 2 days of backhoe work. Estimated Cost: \$2,000.00

Estimated Cost = \$67,000.00

Total Estimated Costs for Phase II: \$69,000.00

THE GOLD STAR PROPERTY.

Property

The Gold Star Property is comprised of one, 4-post mineral claim of 20 units that is in good standing until September 8, 1999.

The Gold Star claim lies immediately west of the Huntington-Corona Brett Property at Whiteman Creek, 32km west of Vernon, B.C.

<u>Access</u>

Access to the property from Vernon is via Highway 97, the Westside Road, and the Whiteman Creek Logging Road (a one hour drive).

<u>History</u>

Brican Resources Ltd. had the property under option from 1984 to 1990, and spent approximately \$300,000.00 on exploration. Geological, geochemical, geophysical (I.P. and VLF-EM) surveys, trenching, road building, reverse circulation percussion drilling and diamond drilling were all conducted over an area of 1.2 square kilometres (25% of the property) extending up to 1200 metres west of the Brett Property.

Ten diamond drill holes, totalling 1,417 metres, and 15 RCD holes, totalling 1,785 metres, were completed.

Geology

The property is underlain by gently dipping flows and pyroclastics of Tertiary Age that have been intruded by comagmatic monzonite/ syenite intrusives. At least four thick (up to 55 metres) tuff horizons and one lahar unit underlie the property. The very porous tuff and lahar units are "sandwiched" between impervious andesitic flows.

THE GOLD STAR PROPERTY - Continued

Geology - Continued

Late shear zones cutting through the volcanic pile have allowed large volumes of hydrothermal fluids to travel through the permeable tuff units for hundreds of metres, and most of the tuff on the property is clay altered and/or silicified with low temperature silica.

This intensely altered and silicified tuff was the target for extensive trenching and drilling by Brican, and although the rock looks intriguing it carries disappointingly low gold values (less than 100 ppb).

<u>Discussion</u>

The key for exploring the Gold Star property, and others like it, is to understand the Okanagan Epithermal Model. Present data indicates that the <u>Okanagan epithermal model</u> ideally consists of: (a) <u>a gold-bearing quartz vein system</u> located within or near the primary conduit, (b) <u>a strong argillic halo</u> extending 100 to 200 metres out from the conduit, and (c) <u>a widespread kaolinite and low temperature silica halo</u> extending up to 1000 metres out from the conduit within porous tuff units that are capped with impervious flow rocks.

The very impressive clay alteration and silica replacement zones within the tuff units have misled explorationists on many of the Okanagan epithermal properties and several drill holes have been collared in alteration zones that we now understand to be peripheral to the main hydrothermal vents.

The secret to finding gold values on the Okanagan epithermal properties is to first delineate the conduits by using geophysics (I.P. surveys) to find the argillic alteration halos adjacent the conduits in highly porous rocks.

Continued

THE GOLD STAR PROPERTY - Continued

Discussion - Continued

In this writer's opinion an <u>I.P. survey by Brican has located a</u> <u>zone of good argillic alteration</u> at depth extending across the property from grid 11N, 9+50W to 16N, 8+50W (and probably both to the northwest and the southeast beyond the limits of the survey). It seems that the significance of the IP survey has been overlooked.

Figure 1, attached, has been drawn with data from the Brican exploration program. The diagram illustrates that <u>arsenic and gold</u> <u>geochemical values are building towards the west</u> from RCDH 11 to 12 with a significant jump in values over 40 metres from RCDH 11 to RCDH 12 within the <u>lower portion of the thick tuff unit</u>. DDH#8 by Brican returned one significant gold value, but overshot the arsenic-gold zone of RCDH 12. <u>A very attractive drill target still</u> <u>lies to the west of RCDH 12 at depth coincident with an I.P. anom-</u>

<u>aly.</u>

RCDH's 14 and 15 drilled by Brican yielded good pyrite and probably represent the argillic alteration halo of the same conduit that was just missed by RCDH 12, 400 metres to the northwest.

Although the gold values returned from the property have been low to date, a good understanding of the geology of the property indicates that <u>most of the sampling has been done on peripheral altera-</u> <u>tion zones</u>, and that the conduit zones have been neither recognized nor sampled.

The <u>thick lahar and tuff units</u> underlying the central portion of the property <u>are very favorable host rocks for a large epithermal</u> <u>gold deposit</u>.

Initial exploration efforts (eg. drilling the conduit alteration zone) could be conducted from existing access roads.

THE GOLD STAR PROPERTY - Continued

Discussion - Continued

All of the data generated by Brican is available for review including RCDH rock chips for the 15 drill holes.

The drill core for the 10 diamond drill holes is in good condition and stored on the property.

Footnote:

The writer staked the Vault property at Okanagan Falls as an epithermal gold prospect in 1982 and has been involved in/or witnessed the development of the property since.

Many drill holes on the Vault property have been drilled into <u>very</u> <u>attractive clay altered and silicified rocks that have yielded no</u> <u>precious metal values</u>. The writer drilled several of these in 1985, but still had faith in the property as an epithermal gold prospect, because of the intensity of alteration on the property. The best gold value returned to 1985 from the Vault property (after \$200,000.

in exploration expenditures) was only 7 g/tonne over 2 metres from a hole drilled by Riocanex. Since 1986, when Inco optioned the property, a great many <u>very significant gold intercepts</u> have been drilled on the property.

The Gold Star property is at a stage of exploration <u>identical</u> to that at which the Vault property was at when first optioned to Inco.

November 28, 1990

Kelowna, B.C. 764-4073

Murray Morrison, B.Sc.

