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Report on the

KYU Claims

Kashutl - Easy Inlet Area

Alberni Mining Division

Vancouver Island

British Columbia

on behalf of

Cal Denver Resources Ltd.

by

John R. Poloni, B.Sc., P.Eng.

May 2, 1983

John R. Poloni & Associates Ltd. 1512B - 56th Street Delta, B.C. V4L 2A8

> JOHN R. POLONI P. Eng. Consulting Geologist

1.0 Summary and Conclusions

The KYU and the Crown Granted claims have the potential of containing "Hot Springs" type micron gold lode deposits hosted in silicified pyrophyllite - alunite alteration zones in volcanic breccia.

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Previously the property had been explored as an industrial minerals prospect by trenching, tunnelling and a few short drill holes.

Recent work has substantiated the presence of geochemically anomalous, mercury, arsenic, gold, and fluorine values as related to the intensely altered alunite - zone at the north end of Kayouk Peninsula. This zone has characteristics of silicification, brecciation, colloform banding, ochred silica, and cherty sulfide inclusions which are frequently found related to epithermal lode gold deposits of the Circum-Pacific Rim.

The property warrants detailed exploratory surveys estimated to cost \$175,000.00 in Phase 1 as outlined in this report. Additional work will be success contingent.

2.0 Introduction

Cal Denver Resources Ltd. has entered into an agreement with Falconbridge Nickel Mines Ltd. whereby Cal Denver can acquire a 49% undivided interest in the KYU (1 - 4) claims consisting of a total of 70 units. Included are three Crown Granted claims, L987, L988, and L989.

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Present interest in the area is related to the alunitepyrophyllite deposits which have been known since the early 1900's but which are currently considered to be suggestive of the alteration halos typical of Bonanza or Hot Spring Lode gold deposits.

Numerous reports have been completed summarizing various stages of exploratory work undertaken on the Crown Granted claims, in particular, and the area covered by the KYU claims in general.

The author visited the property on April 26, 1983, accompanied by Mr. I.L. Elliott, Ph.D. of Falconbridge Nickel Mines Limited, examining the local geology at Kayouk Peninsula, and NQ drill core from the initial drill hole in progress.

This report was requested by Cal Denver Resources Ltd.

Location Map

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Plan No. 1

C



3.0 Location and Accessibility

The KYU and Crown Granted claims are located on the West Coast of Vancouver Island in Kashutl Inlet, centered on Easy Inlet and the north end of Kayouk Peninsula.

Easy Inlet is approximately 190 miles north westerly from Vancouver and 45 miles due south of Port Hardy. The claims are situated at Latitude 50° 10' N, Longitude 127° 21' W, NTS 92 L/3 in the Alberni Mining Division.

Access is via helicopter, float equipped fixed winged aircraft or boat. Fair Harbour is the nearest location connecting with the British Columbia highway system. The property visit was completed by fixed winged aircraft from Port Hardy. Equipment necessary for drilling was barged to the area and then moved to drill site by helicopter.

4.0 Claim Information

Cal Denver Resources Ltd. has entered into an agreement with Falconbridge Nickel Mines Ltd. dated January 1, 1983, whereby they can acquire a 49% undivided interest in the property by incurring expenditures of \$125,000.00 upon mining operations by December 31, 1983, and of at least an aggregate total of \$500,000.00 by December 31, 1985.

The KYU property consists of Crown Granted and located mineral claims in the Alberni Mining Division, British Columbia as listed below:

Crown Grants

Claim	Name	Parcel	No.	Lot No.	Hectares
Deer	Tail	9359		989	6.62
Morris	5	9359		988	13.97
Snowst	torm	9359		987	19.93

Mineral Claims

Name	Record No.	Unit Nos.	Hectares	Expiry		
KYU 1	1581	(1-3), (14-19), (25-30) <u>15 Units</u>	375	Dec. 24/83		
KYU 2	1582	(1-5), (12-21), (23-27) <u>20 Units</u>	500	Dec. 24/83		
kyu 3	1583	(1-5), (12-21) <u>15 Units</u>	375	Dec. 24/83		
KYU 4	1584	(1-4), (13-20), (24-31) <u>20 Units</u>	500	Dec. 24/83		

An examination of the claim map indicates eight Crown Granted claims covered by the KYU 1, 2 and 4 which are not included in the property package.

A claim map is included in Appendix D showing the location and relationship of the located and Crown Granted Claims.

It is understood that Falconbridge Nickel Mines has applied to the British Columbia Ministry of Energy, Mines, and Petroleum Resources to obtain submarine mineral rights for inlet waters covered by KYU 1, 2 and 4.

JOHN R. POLONI P. Eng. Consulting Geologist

5.0 Physical Features

The Crown Granted Claims lie on tidewater with the maximum elevation reaching 700 feet above sea level on Kayouk Peninsula. Elevations on the located claims are similar with a maximum elevation of 1,400 feet occurring near the northwest corner of KYU No. 1 claim.

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Much of the property is covered with mature merchantable timber, however logging operations are underway on the KYU No. 1 claim. Vegetation is typical of the West Coast Rain Forest with thick underbrush of salal, oregon grape and devils club, most generally on north facing slopes.

Overburden cover is generally relatively thin and probably rarely exceeds 10 feet in thickness.

Camp facilities can be established along the west shore of Easy Inlet near the mouth of the creek flowing from Jansen Lake. The present drilling camp is located in this area.

No buildings which can be used for requirements of exploratory crews, exist on the claims.

Near the head of Kayouk Peninsula, at sea level, a tunnel had been driven in the pyrophyllite - alunite zone. The portal is presently caved but evidence indicates that the workings are old and of limited extent.

6.0 <u>History</u>

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Original staking of the alunite - pyrophyllite showings was undertaken in 1908 and sporadically for a few years the deposits provided material for fire clay and other industrial uses, for the B.C. Pottery Company and the San Juan Mining and Manufacturing Company.

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Comprehensive mapping of the deposits was completed in 1913 by C.H. Clapp of the G.S.C. who initially suggested that the alunite and pyrophyllite may have been formed by hydrothermal replacement of volcanic rocks by ascending sulphuric solutions.

In 1952 the Crown Granted claims were purchased by St. Eugene Mining Corporation who subsequently optioned the property to Westport Chemical Inc. during 1959-60. Drill testing was completed on the alunite pyrophyllite zone but results are not available.

Two packsack holes were drilled to a depth of 25 feet by FNM who acquired the property from St. Eugene in 1962. No sample data is available but drill logs note the presence of quartz which was colloform banded and crustified, containing disseminated pyrite, in altered volcanics.

The Kyuquot syndicate was formed in 1970 as a joint venture between F.C. and MacDonald Consultants Inc. to explore the area for porphyry copper deposits. Mapping and soil sampling were completed near Easy Inlet.

Kennco Exploration staked claims over the Kayouk Peninsula -

6.0 Jansen Lake area in 1972 and completed geological mapping and a rock geochemical survey. Analyses were completed for Mo, Cu, Zn, Pb, Ag, Au, Ni and Co with any anomalous results being attributed to sulfides in quartz veins. C.S. Ney in describing a silicious bluff on the northwest side of Monteith Bay, suggested a similarity with 'geyserite' or silicious sinter typical of hot springs activity.

J.C. Stephen Exploration Ltd. explored the Easy claims in 1980 by prospecting, soil sampling, and geological mapping, to better evaluate the intense alteration zones as defined by the areas of pyrophyllization - alunite. No geochemically anomalous response was reported from the rock or soil sampling.

Semco completed an examination of the Falconbridge Property in 1980 as part of a program on three pyrophyllite occurrences in the area.

A preliminary report for Falconbridge Nickel Mines Ltd. was completed by Mr. G. Albino in June 1982 covering historical, exploratory, and geological data from past examinations and including recent geological mapping and geochemical sampling as completed by Mr. Albino and Mr. C. Niles in June 1982.

Rock samples were taken along Kayouk Peninsula and analysed generally for gold, fluorine, mercury, and arsenic. Three lines of soil geochemistry were completed over the Falconbridge Crown Granted claims. Several mercury, fluorine, arsenic and gold anomalies are indicated. Three soil gold anomalies appear to be related to

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6.0 pyrophyllitized volcanics and silicified felsic tuff.

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At the time of the author's visit to the property, NQ drilling had commenced under Falconbridge management, with the initial drill hole collared in the alunite altered zone at the northerly extremity of Kayout Peninsula. The hole depth had reached approximately 200 feet.

7.0 Geology

7.1 Regional Geology

Triassic to early Jurassic volcanic - sedimentary sequences underlie the northwest of Vancouver Island. The Triassic Karmutsen Formation consisting of a basaltic succession of pillow lavas and breccias, amygdaloidal and massive flows with infrequent interbedded tuffaceous sediments forming the lower part of the sequence.

Overlying the Karmutsen conformably are the Quatsino and Parson Bay formations which are sedimentary sequences. These sediments are inturn overlain by the Bonanza group of Early Jurassic age consisting of flows and pyroclastics ranging in composition from rhyolites to basalts and andesites.

Muller et al (1977) have measured the stratigraphic sections of the Bonanza volcanics indicating an average thickness of 2,500 m. Rhyodacites and siliceous units in the Kyoquot Sound area appear often as welded tuffs. Metamorphism is weak 7.1 regionally; plagioclase is generally albitized and saussuritized chlorite and epidote occur in the volanic matrix as veinlets and amygdules.

The Kashutl Inlet intrusive is one of the small linear set of plutons which have been emplaced near surface, (possibly) within related volcanics and pyroclastics. Contacts are generally sharp and metamorphism weak.

7.2 Geology of the Easy Inlet Area

The volcanics in the area consist of porphyritic andesite, with hornblende and plagioclase phenocrysts in usually aphanitic groundmass often silicious and glossy. Frequently amygdaloidal flows occur, and flow breccias are observed commonly in more mafic units.

Felsic rocks located on the west shore of Kayouk Peninsula are generally limited in occurrence, appear to be banded, containing quartz phenocrysts and possibly fragments of pumice.

Intrusive rocks occur as fine grained porphyritic dikes and sills with a dark grey green groundmass. These dikes are discordant to the bedding.

7.3 Structural Geology

While observations are limited, strikes appear to be north easterly with south east dips at 10° to 45°. Jointing and fracturing is described as being intense with strikes of 060°, 135°, and 280°. Fault zones are indicated along the 7.3 easterly shore of Jansen Lake and in the south east arm of Easy Inlet.

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7.4 Hydrothermal Alteration - Mineralization

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Most of the rocks in the Kayouk Peninsula - Easy Inlet area have been altered to some degree. Silicification and pyrophyllization are most intense near the north end of the Peninsula. Alteration products commonly include epidote, calcite, chlorite and quartz. Silicification occurs as chalcedony, colloform banding, quartz comb texture, and also pervasively.

Pyrophyllite altered rocks often contain hematite. magnetite and finely dissemated pyrite.

Alunite alteration occurs only in restricted areas, the south shore of Monteith Bay, and the north end of Kayouk Peninsula. Alunite a potassium, aluminum, hydroxide silicate is a common alteration product associated with mineralization in hot spring and quartz vein deposits.

"Hot Spring" lode gold deposits are breccias and vein stockworks of quartz mineralization found typically in host rocks that have been silicified near surface in a pre-ore episode of potassium-sodium metasomatism. Host rocks are andesitic volcanics generally, because of the coincidence of volcanism with the Circum-Pacific Rim. Plate Tectonics are related to lode gold deposition. Ascending hydrothermal fluids with micron sized native gold and electrum, containing a high

7.4 proportion of dissolved gas content, enter permeable rock units including fragmental volcaniclastics and hydrothermal explosion debris, where a sudden pressure release occurs because of fluid transfer from a restrictive channel to an open brecciated environment, thus causing near surface precipitation of precious metals and sulfides. Generally a mushroom shaped cap of near surface replacement silicification acts as a seal for the upward migration of the hydrothermal solutions. This cap is often overlain by or interbedded with hot springs sinter. Zoning outwards of successive envelopes of alunite, kaolinite and montmorillonite is evident, which can be used in the reverse order as an exploration tool.

Ore is typically composed of micron gold, associated fine grained pyrite-marcasite, and a suite of silver sulfosalts. Micro-crystalline quartz and chalcedony with lesser amounts of calcite and adularia compose the gangue minerology. Cinnabar and stibnite ore zoned towards surface with minor base metals being enriched to depth.

Anomalous paramitics are typically mercury (10's to 1,000's ppm); antimony (100's to 10,000's ppm); thallium (10's to 100's ppm); barium (100's to 1,000's ppm); and arsenic (100's to 1,000's ppm).

Hot spring lode deposits are becoming increasingly important as a source of gold production as evidenced by the Kasuga,

7.4 Iwato and Akeshi in Japan; Waihi in New Zealand; Cinola in British Columbia; Round Mountain, Borealis and McLaughlin in the United States, and Pueblo Viejo in the Dominican Republic.

8.0 Recommendations

The KYU claims in general and the Crown Granted claims in particular have the potential of containing "hot springs" type lode gold deposits hosted in silicified pyrophyllite - alunite alteration zones in volcanic breccia as related to the Circum-Pacific Rim Tectonics. Bedrock geochemistry while limited in nature is positively anomalous in mercury, arsenic, gold, and fluorine.

Colloform banding, hydrothermal breccia, silicification, chalcedony, vuggy quartz veining, silicified ochred zones, cherty sulfide rich angular inclusions and a bleached host rock were examined in the two hundreed feet of NQ drill core at the time of the property visit. Much of the core was highly fractured and broken. This drill hole is the initial hole of a 2,000 foot drill program planned to explore the pyrophyllite - alunite alteration zone at the north end of the Kayouk Peninsula.

Work requirements on the property are related to drill testing of the alunite rich "hot springs" type alteration zones. Past work had been concentrated on the examination of these areas for application to industrial minerals, however it is felt that these potential have been reasonably tested. Concentration should now be placed in

8.0 exploring for the presence of micron gold-silver mineralization.

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JOHN R. POLONI P. Eng. Consulting Geologist Appendix A

Estimated Cost of the Recommended

Surveys

JOHN R. POLONI P. Eng. Consulting Geologist

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Cost Estimate

Phase 1

1.0	Camp Costs - food, fuel, tents	\$ 6,000.00
2.0	Transportation, air fares, truck, boat rental and related expenditures	6,000.00
3.0	Helicopter - mobilization and demobilization of drill	12,000.00
4.0	Diamond Drilling, NQ size, 3,000 feet @ \$35.00/foot	105,000.00
5.0	Geologist	10,000.00
6.0	Assaying - drill core	5,000.00
7.0	Metallurgy - thin section work	1,500.00
8.0	Consulting	6,000.00
9.0	Contingencies	15,000.00
	Total Phase 1	\$175,000.00

Phase 2

Phase Two surveys will be success contingent on preliminary results. Additional drilling will be required. It is noted that for Cal Denver to acquire a 49% undivided interest in the property an aggregate total of at least \$500,000.00 in exploratory or mining expenditure must be incurred by December 31, 1985. Cost estimates for Phase Two surveys will be submitted on the completion and examination of Phase One results.

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OHN R. POLONI P. Eng. Consulting Geologist

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Certificate

I, John R. Poloni, of 5502 - 8B Avenue, in the Municipality of Delta, in the Province of British Columbia, DO HEREBY CERTIFY THAT:

- 1. I am a Consulting Geologist.
- I am a graduate of McGill University of Montreal, Quebec, where I obtained a B.Sc. Degree in Geology in 1964.
- I am a registered Professional Engineer in the Geological Section of the Association of Professional Engineers of the Province of British Columbia.
- 4. I have practiced my profession since 1964.
- 5. I am a Fellow of the Geological Association of Canada and a Member of the Canadian Institute of Mining and Metallurgy.
- 6. I have personally visited the KYU claims on April 26, 1983.
- 7. I have no interest on the properties or securities of Cal Denver Resources Ltd., nor do I expect to receive or acquire any.
- 8. I consent to the use of this report by Cal Denver Resources Ltd. in a submission to the Vancouver Stock Exchange and/or the British Columbia Superintendent of Brokers, and to distribute all or parts of the report to shareholders or other interested parties provided that the meaning is not altered by partial quotes.

Dated this 2nd day of May, 1983.



Appendix D

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Recommendations on the Easy Inlet (Kyuquot) Prospect

It is abundantly clear that a hydrothermal system of significant size has affected the country rocks of the prospect area. It is also clear from the alteration mineralogy that the system was both sulfur-rich and characterized at least locally by low pH fluids. As yet very little can be deduced regarding the geometry of the system, its areal extent, and its level vis-a-vis po^S sible economic metallization. Four main possibilities seem to present themselves: 1) It is the distal upper portion of a small (?) porphyry copper system of Jurassic age. 2) It is an essentially barren system resulting from the addition of heat and sulfur gases from an underlying intrusive. 3) It is the uppermost part of a Tertiary gold-rich hydrothermal system that could have bulktonnage potential. 4) It is the uppermost part of a bonanza-type precious metal vein system.

Clearly the last two of these scenarios are the most intriguing from the exploration standpoint. Furthermore, they are not unreasonable ones in view of the belt of gold occurrences on Vancouver Island, the regional geology, and the continuing activity of competitors nearby. In view of the fact that any discovery in the prospect with almost inevitably have to result from drilling, the critical problem is that of establishing a data-base that will both justify additional drilling expenditures and hopefully aid in the siting of individual holes. Several approaches come to mind. Careful mapping outward from the prospect is required to try to establish the limits of the alteration zone. This will not be easy given the geography of the area and the limited exposures away from strandlines. Dating of the alunite should also be attempted in the hope that a Tertiary age for the alteration can be established. In my view knowledge that the system is of Tertiary age would considerably enhance its precious metal potential. In addition, the available drill core should be carefully studied, for although one cannot assume a more or less symmetrical alteration model some attempt must be made to develop vectors toward the main

plumbing system. The degree of alteration of some of the units and the amount of local silicification visible along the shoreline attest to the presence of a well developed pluming system in the area, however, complex it may be in detail. An attempt to derive fluid inclusion data from drill core and surface samples should also be made. Much of the work outlined above could be carried out by a graduate student involved in a Master's thesis at a small fraction of the cost of a single drillhole.

A magnetic and EM survey of the area should also be helpful in terms of defining the area of pyritization associated with the system. Pyrite is well developed in most of the drillcore I saw, so a magnetic contrast between rock containing iron oxides versus that containing pyrite should be measurable.

In general terms the prospect contains two of what I consider to be the three essential ingredients for bulk tonnage gold deposits -- development of considerable pyrite and major evidence for silica mobility in the system. The third ingredient, hydrothermal brecciation, is as yet largely absent, but I did see some good breccia textures in some of the core. Overall I would recommend continued work on the prospect, but with emphasis on expanding the surface data base prior to any major new commitment to drilling. This would of course be somewhat contingent on the results of drillcore assay. The absence of encouraging precious metal values in the core assays should not, however, be used to completely discount the potential of the prospect because I have encountered various precious metal systems in which the upward termination of precious metal values can be very abrupt.

Frichrick V. Sawkuns 25 th May 1983.

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Visit to the Vancouver (Delta) Exploration Office May 24 to May 27, 1983

by

J. E. Muir May 31, 1983

KEYWORDS: Kyuquot, Gold, Epithermal COPIES TO: FGTP, RAB, CMHJ/WDH, JEG, RB/Min File

Purpose of Visit

To examine and sample core from seven recent DDH's on the Kyuquot property, Vancouver Island.

Summary

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DDH's KY-83-1 to 7 were examined and 58 miscellaneous samples were selected mainly for petrographic examination and/or mineral identification. Alteration minerals tentatively identified from preliminary core logging include the following: chlorite, epidote, alunite, kaolinite (+ other clays), sericite, pyrophyllite, barite and gypsum. The above suite of samples will be employed to confirm the presence of these minerals and hopefully document age relationships between different episodes of alteration. Subsequently, pulp samples prepared from assay rejects from each DDH will be examined by XRD in order to provide down-hole profiles of alteration assemblages. By "mapping" alteration types one hopes to be able to relate the Kyuquot situation to Buchanan's model for epithermal gold deposits (see attached Figure 1) and consequently make recommendations for future gold exploration in the Kyuquot area.

It should also be noted that in examining the core from DDH#7, several intersections of what the writer tentatively feels could be bedded cherty, pyritiferous exhalite in intermediate volcanics were observed and sampled. To date, the band of volcanics encompassing the Kyuquot area has not, to the writer's knowledge, been recognized as a potential host for base metal massive sulphide-type deposits.

JEM:sls Attach.

J. E. Muir



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