

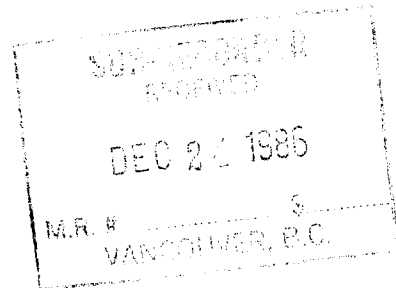
86-841-15421

PROSPECTING REPORT,
HALLEY MINING CLAIMS,
CARIBOO MINING DIVISION,
BRITISH COLUMBIA

Halley Claim (7147(9))

20 units (5Nx4E)
Cariboo Mining Division
NTS map sheet 93/14E
Latitude: 52° 56.1'
Longitude: 121° 02.7'
Recorded Owner: Norman Porter
Operator: Halley Partnership (N. Porter)
Author: John F. Reader
Date: December 15th, 1986

**GEOLOGICAL BRANCH
ASSESSMENT REPORT**



15,421

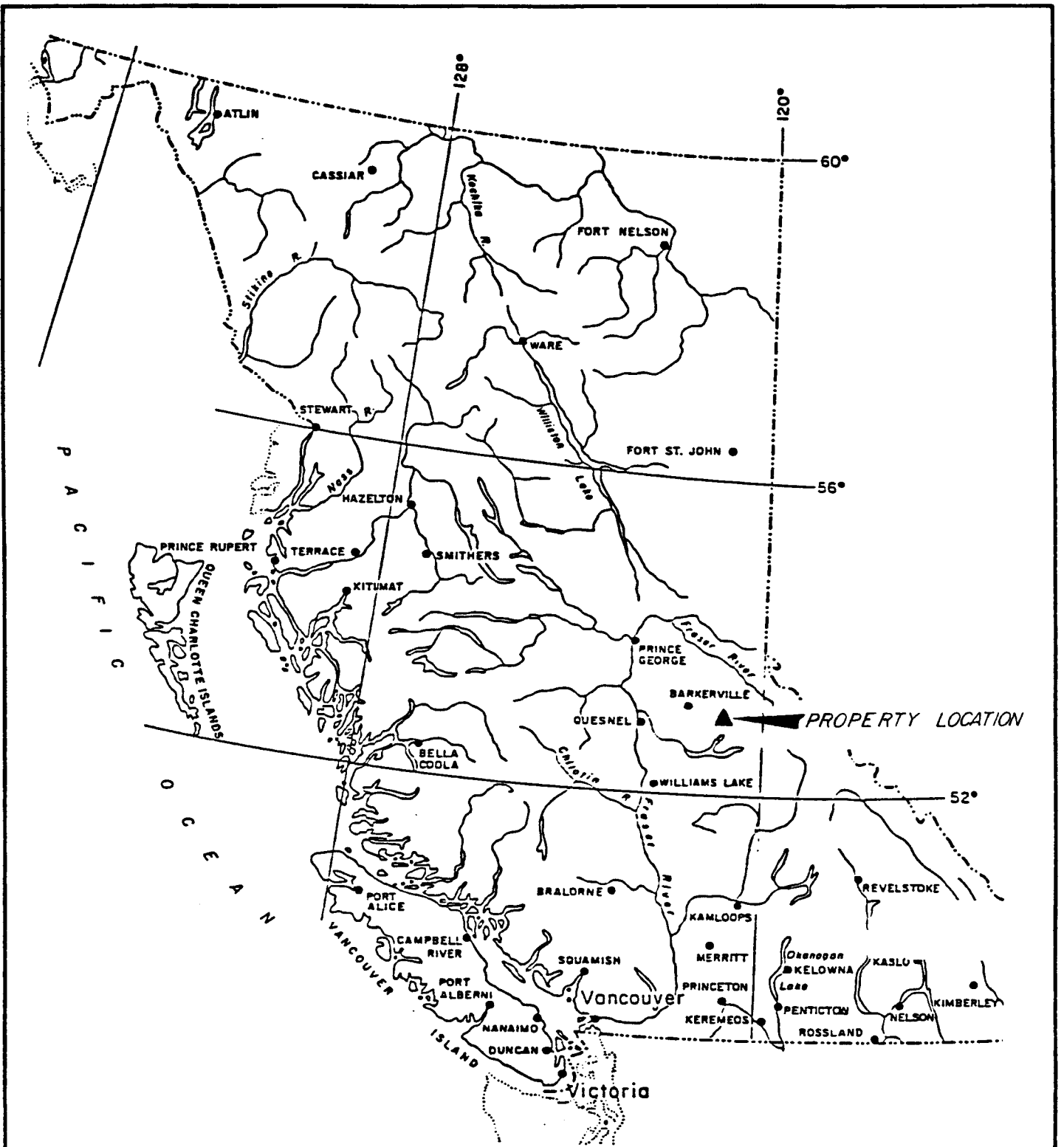
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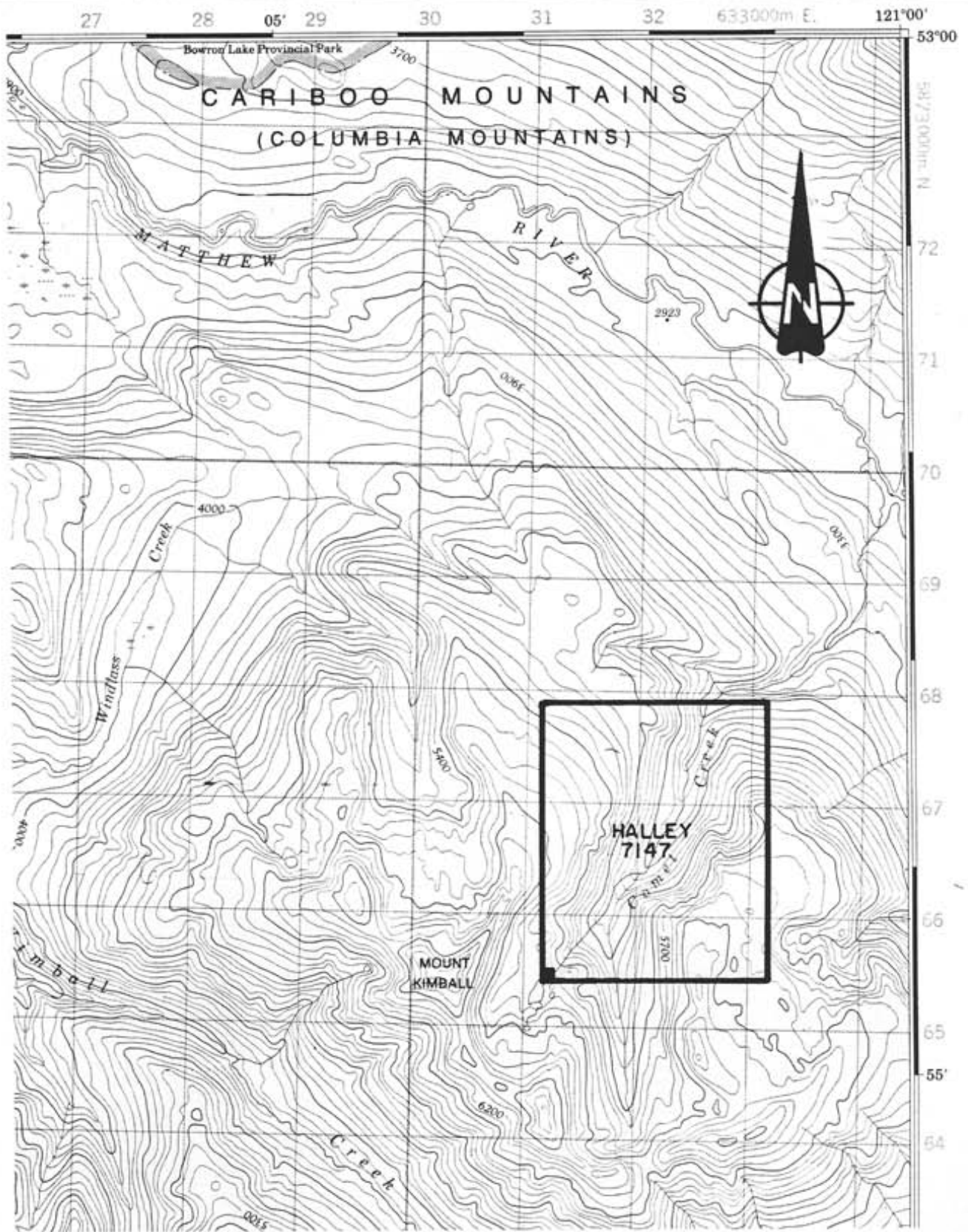
1. SUMMARY

Prospecting work was carried out on the Halley claim in 1985 and 1986. The Halley property straddles Comet Creek within the Cariboo Mining Division of British Columbia. Work consisted of limited soil and rock sampling undertaken during a number of prospecting traverses in the central property area. Significant values in lead were obtained in soils and one rock sample. Although geological contacts described in regional work (Struick, 1983), can be modified due to this recent work, much remains to be done to clarify the extent of the target Yankee Belle Formation. The showings described by Taylor in Assessment Report 4752 (1973) were not relocated.



HALLEY CLAIM LOCATION MAP - 93 A/14

SCALE = 1 : 7,500,000



HALLEY CLAIM - CLAIM MAP
SCALE = 1 : 50,000

2. INTRODUCTION

The following report details prospecting work carried out in 1985 and 1986, on the Halley mineral claim in the Cariboo Mining Division of the province of British Columbia. This document is submitted as part of the requirements for recording assessment work on a mineral claim in British Columbia.

2.1 Location, Access, and Physiography

The Halley property lies about 40km ESE of the town of Wells and 100 km east of Quesnel on the Fraser River. Wells is a small mining community and Quesnel is a major farming, logging and tourist centre which also hosts several government offices including the Mining Recorder's office for the Cariboo Mining Division.

Highway 97 provides access to Quesnel, a distance of 670 km by road from Vancouver, but scheduled air service also covers the distance several times daily. Wells is reached via Highway 26, 82 km east from Quesnel. The Matthew River logging road system extends to within about one kilometre of the northern claim boundary. From there access is by foot.

The claim lies within the mountains forming the eastern boundary of the Quesnel Highland physiographic division. Elevations range from 900m to 2000m in the area. Maximum relief on the property is 600m. The claim straddles the steep slopes on Comet Creek and partially covers the subdued upland which forms the headwaters of the creek on Mt. Kimball. About half the property is forested with evergreens, the remainder is above treeline.

Climatically, the claim area is subject to warm, reasonably dry summers followed by cold winters with moderate snowfall. The property should be largely free of snow from May through mid-October.

2.2 Property Description

The Halley claim (Record No. 7147) was staked in September, 1985 and recorded on September 24th, 1985. The claim consists of 20 units (5Nx4E) straddling Comet Creek about 40 km ESE of the town of Wells, in the Cariboo Mining Division. A total area of 500 hectares is held. A precise description of location is:

Claim Centre: Latitude 52° 56'
Longitude 121° 02'
Elevation 5000'
Legal Corner Post: 5 865 450 N
631 100 E (UTM co-ordinates)
Elevation 5700' (1738m)

The claims are recorded in the name of Mr. Norman Porter of Richmond, B.C. Via a separate agreement the interest in the property is divided as follows; Mr. Norman Porter - 27%, Mr. John F. Reader of Calgary, Alberta - 45%, and Mr. David P. Meeks of Calgary, Alberta - 28%, - the Halley Partnership.

2.3 History of Exploration

Barkerville was the site of tremendous mining activity from 1861 through 1865 when it drew miners north from California in search of a stake in the rich placers of Williams, Antler and Lightning Creeks (west of the Halley claim). In the 1930's, the Cariboo Gold Quartz and Island Mountain mines were opened at Wells. Prospection of the area east of the Cariboo River, however, has been slow to proceed primarily for reason of difficult access.

A.H. Lang, who prepared the early versions of the Little River and Keithley Creek map-sheets makes the following comments:

"... The rocks resembling the Richfield [the host rocks near Barkerville], in the northeastern corner of the area and beyond, will no doubt be prospected in time, but that district is rather inaccessible. It is worth noting that placer discoveries were made on Comet Creek in the eastern part of the area in 1915, and on Kimball Creek in the Slide Mountain series in 1917." Lang, 1938.

Lang mentions on the Little River map-sheet that these workings were about one mile upstream from Matthew River, in an area about 500 metres downstream from the Halley property boundary (Lang, 1939?). Comet Creek is listed as an area of reported placer mining activity again in B.C. Department of Mines Bulletin No. 28, although no details are given (Holland, 1950).

There is no further record of exploration on Comet Creek until the early seventies when a local prospector, Mr. Art Rivers, staked the MB claims which were centred within the existing Halley claim. Work was carried out by El Paso Mining and Milling Co. Ltd. and is reported in the B.C.G.E.M. volume for 1973 and B.C. Assessment Report No. 4752 (1973). At this time a soil sampling and mapping program was carried out over a limited area on the eastern side of the present Halley claim (see Figure 3). Some very encouraging results were obtained but the property apparently did not fulfill El Paso's expectations and was subsequently dropped (gold fell to \$100US/ounce in late 1973). The ground was subsequently restaked in 1985 by agents on behalf of Mr. Norman Porter, and prospecting was carried out over the following year.

2.4 Prospection in 1985 and 1986

Two phases of exploration were carried out in the year following staking. Staking agents working on behalf of Mr. Norman Porter, undertook to locate the old posts of the MB 3 and MB 4 claims, and to resample the showings indicated in the Assessment Report 4752.

The original showings were not located, but under prior direction from the author, fourteen soil samples were taken and three rock samples were acquired from the banks of Comet Creek above the 4400' level. This work was done on September 14th, 1985 after the location of the claims on September 13th, 1986.

Subsequently, the author and David P. Meeks, a geological engineer from Calgary, undertook to prospect the Halley claims from August 21st to 24th, 1986. This work consisted of traversing the claim area primarily in an effort to locate the old workings, but also to evaluate the rock types in the Comet Creek vicinity. Only two rock samples were taken, due to our inability to confirm the location of the reported showings.

A recent study of airphotos over the claim has helped to clarify the large-scale aspects of the property geology and to suggest the correct location of the work reported in Assessment Report 4752. This work is summarized in the following technical discussion and in Figure 3. Sample details are contained in the appendix.

3. PROSPECTING

Sampling undertaken in September, 1985 consisted of a line of soil samples at 50 metre intervals commencing at about the 4400' elevation on Comet Creek, and proceeding for 650 metres up the creek (fourteen samples, see Figure 3 and the appendix). Ordinary 'B' horizon samples were collected in kraft bags and analyzed for lead, silver, and gold by Chemex Labs in North Vancouver. Results are reasonably encouraging. Although gold was below the detection limit (5 ppb) throughout, and silver registered at the detection limit (.1 ppm), lead values ranged from 20 ppm to 550 ppm.

The high lead values are considered a promising indicator since the high grade veins reported in Assessment Report 4752 were primarily galena and quartz with associated high values in silver and gold. The two highest values are highest in the creek bed (near 5000') and are interpreted to represent the geological contact between dirty limestones of the Cunningham Formation and the detrital sediments of the Yankee Belle Formation.

Three rock grab samples were taken along the creek bed. These consisted of rust-stained, quartz-bearing metasediments of unknown origin (either Yankee Belle or Isaac Formations). One sample assayed just above the detection limits in both gold and silver (0.02 oz/ton Ag, 0.004 oz/ton Au), and another assayed 0.1 oz/ton silver. These results suggest that precious metals are distributed in the rocks of the upper Comet Creek valley.

The primary purpose of prospecting in August, 1986 was to locate and resample showings reported by Taylor (1973) in Assessment Report 4752. A precise location of the early survey grid is not given in the old report. No sign of the grid was identified during the work in 1986. An old two-post claim post was found next to Comet Creek at about the 5000' foot level. The tags identified the expired claims MB 21 and 22. Since the claims shown on Taylor's map show only MB 1,2,3, and 4, we have confirmed the approximate location of the old property but further work is required to unravel the extent of the old holdings.

Traversing in 1986 was concentrated along Comet Creek and its western valley wall. There is extensive outcrop in the bed of the creek itself, but except for bluffs high on the valley walls, glacial debris and alluvium obscures the geology at the lower elevations. A variable stratigraphic section of meta-sediments is shown in

figure 3, extending from well below the northern claim boundary in Comet Creek, upstream to the approximate centre of the claim. Green and grey shales, grey phyllites, dark green, fine-grained, quartzites, and minor dirty limestone make up a sedimentary package that is interpreted to belong to the Isaac Formation. Although the level of metamorphism is only moderate, attitudes are generally steeply dipping ($60^{\circ}+$) and strikes are highly variable. Extensive deformation is evident from measurements taken along the creek bed (see figure 3).

Numerous quartz-carbonate veins cut the formation generally oriented along the predominant strike orientation. Maximum thicknesses are about 6 inches. Sample JR #2 was taken from a quartz vein trending $130^{\circ}/80^{\circ}E$ oriented along the bedding of a phyllite outcrop. Minor pyrite mineralization was present in the sample. Rock geochemistry results give 46 ppm lead, and at or below detection limits for gold and silver (see appendix).

Upstream from the mapped Isaac Formation no outcrop is encountered until a fork in the creek at 5050'. Here an intensely deformed contact between phyllite and massive rust-stained limestone of the Cunningham Formation is exposed in extensive outcrop. Sample JR #2 taken near the creek fork, consisted of rust-stained quartz float, but failed to yield metal values significantly above the detection limit. Extensive massive limestone debris in the valley floor and limestone bluffs on the valley walls attest to the the extensive nature of the Cunningham Limestone at this elevation. Contacts shown on Figure 3 are based observations made during traverses in this area and on mapping by Struick, (1982).

The failure to locate showings mentioned by Taylor during field work in 1986, led to a re-evaluation of the old assessment report and an analysis of air photos covering the Comet Creek and Mount Kendall area. From geomorphological descriptions in Taylor's report and

subsequent air photo study, it is now concluded that the old geochemistry grid lies to the east of Comet Creek at elevations above 5500'. The presumed location of old showings is shown on figure 3.

4. DISCUSSION AND RECOMMENDATIONS


The primary interest in the Halley property arises from elevated base and precious metal values detected in metasediments over an apparently extensive area. Mapping from three sources, Struick (1982), Taylor (1973), and from the prospecting recorded in this report, suggest that the Yankee Belle Formation hosts the important grades. To date, the distribution of this unit is confined to the upper Comet Creek valley and the eastern ridge which borders the creek. Sutherland Brown (1963) comments that, "The north limb [of the Kimball syncline] east of Comet Creek is complicated by a number of minor folds." This is substantiated by the observations made in 1986.

Taylor reports of a well-mineralized zone of Yankee Belle sediments whose description bears a strong similarity to the style and mineral character of the hardrock mines of the Barkerville-Wells camp. The host rocks, while different from those of the Barkerville area, are of the Cariboo Group which probably represents the fundamental source of metamorphically-derived gold deposits within the Omineca Belt. The work described herein, while not extending this interpretation to any great degree, is consistent with it.

Further exploration is warranted, and should focus primarily on additional mapping to outline the Yankee Belle Formation and sampling of mineralization within the unit. First among mapping priorities is the successful location of the showings described in Assessment Report 4752. Reconnaissance soil sampling, for lead, silver and gold, should be used to aid and direct concentrated efforts in main interest areas.

Alldrick (1983), while studying the Mosquito Creek mine, suggests the use of VLF-EM and induced polarization to unravel complex geological problems in areas of poor exposure. Dynamite and machine trenching will be ultimately required for the proper sampling of zones with promising mineralization.

Dated: December 15th, 1986,
at Calgary, Alberta.



John F. Reader, P.Eng.

5. STATEMENT OF EXPENSES - HALLEY CLAIM PROSPECTION 1985/86.

1. Labour

1985 Sampling wages \$340.87 pro-rated @ 25%	85.22
1986 Prospecting - 2 men @ \$200.00 for 4.5 days	<u>1800.00</u>
	\$1885.22

2. Field Expenses

1985 Helicopter \$450.00 pro-rated @ 25%	112.50
1985 Food, camp & survey expenses -	
\$600 pro-rated @ 25%	150.00
1986 Food - 4 days for 2 men @ \$25/day/man	200.00
1986 Camp rental and disposables	200.00
1986 4x4 truck rental - 4 days @ \$70.00	280.00
1986 Truck fuel	<u>160.00</u>
	\$1102.50

3. Sampling and Assaying

1985 Soil Geochemistry	156.10
1985 Rock Assaying	59.25
1986 Rock Geochemistry	<u>24.50</u>
	\$239.85

4. Reporting

Report - Two days @ \$200	400.00
Drafting and Reproduction	<u>200.00</u>
	\$600.00

GRAND TOTAL \$3827.57


Personnel

T. Prucell - technician
B. Robertson - technician
D.P. Meeks - geological engineer
J.F. Reader - geological engineer

6. CERTIFICATE OF AUTHOR

I, John F. Reader, hereby certify that:

1. My residence address is 5323 LaSalle Crescent SW, Calgary, Alberta, T3E 5Y6.
2. I am presently employed as a geophysicist with Chevron Canada Resources Limited.
3. I hold a B.A.Sc. in Geological Engineering (Geophysics Option) from the University of British Columbia. I have been practicing my profession since 1979, and am a registered non-resident member of the Association of Professional Engineers of the Province of British Columbia (Geological).
4. I am a Fellow of the Geological Association of Canada.
5. I supervised the work described in this report and personally undertook to prospect the Halley claim in August, 1986.
6. I hold a 45% interest in the Halley claim in the Cariboo Mining Division of British Columbia.
7. I prepared this report for submission to the B.C. Ministry of Energy Mines and Petroleum Resources for property assessment purposes.



John F. Reader, P.Eng.

December 15th, 1986.

REFERENCES

- Alldrick, D.J., 1983: The Mosquito Creek Mine, Cariboo Gold Belt (93H/4), in Geological Fieldwork 1982, A Summary of Field Activities, Ministry of Energy, Mines and Petroleum Resources, Geological Branch, Mineral Resources Division Paper 1983-1, pg 99.
- Andrew, A., Goadwin, C.I., and Sinclair, A.J., 1983: Age and Genesis of Cariboo Gold Mineralization Determined by Isotope Methods, in Geological Fieldwork 1982, A Summary of Field Activities, Ministry of Energy, Mines and Petroleum Resources, Geological Branch, Mineral Resources Division Paper 1983-1, pg 305.
- B.C. Annual Summary of Geology, Exploration and Mining, 1973.
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- Struik, L.C., 1982: Bedrock Geology, Cariboo Lake, Spectacle Lakes, Swift River and Wells map areas, Cariboo District, British Columbia, Geological Survey of Canada Open File 858.
- Sutherland Brown, A., 1963: Geology of the Cariboo River Area, British Columbia, B.C. Department of Mines and Petroleum Resources Bulletin No. 47.

APPENDIX



Chemex Labs Ltd.

Analytical Chemists • Geochemists • Registered Assayers

212 Brooksbank Ave.
North Vancouver, B.C.
Canada V7J 2C1
Telephone: (604) 984-0221
Telex: 043-52597

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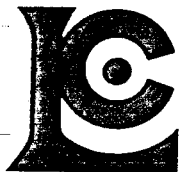
9251 BECKWITH RD.
RICHMOND, B.C.
V6X 1V7

** CERT. # : A8516511-001-A
INVOICE # : 18516511
DATE : 25-SEP-85
P.O. # : NONE
HALLEY

Sample description	Prep code	Pb %	Ag FA oz/T	Au FA oz/T			
HRD-1	207	<0.01	<0.01	<0.003	--	--	--
HRD-2	207	<0.01	0.02	0.004	--	--	--
HRD-3	207	<0.01	0.10	<0.003	--	--	--

.....
Registered Assayer, Province of British Columbia





Chemex Labs Ltd.

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Phone: (604) 984-0221
Telex: 043-52597

CERTIFICATE OF ANALYSIS

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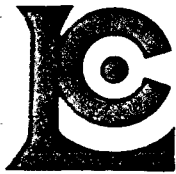
230 - 11751 BRIDGEPORT RD.
RICHMOND, B.C.
V6X 1T5

** CERT. # : A8618531-001-A
INVOICE # : I8618531
DATE : 5-OCT-86
P.O. # : NONE

ATTN: NCRM PORTER

Sample description	Prep code	Pb ppm	Ag ppm Aqua R	Au ppb FA+AA			
JR #1	205	3	0.1	<5	--	--	--
JR #2	205	46	0.1	<5	--	--	--
HP #1	205	--	0.1	<5	--	--	--

Certified by *Haut Bichler*



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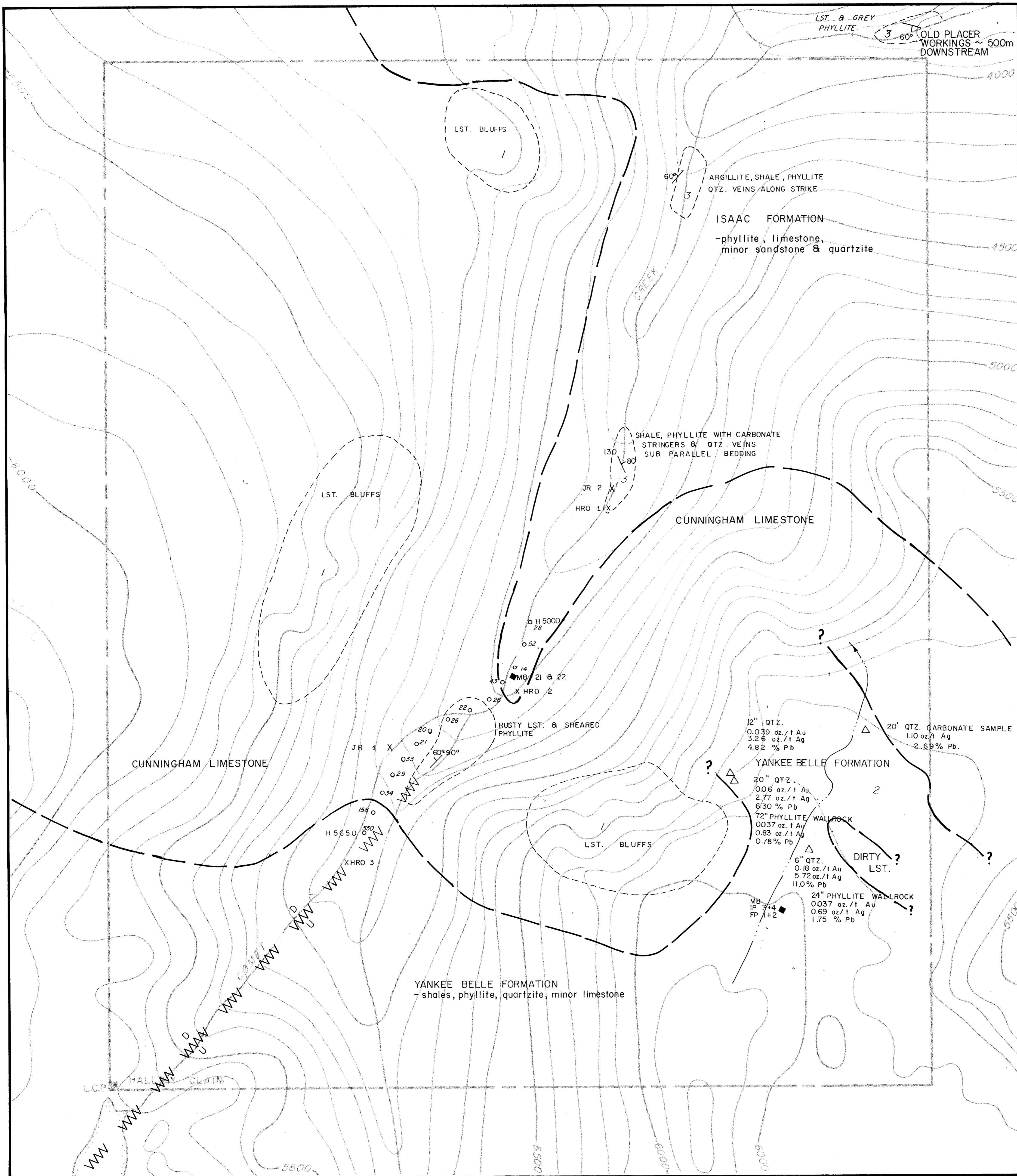
9251 BECKWITH RD.
RICHMOND, B.C.
V6X 1V7

** CERT. # : A5516512-001-A
INVOICE # : 18516512
DATE : 25-SEP-85
P.O. # : NONE
HALLEY

Sample description	Prep code	Pb ppm	Ag ppm	AU ppb FA+AA			
HS000	203	23	0.1	<5	--	--	--
HS050	203	52	0.1	<5	--	--	--
HS100	203	74	0.1	<5	--	--	--
HS150	203	43	0.1	<5	--	--	--
HS200	203	26	0.1	<5	--	--	--
HS250	203	22	0.1	<5	--	--	--
HS300	203	26	0.1	<5	--	--	--
HS350	203	20	0.1	<5	--	--	--
HS400	203	21	0.1	<5	--	--	--
HS450	203	33	0.1	<5	--	--	--
HS500	203	29	0.1	<5	--	--	--
HS550	203	34	0.1	<5	--	--	--
HS600	203	158	0.1	<5	--	--	--
HS650	203	550	0.1	<5	--	--	--



Certified by Haut Bichler



LEGEND:

- , □ OLD CLAIM POST - CONFIRMED, ASSUMED
- ▲ SAMPLE LOCATION AND RESULTS FROM ASSESSMENT REPORT NO. 5752
- WWW FAULT
- 550 o SOIL SAMPLE, Pb - p.p.m.
- HRO1, JR 1 X ROCK SAMPLE, 1985 - 1986
- △ ROCK SAMPLE, TAYLOR 1973 (approx. loc.)
- BEDDING ATTITUDE
- GEOLOGICAL CONTACT
- OUTCROP
- - - CLAIM BOUNDARY

- 3 ISAAC FORMATION - phyllite, limestone, minor sandstone, and quartzite
- 2 YANKEE BELLE FORMATION - shales, phyllite, quartzite, minor limestone
- 1 CUNNINGHAM LIMESTONE - thin bedded, brown weathering, dark grey limestone and grey weathering massive grey limestone.

**GEOLOGICAL BRANCH
ASSESSMENT REPORT**

15,421

GEOLOGY AFTER STRUIK, 1983, AND TAYLOR, 1973
& READER, 1986

— HALLEY CLAIM —

CARIBOO MINING DIVISION—BRITISH COLUMBIA, 93A/14E

COMPILATION MAP

(TO ACCOMPANY ASSESSMENT REPORT)
1986

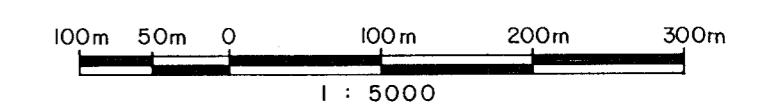


FIGURE 3