THIS PROSPECTUS CONSTITUTES A PUBLIC OFFERING OF THESE SECURITIES ONLY IN THOSE JURISDICTIONS WHERE THEY MAY BE LAWFULLY OFFERED FOR SALE AND THEREIN ONLY BY PERSONS PERMITTED TO SELL SUCH SECURITIES.

NO SECURITIES COMMISSION OR SIMILAR AUTHORITY IN CANADA HAS IN ANY WAY PASSED UPON THE MERITS OF THE SECURITIES OFFERED HEREUNDER AND ANY REPRESENTATION TO THE CONTRARY IS AN OFFENCE.

PROSPECTUS **DATED: JANUARY 10, 1989**

GOLDEN KRISTY RESOURCES LTD.
Suite 803
470 Granville Street
Vancouver, British Columbia
V6C 1V5

NEW ISSUE - 500,000 Common Shares

Price to Public	Commission(2)	Net Proceeds to be Received by the Issuer
$0.40 (1) $200,000.00	$0.05 $25,000.00	$0.35 $175,000.00 (3)

(1) The price of the common shares has been determined in negotiation with the Agent.

(2) The Agent has been granted Broker's Warrants entitling the Agent to purchase up to 125,000 common shares of the Issuer at a price of $0.46 per share, exercisable at any time up to two (2) years following the date of listing on the Vancouver Stock Exchange.

(3) Before deduction of the balance of the costs of this issue, which balance is estimated to be $12,000.00 (the entire costs of this issue will amount to approximately $17,000.00).

THERE IS CURRENTLY NO MARKET THROUGH WHICH THESE SECURITIES MAY BE SOLD.

AN APPLICATION HAS BEEN MADE TO CONDITIONALLY LIST THE SECURITIES BEING OFFERED HEREIN ON THE VANCOUVER STOCK EXCHANGE. LISTING IS SUBJECT TO THE ISSUER FULFILLING THE LISTING REQUIREMENTS OF THE VANCOUVER STOCK EXCHANGE ON OR BEFORE THE 4TH DAY OF JULY, 1989, INCLUDING PRESCRIBED DISTRIBUTION AND FINANCIAL REQUIREMENTS.

A PURCHASE OF THE SECURITIES OFFERED BY THIS PROSPECTUS MUST BE

(5) The major draining systems were prospected and at least one representative of rock type collected for rock geochemistry.

There is no underground or surface plant or equipment on or about the Tymar Claims. There is no underground exploration or development, and surface exploration and development is as described above. The Tymar Claims are without a known body of commercial ore.

B. **Description of the Happy Sullivan Gold Property**

(i) **Location and Access**

The Happy Sullivan Property is located approximately two (2) miles north of the old Engineer Gold Mine on Tagish Lake approximately twenty (20) miles west of the town of Atlin, British Columbia. Exit to the Property is via helicopter from Atlin or via water from either Atlin or Carcross, Yukon to the Engineer Gold Mine and then two (2) miles easterly by cat trail.

(ii) **Exploration History**

The Engineer Gold Mine, which is located two (2) miles west of the Happy Sullivan Property, was noted for its spectacular grades of free gold found along its vein system. Between 1900 and 1935, the Engineer Gold Mine produced approximately eighteen thousand (18,000) ounces of gold with the bulk of the production taken between 1925 and 1927. The Happy Sullivan vein was discovered about 1917 and, in the following year, a forty-eight (48) foot long tunnel had been driven to cross-cut the vein at a lower elevation than the original discovery. In 1927, Consolidated Mining and Smelting optioned the Property and trenched across the structure for several hundred feet along the strike of the vein. The cuts at the lowest elevation exposed a quartz vein and solicified country rock of definite width. The trenches at the higher elevations exposed a series of parallel quartz stringers and solicified country rock similar to that exposed in the lower trenches.

In 1933, a report issued by the B.C. Minister of Mines described the workings, on or about the Happy Sullivan Property, as several long rock

cuts, a caved tunnel at the 3,600 foot elevation cross-cutting the structure, and a 30 foot long tunnel at the 3,750 foot elevation driven on a quartz filled fissure in the shear zone.

From 1963 to 1975, the Happy Sullivan Property was further examined by bulldozer trenching and sampling. In late May of 1975, as disclosed in a report prepared by J.M. Dawson, P.Eng., prepared on behalf of Nomad Mines Ltd. (N.P.L.), it was found that "a small dump of rusty vein materials in which a very fine grained, whitish, silvery mineral (electrum) was seen in a few pieces of quartz, was sampled by the writer and assayed 9.17 ounces Au and 5.7 ounces Ag per ton". Further, Dawson also concluded that "the extremely high grade values present in this vein, its presence in a strong shear zone of extensive strike length which is itself mineralized to some degree with low grade material makes the property a very good exploration bet for the development of small "bonanza type" ore shoots as well as the possibility of a larger tonnage of lower grade material within the large shear zone itself.".

As is disclosed in the report prepared by J.E. Wallis, P.Eng., dated February 4, 1988, (a copy of which is attached to this Prospectus), further work on the Happy Sullivan Property was carried out during the 1980's, including the tabulation of pre-1980 assays, chips sampling, bulk sampling and tunnelling. The bulk sample of vein material assayed 4.7 ounces Au and 1.99 ounces Ag per ton. The mine muck sample assayed 0.51 ounces Au and 0.37 ounces Ag per ton. The aforesaid Wallis report further states that surface sampling shows that gold and electrum is erratically distributed in a quartz vein up to two (2) feet in width. The Happy Sullivan Property requires extensive surface exploration and diamond drilling.

(iii) <u>Current Exploration</u>

The Issuer has carried out no exploration or development work on the Happy Sullivan Property as of the date hereof. Further, the surface and underground development, plant and/or equipment is hereinbefore outlined and described. Reference should be made to the Wallis report attached hereto for full particulars.

(iv) Recommendations

The Wallis report contains a recommendation for a two phase exploration program. The exploration program's initial phase consists of geologic mapping, sampling and trenching, followed by a one thousand (1,000) foot diamond drilling program. The Issuer will be responsible for fifty percent (50%) of the estimated one hundred and twenty thousand dollar ($120,000.00) expenditure required to complete phase I of the exploration program recommended by the Wallis report. If the initial phase is successful, a phase II program consisting of extensive diamond drilling has been recommended and is outlined in the Wallis report. The cost of phase II could feasibly exceed the sum of four hundred thousand dollars ($400,000.00).

The Happy Sullivan Property is without a known body of commercial ore and the proposed program is an exploratory search for ore.

7. DIRECTORS AND OFFICERS

The following are the full names, home addresses, positions with the Issuer and principal occupations, within the preceding five years, of all of the Directors and Officers of the Issuer:

NAME, ADDRESS AND POSITION WITH COMPANY	PRINCIPAL OCCUPATION FOR THE PAST FIVE YEARS
KEVIN ROBERT RENNIE * Suite 6, 2335 St. Johns Street Port Moody, B.C., V3H 2A8 Director	Practising Gemologist; Manager, Rings & Things, Port Coquitlam, from 1977 to 1985; Manager, Bonds Jewelry Vancouver, 1985 - present.
IVAN JOSEPH RADOVICH * Suite 6, Quayside Road New Westminster, B.C. Director	Salesman, Town Centre Chevrolet-Oldsmobile from 1983 - 1985; Sales Manager, Auto Sales, Metrotown Hyundai from Feb, 1988 - present.
JAMES NORMAN YOUNG * 270 Duthie Avenue Burnaby, B.C. Director and President	Manager, Royal Towers Hotel, from Jan, 1982 - Jan, 1985; Manager, Sandman Inns Ltd., from Jan, 1985 - present.
DANIEL M. BASCO Suite 1203, 1740 Comox Street Vancouver, B.C., V6G 2Z1 Secretary	Self-employed consulting Geologist from 1971 - present.

(* Member of Audit Committee.)

EVALUATION REPORT

ON THE

HAPPY SULLIVAN GOLD PROPERTY

Atlin, Mining District, B.C.

59° 31' N / 134° 13' W

for

GOLDEN KRISTY RESOURCES LTD.
803 - 470 Granville Street
Vancouver, B.C.
V6C 1V5

by

J.E. WALLIS, P.ENG.
ROBERTSON, WALLIS & ASSOCIATES
708 - 1155 West Pender Street
Vancouver, B.C.
V6E 2P4

February 4, 1988

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APPENDICES

LOCATION MAP N.T.S.

SUMMARY

The Happy Sullivan Gold Property was examined and sampled by the writer in August 1984 and February 1985.

Surface sampling shows that gold and electrum is erratically distributed in a quartz vein up to 2 feet in width. This vein is located in a wide (80-140 feet) shear zone which can be traced over 2 miles. A short tunnel driven on the vein by De Baca Resources Ltd. during the winter of 1984-5 cut gold values but did not duplicate surface sampling. The property requires extensive surface exploration and diamond drilling.

A two phase exploration program is recommended. Phase I consists of detailed geologic mapping, sampling and trenching followed by a 1,000 foot diamond drilling program. The Phase 1 program is estimated to cost $120,000. If Phase I is successful, a Phase 2 program consisting of extensive diamond drilling is recommended. The cost of Phase 2 could feasibly exceed $400,000.

INTRODUCTION

Mr. Rocky Cameron of Golden Kristy Resources Ltd. and Mr. Joe Novak of Megastar Ventures Ltd. requested the writer to review and evaluate the potential of the Happy Sullivan Property. This report is based on personal examination of the claims during 1984-85 and review of historical records dating back to 1917.

The property has excellent potential and merits a logically planned exploration program.

LOCATION AND ACCESS

The property consists of four reverted Crown grant claims located approximately two miles north of the old Engineer Gold Mine on Tagish Lake and approximately 20 miles west of the town of Atlin, B.C. Access is via helicopter from Atlin or via water from either Atlin or Carcross, Yukon, to the Engineer Gold Mine and thence 2 miles easterly by cat trail (see Figure 1). The claims are located on B.C. Department of Mines claim map 104-M/9E. Topographical coordinates are 59° 31' north latitude and 134°13' west longitude.

CLAIM STATUS

The Happy Sullivan Gold property consists of four reverted Crown grant claims. Details are as follows:

Claim Name	Lot No.	Record No.	Expiry Date
Gold Bullion	L3288	2233	March 13, 1991
Sweepstake Fr No. 6	L4674	2256	March 27, 1991
Crackerjack	L3286	2240	March 23, 1991
Gold Hill	L3287	2241	March 23, 1991

The property is held under option on a 50:50 basis by Golden Kristy Resources Ltd. and Megastar Ventures Ltd. The registered owner of the property is Estey Agencies Ltd. of 1710 - 1177 West Hastings Street, Vancouver, B.C.

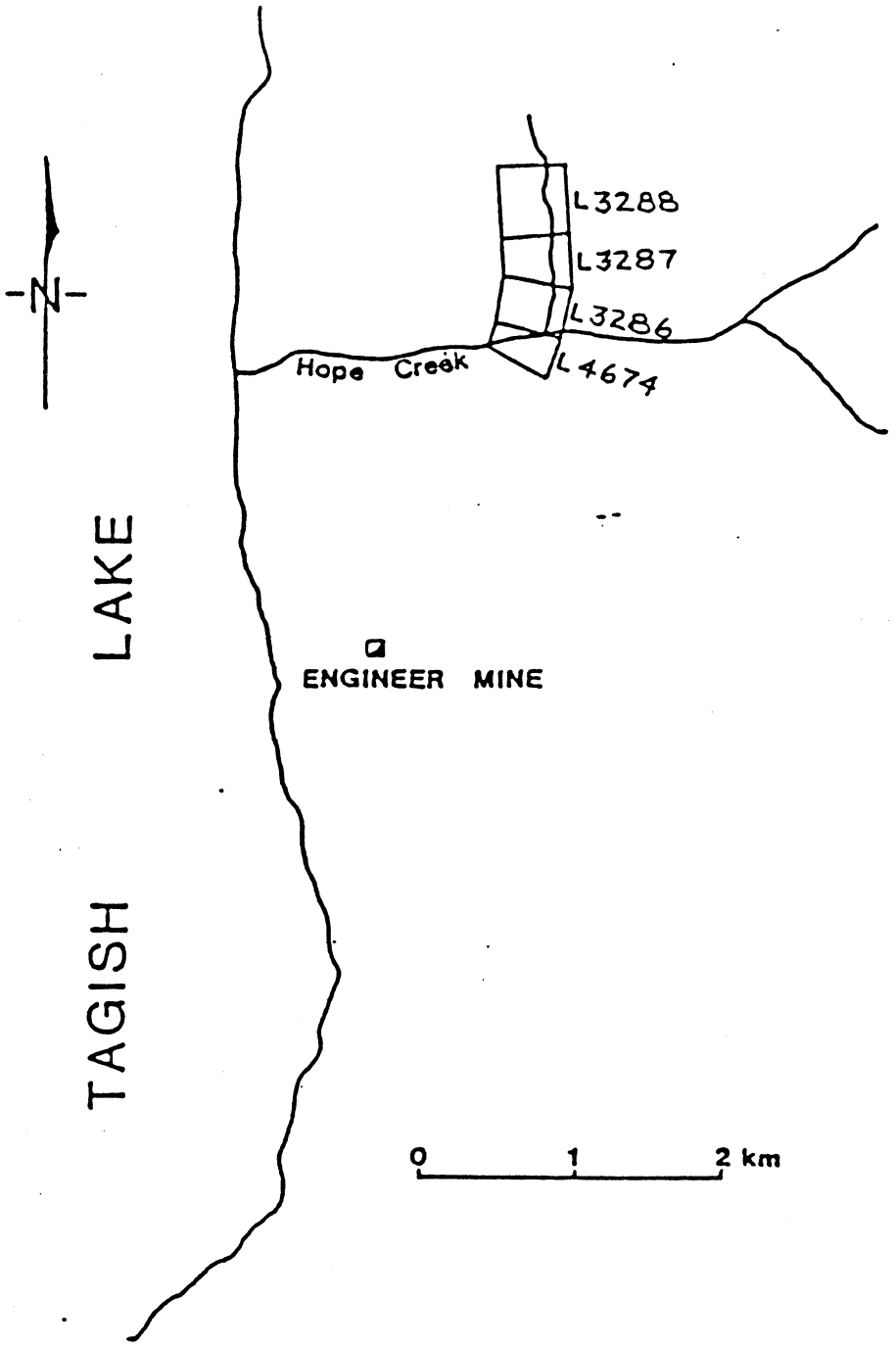


Figure I - Claim Map

HISTORY

The Engineer Mine which is located two miles south of the Happy Sullivan, was noted for the spectacular grades of free gold found along its vein system. The mine produced some 18,000 ounces of gold between 1900 and 1935, with the bulk of the production taken between 1925 and 1927 (see Appendix D).

The Happy Sullivan vein was discovered about 1917 and is mentioned in the B.C. Minister of Mines Annual Report 1918. At that time, a 48 foot long tunnel had been driven to crosscut the vein at a lower elevation than the original discovery.

Consolidated Mining and Smelting optioned the ground in 1927 and trenched across the structure for several hundred feet along the strike of the vein. The cuts at the lowest elevation exposed a quartz vein and silicified country rock of definite width. The trenches at the higher elevations exposed a series of parallel quartz stringers and silicified country rock similar to that exposed in the lower trenches. The 1930 Minister of Mines Report stated that C.M. & S. had exposed a north-south striking zone 60 to 80 feet wide between the 3,650 and 3,930 elevations. A sample of bluish quartz with some mariposite and a little pyrite chipped from several quartz stringers and quartz on sections at different places in the zone assayed 0.26 oz Au and 1.10 oz Ag per ton.

The 1933 B.C. Minister of Mines report described the workings as several long rock cuts, a caved tunnel at the 3,650 foot elevation crosscutting the structure, and a 30 foot long tunnel at the 3,750 foot elevation driven on a quartz filled fissure in the shear one. The fissure varies from 6 to 8 inches in width with a section near the portal averaging 12 inches wide. Two small dumps of quartz at the portal of this tunnel containing about 5 tons each were carefully sampled.

Samples were taken in which no free gold was visible and which contained no appreciable pyrite mineralization. Assay results were as follows:

Sample No.	Location	Au ozs/ton	Ag ozs/ton
1	West Dump	9.44	6.6
2	East Dump	8.44	5.5

It is interesting to note that no reference is made to a short shaft which was sunk on the high grade section at the portal of the upper tunnel. From outward appearances it appears to have been sunk at about the same time.

In the summer of 1963 the trail from the Engineer to the Happy Sullivan was repaired by Mssrs. A.D. Ross and H.H. Buhr. A D6 dozer was used to do some trenching below the main workings but was not successful.

The property was examined by Dr. A.E. Aho, P.Eng., in September of 1963. He reported that the shear zone is silicified and the fractures were filled with vein quartz, some of which carries high grade streaks or patches of free gold. Chips from the main dump of the adit and shaft assayed 24 oz Au and 0.24 oz Ag per ton, while a smaller dump at the portal assayed 16.7 oz Au and 10.0 oz Ag per ton.

J.M. Dawson, P.Eng., examined the property on behalf of Nomad Mines Ltd. (N.P.L.) in late May of 1975. Although the upper workings were still snow-covered, he was able to sample the upper dump. "A small dump of rusty vein materials in which a very fine grained, whitish, silvery mineral (electrum) was seen in a few pieces of quartz, was sampled by the writer and assayed 9.17 oz Au and 5.7 oz Ag per ton." A 20 foot section immediately east of the presumed high grade zone was chip sampled and assayed 0.090 oz Au and 0.15 oz Ag per ton.

Dawson concluded that "the extremely high grade values present in this vein, its presence in a strong shear zone of extensive strike length which is itself mineralized to some degree with low grade material makes the property a very good exploration bet for the development of small "bonanza type" ore shoots as well as the possibility of a larger tonnage of lower grade material within the large shear zone itself.

During October of 1980 Dr. K. Vincent Campbell of Caribou Geotechnical Services Ltd., carefully tabulated all of the available pre-1980 assays from the upper tunnel and dump. This tabulation is as follows:

TABULATION OF PRE-1980 ASSAYS (ozs/ton)
According to Sample Sites

Dump Samples			Quart Vein Samples			Country Rock		
Ref#	Au	Ag	Ref#	Au	Ag	Ref#	Au	Ag
2a	9.44	6.6	1	0.26	1.10	4c	0.09	0.15
2b	8.44	5.5	6a	9.06	5.32	4d	0.02	0.05
3a	24.0	0.24	6b	35.82	21.26	7a	0.30	0.01
3b	16.7	10.0	7b	27.125	15.33			
4a	9.17	5.17						
4b	30.95	17.0						
4e	0.32	1.1						
4f	0.07	0.17						
Average Assay	7.81	5.72		18.06	10.75		0.14	0.07

Note: Samples from Reference 5 omitted from calculation because of their very high values.

Tables 1 and 2 define the references used in the above calculation.

A composite of 6 lines of chip samples taken across the back of the tunnel, with care taken to exclude visible gold, gave 0.51 oz Au and 0.39 oz Ag per ton. A selected sample of watery blue quartz stringers with visible free gold assayed 52.28 oz Au and 29.8 oz Ag per ton. He concluded that "it is doubtful that a limited diamond drill program could reliably identify other bonanza type deposits because of their size and irregular occurrence."

In 1982 Nomad Mines Ltd. (N.P.L.) sent a bulk sample of the vein material and a bulk sample of mine muck from the upper adit to Technational Research Corporation in Whitehorse Yukon for metallurgical testing. According to Mr. R. Carlson of Nonad Mines Ltd., the vein material consisted of vein material blasted from the brow of the upper adit at the portal, and the mine muck consisted of previously blasted material on the mine dump. The 512.8 kilogram bulk sample of vein material assayed 4.7 oz Aug and 1.99 oz Ag per ton. The 422.5 kilogram mine muck sample assayed 0.51 oz Au and 0.37 oz Ag per ton. A copy of the laboratory report is appended as Appendix B. It should be noted that these results have to stand on their own as they cannot be verified by the writer.

During the winter of 1984-85, De Baca Resources drove approximately 175 feet of tunnel on the vein system and crosscut the shear zone both to the east and west. Unfortunately, maps and sampling results of this program are not available. However, the workings are open and can be readily mapped and resampled.

Visually, the structure is strong and contains several narrow quartz veins parallel to the main vein. Mineralization consists primarily of pyrrhotite and pyrite with minor chalcopyrite.

REGIONAL GEOLOGY

The region is underlain by a sequence of detrital sedimentary rocks of the Laberge group of Lower Jurassic age. These rocks consist of well bedded slate, greywacke and conglomerate. The strike is generally northerly with a gentle easterly dip.

The Happy Sullivan gold showing is in quartz veins within a strong northerly trending shear zone. This shear zone is traceable north of Hope Creek for some two miles and generally follows the steep gully cut by Sheep Creek. It is probable that the east-west oriented Hope Creek valley is a cross fault which has displaced the Happy Sullivan shear zone.

LEGEND

CENOZOIC

QUATERNARY
PLEISTOCENE AND RECENT

9 — Surficial deposits; sand, silt, gravel, glacial till

CRETACEOUS OR LATER

8 — Trachyte, latite, feldspathic tuff, breccia

7 — Rhyolite, trachyte, andesite flows; breccias, locally containing abundant granite fragments; probably Cretaceous or later

MESOZOIC

JURASSIC OR LATER
POST LOWER JURASSIC
COAST INTRUSIONS

6 — Granodiorite, quartz diorite, granite; gabbroic and hybrid rocks of various but uncertain ages; 6a, Mid-Cretaceous; 6b, Late-Cretaceous or Tertiary

JURASSIC
LOWER JURASSIC AND LATER
LABERGE GROUP

5 — Greywacke, siltstone, argillite, slate, conglomerate, limestone; 5a, may be Triassic age

PALAEOZOIC

PERMIAN
MIDDLE AND UPPER PERMIAN

3 — Limestone, chert, andesite, basalt

PRE-PERMIAN

2 — Porphyritic granodiorite

PRE-PERMIAN (Mainly)

1 — Metamorphic rocks of uncertain age; 1a, quartzite, gneiss, schist; limestone; 1b, chlorite schist, feldspar chlorite gneiss, amphibole gneiss; limestone

A — Volcanic rocks of uncertain age; dacite, andesite, basalt, flows, breccias, tuffs

FROM GSC MAP 19 - 1957

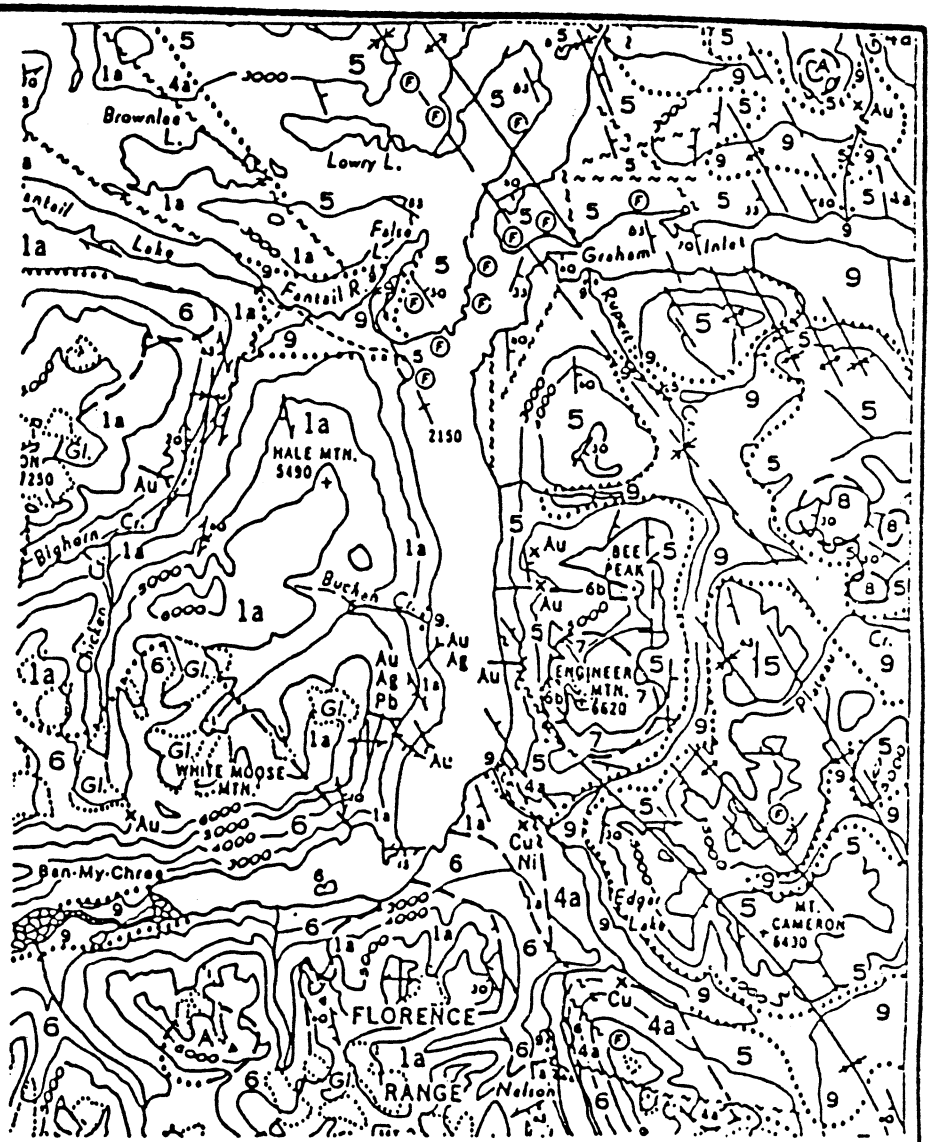


FIGURE 2 - REGIONAL GEOLOGY

Scale: 1 in. = 4 miles

TABLE 1 - Location, Description, and Results of Pre-1980 Sampling

Ref.# Fig.4	Reference	Location	Description	Assay (oz/ton) Au	Ag
1	B.C. Min. Mines Ann. Rept. 1930 pg.123 (App.I)	sample chipped from several stringers and quartzose sections in a north-south striking zone between 3650' and 3930'	bluish quartz with some mariposite and a little pyrite	0.26	1.10
2	B.C. Min. Mines Ann. Rept. 1933 pg. 81 (App.I)	2a. small dump at portal of upper tunnel, about 5 tons, referred to as west dump	quartz, no free-gold visible, no appreciable pyrite mineralization	9.44	6.6
		2b. small dump at portal of upper tunnel, about 5 tons, referred to as east dump	same as 2a	8.44	5.5
3	A.E. Aho, 1963 (App.II)	3a. chips from main dump of adit and shaft	quartz	24.0	0.24
		3b. chips from smaller dump at portal	quartz	16.7	10.0
4	J.M. Dawson, 1975	4a. small dump near upper tunnel	rusty vein material with very fine grained, whitish silvery mineral(electrum)?	9.17	5.17
		4b. pile similar to 4a but 5' closer to shaft	as 4a	30.95	17.0
		4c. chip sample from a 20' section in a cut immediately east of upper shaft	silicified greywacke with occasional barren thin quartz stringers, slightly limonite stained	0.09	0.15
		4d. 4' chip sample from a trench 60' below upper tunnel	silicified wall rock	0.02	0.05

TABLE 2 - Location, Description, and Results of Pre-1980 Sampling

Ref.# Fig.4	Reference	Location	Description	Assay (oz/ton) Au	Ag
4	J.M. Dawson, 1975	4e. dump at portal of lower tunnel	barren white quartz	0.32	1.1
		4f. as 4e	silicified blue gray wall rock, containing minor fine grained pyrite	0.07	0.17
5	Assay cert. Aug 13/75 (App.III)	selected samples collected in the summer of 1975 from the dump at portal of upper tunnel by H.H. Buhr as witnessed by R. Carlson	quartz with visible free-gold	64.25 73.47 94.37 345.77	37.72 41.38 51.17 175.96
6	Assay cert. Jun 24/76 (App.IV)	samples collected by P. Marshall (geologist) in June 1975 as witnessed by R. Carlson			
		6a. 20' upslope from upper adit, along strike of quartz vein	quartz	9.06	5.32
		6b. 100' upslope from upper adit, along strike of quartz vein	arsenopyrite-bearing quartz vein	35.82	21.26
7	D.W. Tully, 1979	7a. 5' chip sample across portal of lower tunnel		0.30	0.01
		7b. 3' chip sample across portal of lower tunnel		27.125	15.33

ECONOMIC GEOLOGY

The economic geological features of the property have been well documented by Aho (1963), Dawson (1975) and Campbell (1980).

The main workings are in a wide (80'-140') shear zone which is mostly covered by overburden. The country rock of the shear zone is a highly altered metasediment, probably greywacke. Numerous quartz leads from a few inches in width to over two feet wide were noted in areas where the shear zone is visible. Approximately 30 feet east of the apparent western contact of the shear zone, the upper adit trends northerly and follows a series of quartz veins for a distance of approximately 30 feet. Figure 2, Details of Upper Adit, Happy Sullivan Gold Property, shows the plan of the adit along with a generalized cross section. The best visible gold seen occurs in a narrow 2-3 inch wide zone of watery blue quartz along the western wall of the tunnel. The main quartz vein that the tunnel follows is approximately two feet wide and is fractured and vuggy with an earthy red iron oxide coating. This section of quartz, particularly near the portal, contains some visible gold and a silvery mineral assumed to be electrum.

SAMPLING

The old workings have been well sampled by others in past years, particularly by Dr. Vincent Campbell of Caribou Geotechnical Services in 1980. He very carefully cut 6 channel samples across the back of the upper adit at spaced intervals from the portal to the end of the tunnel. The average assay of all these samples was 0.51 oz Au and 0.39 oz Ag per ton. The average grade of eight dump samples collected from 1930 to 1979 is 7.81 oz Au and 5.72 oz Ag per ton. Quartz vein samples taken over the same time span average 18.06 Au and 10.75 oz Ag.

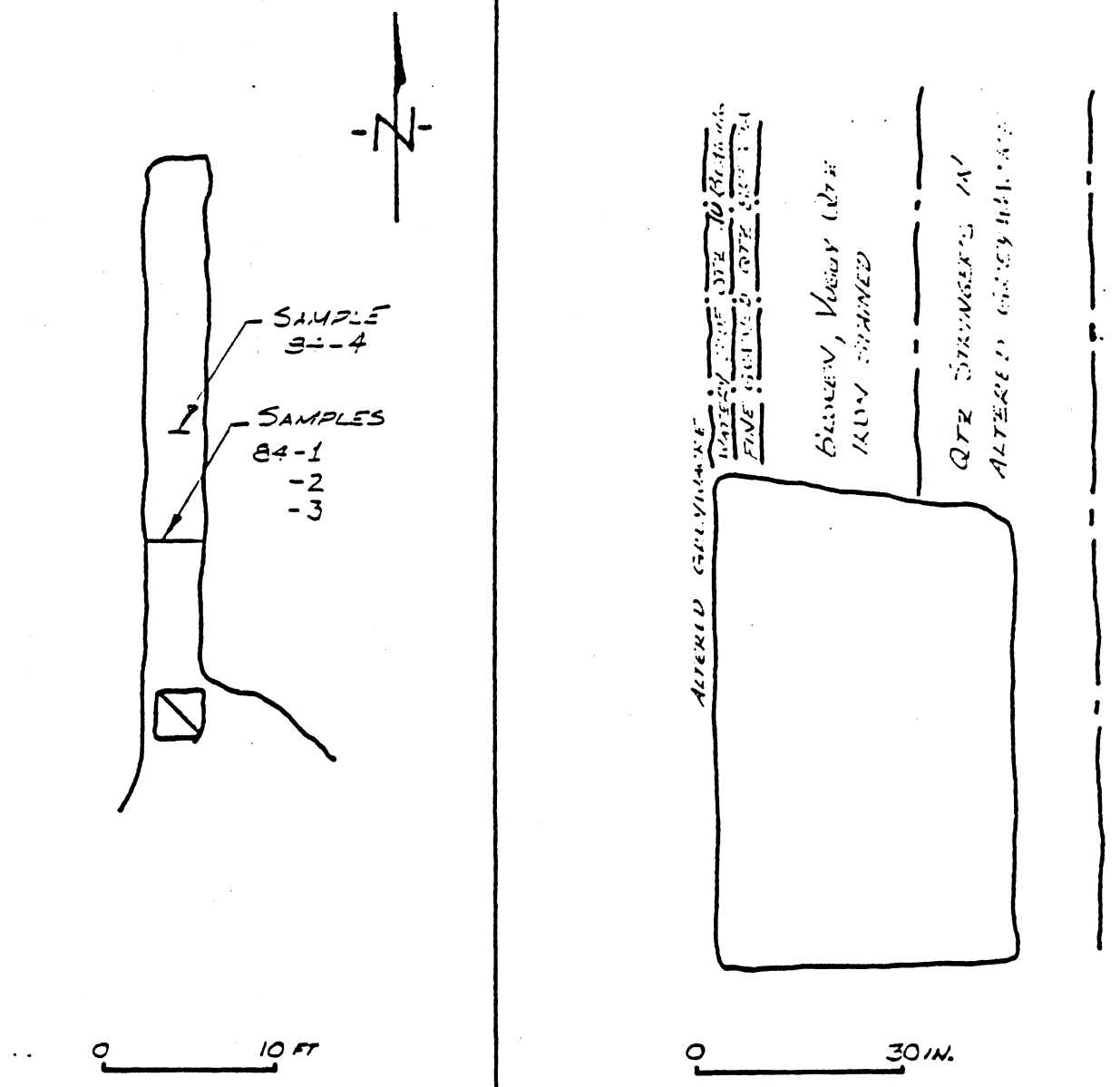


Figure 3 — Details of Upper Adit
Happy Sullivan Gold Property

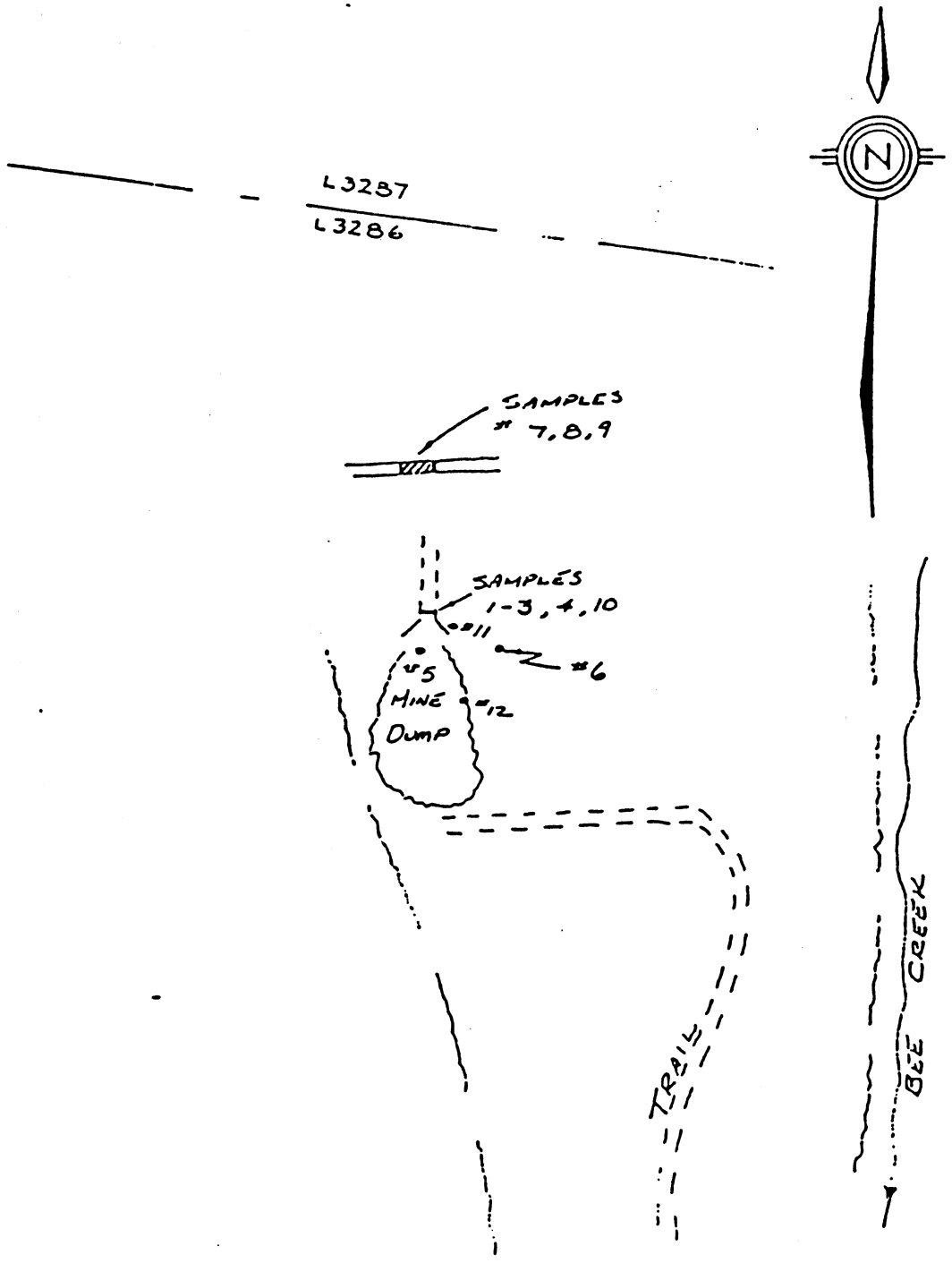


FIGURE 4 - SAMPLE LOCATION SKETCH

Scale: 1" = 50 ft.

Sampling of the upper adit during the property examination consisted of cutting one line of three samples across the back in a location where free gold was not visible and cutting one sample across a massive section of the quartz vein itself. Three other samples were cut across portions of the shear zone east of the adit, three from the upper trench and two samples of material from the dump collected. These samples were placed in marked plastic bags and shipped to Rossbacher Laboratory Ltd. in Vancouver for fire assays (see Appendix B). Results are as follows:

Sample No.	Location and Width	Au oz/ton	Ag oz/ton
1	Adit sample line, 0.5 ft altered Greywacke - west end	0.006	0.04
2	Adit sample line, 0.67 ft vuggy quartz, rusty - no mineralization	0.052	0.28
3	Adit sample line, 1.5 ft altered greywacke with disseminated pyrite	0.350	0.42
	Calculated grade of sample line across 2.67 ft	0.21	0.31
4	Quartz vein 2.0 ft wide massive no visible mineral	0.018	0.32
5	Composite of mineralized quartz from dump - upper adit	1.0	0.82
6	Quartz vein 3.0 ft wide in shear zone 20 ft east of adit	0.018	0.10
7	Quartz stringer in greywacke 3.0 ft wide section, upper trench	0.054	0.22
8	1.5 ft wide quartz vein, minor sulphides - upper trench	0.026	1.38
9	10 ft wide - quartz stringers in sheared greywacke - upper trench	0.005	0.08
10	Selected sample of massive quartz from vein at portal. No mineralization evident	0.005	0.06
11	10 ft section altered greywacke from portal to east	0.004	0.30
12	Selected sample of altered greywacke from dump, minor sulphides	0.013	0.10

CONCLUSIONS

Exploration programs concentrated on the Happy Sullivan Gold Property since 1918 have been limited in size and have examined only a small fraction of an obviously major geologic system. This property examination and review of previous programs has resulted in the following conclusions:

(a) The vein system contains some spectacular sections of free gold in quartz assaying up to 345.77 oz Au and 175.96 oz Ag per ton in selected samples.

(b) Small selected tonnages of high grade material can undoubtedly be produced from the vein system. The 512.8 kilogram bulk sample of vein material taken in 1982 which assayed 4.7 oz Au and 1.99 oz Ag per ton attests to this fact.

(c) Like most deposits of this type, the distribution of precious metal content is extremely erratic.

RECOMMENDATIONS

A two phase exploration program is recommended for the property. Phase 1 will consist of detailed geologic mapping and sampling, followed by extensive blast trenching. On completion, a 1,000 foot diamond drilling program should be initiated to check the structure both at depth and along strike. Estimated cost details are as follows:

Phase 1

Geologist, 45 days @ $300/day	$ 13,500
Assistant, 45 days @ $200/day	9,000
Trenching, assays etc.	12,000
Helicopter, 40 hours @ $550/hr	22,000
Camp supplies, groceries etc.	7,500
Diamond drilling, 1,000 ft @ $45/ft	45,000
Sub-total	$ 109,000
Contingency	11,000
TOTAL	$ 120,000

If the results of Phase 1 are successful, a Phase 2 program consisting of extensive diamond drilling is recommended. Although it is difficult to assess drill requirements at this time, the cost of the program could feasibly exceed $400,000.

REFERENCES

1. Aho, A.E., Ph.D., P.Eng. Happy Sullivan Showings. Sept. 17, 1963.

2. B.C. Minister of Mines Reports (Appendix A).

3. Campbell, K. Vincent, Ph.D. Cariboo Geotechnical Services Ltd., Report on Gold and Silver Analyses Across the Upper Adit, Happy Sullivan Prospect. November 20, 1980.

4. Dawson, J.M., P.Eng. Kerr, Dawson & Associates Ltd. Report on the Happy Sullivan Property. June 6, 1975.

APPENDIX A

INFORMATION ON THE ENGINEER GOLD MINE

THE ENGINEER GOLD MINE

For Background Informational Purposes Only

The following is an edited compilation of the published reports on the Engineer Gold Mine, near Atlin, B.C. together with commentary and recalculation of the values using current prices. For the purpose of this report the gold price in the 1900 to 1933 period is assumed at $22.00 per ounce.

The purpose of the report is to introduce the property to the reader and provide a background information against which to relate more specific future reports and evaluate exploration-development plans and progressive results.

The history of the Engineer Gold Mine is a fascinating and well recorded story. The following information is taken from various reports of the Minister of Mines for the Province of British Columbia printed during the periods when the Engineer was being developed and in production.

MINISTER OF MINES REPORT BOOK 1900 PAGES 760-761

Owned by the Engineer Mining Company, of Skagway: President, Engineer Group, John Hislop, Skagway; Secretary, Elias Ruud, Skagway.

This group of 13 claims is situated in Atlin Mining Division, on the east side of the Taku arm, a branch of Tagish lake, about 9 miles south of the Golden Gate.

The property lies near the shore of the lake and can be reached by steamer, if arrangements can be made with the steamboat company to run down there from Golden Gate on the bi-weekly trip from Bennett to Atlin. Failing such arrangements the property is reached from Golden Gate by trail, a distance of 9 miles--or by canoe, if such is obtainable. The property was not visited personally, owing to the necessity to start for Chilkat District, but the following information was obtained from the Secretary of the Company, at Skagway:-

"The property was taken up by a locating party of engineers of the White Pass and Yukon Railway--hence the name. The discovery was made on a small stringer of quartz carrying free gold visible to the naked eye. Assays from specimens taken from this stringer gave results up to $13,000 per ton.

"Development work was begun on this stringer and continued over the greater part of the property. In following the stringer a large body of quartz was struck, running at an angle of 60° with the strike of the former. Further prospecting disclosed parallel ledges and stringers, and samples of quartz were taken and assayed, but gave little satisfaction. Four tons of ore from the rich stringer were then taken out and were milled at Juneau, some $23 per ton being saved on the plates and 1% of concentrates, worth $83 per ton, being obtained.

"A tunnel was then started from the shore of the lake and has been run 250 feet through slate, the formation dipping into the hill. At 215 feet in, and not quite at right angles, this tunnel struck a quartz ledge which was 20 feet in thickness.

"The Company had 9 men at work during the summer."

It is understood the Company has already made arrangements for a mill which will be erected on the property in 1901. The results will be watched with interest, as undoubtedly samples of the ore carry free gold and sampling is unsatisfactory in such cases unless on a large scale.

Development work continued into 1902 and the property was prepared for the installation of a mill.

MINISTER OF MINES REPORT BOOK 1902 PAGE 39

Engineer Group

On the Engineer Group, Taku area, some development work was done during last winter, and a triple discharge Hendy stamp-mill complete is now being installed on the property, at an estimated cost of $15,000. The mill is expected to be in position and ready for work by February 1st, 1903, and as soon as warm weather sets in it is expected to open up on the ore-body and start crushing.

During the next few years considerable money was spent on installing the necessary equipment to bring the property into production. The original owners because of financial difficulty had to abandon the project and allow some of the claims to lapse.

MINISTER OF MINES REPORT BOOK 1908 PAGE 50

On taku arm of Lake Tagish there is a group of claims situated a few miles south of Golden Gate, which for some years has been known as the Engineer group. Two years ago the original holders allowed some of their properties to lapse and they were located by local parties, who have been doing some development work during the year and who are reported to have discovered some very rich ore. This rich ore is only

found in small stringers, but I am informed that several larger and better defined ledges have been discovered on the properties.

The new owners of the property were quick to put the Engineer into production.

MINISTER OF MINES REPORT BOOK 1910 PAGE 55

Not much development has been performed upon quartz properties throughout this portion of the district, beyond the assessment work necessary to protect the title, except upon the property known as the Engineer group, on Taku arm (of Tagish lake), and on certain properties located near the head of the Big Horn creek. Both properties have been examined, and, the Engineer group in particular, reported upon during the past summer by the Provincial Assayer and by the Dominion Geological Survey. I will say, with reference to the properties on the Big Horn, that as development progressed the holders became more enthusiastic and sanguine as to the value of their respective holdings; and with reference to the Engineer group, whilst shipments made to the smelter gave returns running upwards of $6,000 to the ton, and the first lot of 800 lb. of ore milled on the ground yielded about $3,000, the season's run of all classes of rock, milled for all purposes, was approximately 140 tons, and yielded about $8,000. This of course included much very low-grade rock milled for prospecting purposes. Those results were obtained from a small two-stamp mill which the owners had erected on the property early last spring, and which was operated at intervals throughout the season as they had rock ready for milling.

The entire season's run of all classes of rock milled yielded an average of $57.00 per ton or slightly over 2 1/2 ounces per ton. Attention should be drawn to the fact that this run included much very low grade rock milled for prospecting purposes. After reviewing the property in 1910 the provincial assayer wrote the following report.

MINISTER OF MINES REPORT BOOK 1910 PAGES 57 & 58
ATLIN MINING DIVISION
Notes by the Provincial Assayer

Northern Partnership Group

This property is better known by its old name of the "Engineer group"; the claims now included in the group are: Engineer No. 1, Northern Partnership No. 1, Northern Partnership No. 2, Northern Partnership No. 3, Haddon, Big Engineer Fraction, Little Engineer Fraction, Plato, and Mickey. The owners are the Northern Partnership Syndicate, with head office at Atlin, B.C. The mines are situated on the east side of Taku arm of Tagish lake, ten miles farther up the lake than Golden Gate, in Atlin District. This property, then known as the "Engineer group", was

reported on by the Provincial Mineralogist in 1904; since then it has changed hands, having been purchased by the present owners in 1907. The country-rock on this group of claims is slate, cut by igneous dykes and traversed by numerous quartz veins, some mere stringers and others up to 30 feet wide. A very considerable amount of surface prospecting and development of these veins has been done, consisting of numerous open-cuts and shots put in at different points; in all cases this work has shown up clearly defined quartz veins, traversing the slate formation, cutting through both the country-rock and the dykes before referred to. The general strike of the country-rock is N.65°W., with a dip of 35° to the north-east; the majority of the dykes seem to have a strike 15° farther north, and to have a much greater dip, being 80° to the south-west. These dykes are clearly marked, as, owing to their harder nature, they have been left standing, while the softer slate-rock has been eroded away. The main quartz veins seem to have a general strike of about N.10°W., and a dip of 70° to the east, but there are numerous cross-veins whose dip and strike vary considerably. The actual mining done by the present owners has been confined to the smaller quartz veins, from 6 inches to 2 feet wide, the ore from these veins yielding high values in free gold and tellurides. According to the statement of the owners, 800 lb. of the selected ore yielded 240 oz. of gold, and from the appearance of this ore, which is in places crusted with free gold, there does not seem any reason to doubt the statement.

The larger veins are being openeed up by shots and open-cuts, and are said to give values from $20 to $100 to the ton, but as none of this ore has yet been run through the mill, and until such test has been made, it is impossible to form any safe idea of their value. The quartz looks good, the veins are clearly defined and have been traced for considerable distances, and they can be easily worked, so there is a fair prospect that they will yield fair, if not high, returns.

From the shore of the lake the ground rises abruptly to a bench some 500 feet above the lake; this bench extends back some distance, when the mountains rise to snow-capped peaks 4,500 feet high. At 300 feet above the lake a quartz vein has been worked by two open-cuts, one a little below the other, and having a total length of 170 feet; in these cuts the vein is clearly defined, and has an average width of about 2 feet 6 inches; the quartz carries a considerable amount of calcite and shows free gold in both the quartz and the calcite, with specks of tellurides through the former. The ore is generally quartz with calcite, but in places it is a slate breccia which, from the thin intersecting seams, has yielded high values. The ore from these open-cuts is being carefully sacked and hauled to the stamp-mill on the shore of the lake, and forms the base of the present ore-supply.

A short distance to the north-west a small cross-vein, running towards the vein just mentioned, is being worked by an open-cut, and similar ore has been taken out. About 1,000 feet south of the large open-cuts, and at 100 feet lower altitude, is what is locally known as the "South

Vein". This is a brecciated quartz vein 6 feet wide with well-defined walls, but as yet, no work has been done on it. A small cross-vein runs from this vein to the lake, and from the lake-shore a tunnel is being started which will follow the strike of the vein, which, at this point, is some 18 inches wide, and carries a very large proportion of calcite with free gold crusted on the calcite. Work was commenced on this vein as it showed high values, was close to the stamp-mill, and easy to work.

On the Big Fraction claim, 2,000 feet north of the large open-cuts and 500 feet above the lake, what may be called the main vein has been uncovered by a few shots. This is a quartz vein with a north-and-south strike, and includes an amount of slate breccia; the width of this vein is still undetermined, but may be taken as at least 30 feet, while it has been prospected by an open-cut 1,000 feet farther north and traced still farther through several claims. It is proposed to run a few tons of this ore through the mill to ascertain its value, which is at present unknown.

About 100 feet back from the shore-line and 100 feet above the lake is a quartz vein of undetermined width, but probably 8 to 10 feet wide, to cross-cut which the former owners ran a tunnel in 150 feet and did some 150 feet of drifting. They did not get in far enough to cut the ledge seen above, but cut a number of small stringers, which they drifted on, in one place cutting through about 10 feet of quartz-slate breccia. The present owners intend pushing the tunnel till the vein is reached.

A short distance to the south, where this vein outcrops on the lake-shore, the former owners sunk a shaft, said to be down 70 feet, but it is now full of water, and no data was obtainable from it. Close to this shaft on the lake shore a two-stamp mill was set up in March of this year, and commenced running in June on the rich ore from the open-cuts, yielding, it is stated, 240 oz. of gold from 800 lb. of ore treated; lower-grade quartz was being run through on August 5th, and was said to be yielding $100 to the ton.

The plant consists of two heavy stamps and a double-discharge battery, discharging over two amalgamated plates; a vanner is being set up to save the concentrates, which, at the present time, are going into the lake. Power is furnished by a small engine and boiler, but, when a larger plant is installed, ample water-power is to be had from a stream near the hill.

Summary

The property contains a number of small quartz veins carrying high values in free gold, which give good returns under the present primitive method of working. There are larger veins, which, with a well-equipped plant and economical methods, would probably yield a large tonnage of low-grade quartz which might pay for treatment; these veins should first, however, be prospected and carefully sampled.

Not only did this report confirm the extraordinary richness of the ore (800 lbs. of ore yielding 240 ounces), it also realized the potential for a much larger operation. Certainly ore crusted with free gold visible to the naked eye was as rare a sight in 1910 as it is today.

Like many modern day mining properties, the question of ownership of the Engineer was then contested, curtailing any serious development for several years.

MINISTER OF MINES REPORT BOOK 1911 PAGE 60

On the Engineer group on Taku arm little or nothing was done by the bondee, but the owners did some surface prospecting which revealed several new ledges and shoots of ore, disclosing the existence of a larger area of gold-bearing rock than had hitherto been discovered. The principal reason, perhaps, why more work was not done was on account of pending litigation with reference to a portion of the property. This matter has been adjusted.

The concentrates were shipped to the Tacoma smelter and gave a further return of $1,800, so that about $28,000 would have been realized from the ore treatment.

These operations have exposed large quantities, or bodies of low-grade ore the value of which is difficult to estimate, but they are confidently claimed to carry good values in free-milling gold.

The probabilities are that a large capitalization will be effected upon this property, and that it will be equipped with an efficient modern plant capable of treating all the products of those ledges.

In 1914 the season's run averaged about $100.00 per ton or 4 1/2 ounces per ton.

MINISTER OF MINES REPORT BOOK 1914 PAGE 79

On the Engineer group of mineral claims Captain Alexander employed a force of eleven men from June 17th to the middle of October, during which period he added to the development-work already performed about 200 feet of rock tunnel, 70 feet of upraise, and 40 feet of winze from the tunnel. He also milled about 110 tons of rock, which yielded about $100 to the ton. There will be four men working there throughout the winter.

By 1915 the government engineer reporting on the company had come to the conclusion that in all probability a valuable property had been discovered.

MINISTER OF MINES REPORT BOOK 1915 PAGE 64

On the Engineer mine the owner, Captain J. Alexander, kept a force of from six to twenty-eight men employed practically throughout the year, sinking, driving tunnels, and in open cuttings as well, and he has a small force engaged on development-work this winter.

During the period since last report about 150 feet of sinking, 300 feet of tunnel-work, and about 80 feet of upraise--all in solid rock--was accomplished, with very satisfactory results.

The work appears to be designed for the general development and prospecting of the property, and the ledge-matter encountered is milled on the property, where a 2-stamp mill and small rolling-mill are installed. The concentrates are shipped to the smelter as opportunity or occasion suggests, but last season's concentrates were not shipped because they were overtaken by an early frost and could not be moved. Most of the tailings were lost.

Apart from the ore which was treated as above described and from which a snug clean-up in bullion was recovered, it is estimated that the above-mentioned development-work resulted in the blocking-out of about 6,000 tons of ore which is conservatively estimated to average $150 to the ton. Of course, there are rich streaks throughout that show many thousand dollars to the ton. In fact, the result of part of the work done this winter is that at a depth of 175 feet the rich ledge is found to be more than three times the width shown on the surface, and rock taken therefrom is estimated to run high in gold.

Development seems to justify the belief that a valuable mine has been discovered, and that all the valuable ground in that vicinity is not by any means confined to the area covered by this mine.

In 1916 the mine had reached a state where various groups of capitalists were interested in acquiring it.

MINISTER OF MINES REPORT BOOK 1916 PAGE 46

A considerable force of men was employed upon the Engineer mine during the summer and a few men are doing prospect and development there this winter, but I have had no report from the owner or manager as to output, development, or anything else of that nature, so am not in position to report progress. It is asserted, however, that the mine appears to improve in values and volume as depth is attained.

It is also known that experts of various groups of capitalists have visited and examined the property from time to time, and that negotiations for the acquisition of the property by some of those groups have been under consideration by the owner for some time, but any actual transfer or sale has not yet been reported here.

MINISTER OF MINES REPORT BOOK 1917 PAGE 80

Even on the Engineer mine they seem to have been practically "marking time" pretty much all season, because there appears to have been one relay of "experts" after another on the property, sampling and prospecting it whilst negotiating for its purchase, but no sale has been reported up to date so far as I have heard. A force of from five to fifteen men was employed in and about the mine throughout the summer season, and a small force is operating there this winter, developing and prospecting.

I have not been favoured with any report as to methods, extent, and results of operations by either owner or manager, or as to output, etc., but from such information as I have been able to secure I am led to believe that each successive development exposes increased values and area of highly mineralized ground.

By 1918 all eyes were focused on the development of the Engineer and the government inspector can be quoted as writing the following:

MINISTER OF MINES REPORT BOOK 1918 PAGE 85

Considerable work has been done on the properties adjoining the Engineer, but relatively unimportant when contrasted with the possibilities as demonstrated by the development of the Engineer mine.

MINISTER OF MINES REPORT BOOK 1918 PAGE 87
Atlin Section

This section has been a big producer of placer gold for a number of years, and in all probability will continue to do so for years to come. The section has also produced one quartz property in the Engineer mine, which has all the ear-marks of becoming the greatest gold-producer in the Province. This will naturally stimulate the exploration of the same class of deposits in other parts of the section and will turn attention to lode-mining in general, which, so far, has been neglected.

Now just when everything was coming to a successful completion, fate was to change the history of this property and tie it up in litigation for several years. This was caused by the untimely death of the owner of the property, Captain James Alexander.

MINISTER OF MINES REPORT BOOK 1918 PAGE 100
Mineral Claims

The scarcity of labour and of capital for development purposes affected the quartz-mining industry also, as was the case last year, so that

very little besides ordinary assessment-work was done upon any quartz properties throughout the district, with the exception of the Engineer mine on Taku arm and the Maid of Erin and associate claims in the Rainy Hollow section.

On the Engineer mine the usual force of from eight to fifteen men was employed during the summer, although again (as last year) they appear to have been practically "marking time" because of the illness of Captain Alexander (the recorded owner) and the continued negotiations on the part of certain capitalists for the purchase of the property.

Those were brought to a sudden and tragic end for the time being by the loss, on the ill-fated steamer "Princess Sophia" of Captain Alexander and his wife, together with three men who had been inspecting the mine, being a mining engineer, the manager for and an agent of the prospective purchasers, and since then everything at the mine is at a standstill.

Here reprinted from the Minister of Mines Report Book 1918, pages 90, 91 and 92 is a lengthy report correlating all previous work done on the property.

Engineer Group

This group comprises eleven Crown-granted claims--Northern Partnership No. 1, Northern Partnership No. 2, Northern Partnership No. 3, Northern Partnership No. 4, Northern Partnership No. 5, Engineer No. 1, Mickey, Plato, Philadelphia Fraction, Mill Brook, and Daisy--situated on the east side of Taku arm, about ten miles south of Golden Gate, sixty-five miles from Carcross, on the White Pass Railroad, and twenty-five miles from Atlin. The claims are located two deep along the shore from the water's edge up the hill. The property was owned by the late Captain James Alexander, who, with Mrs. Alexander, were lost in the S.S. "Princess Sophia" diaster in Lynn canal in October of this year. The captain had "stayed with it" at this one property for over ten years through all kinds of adverse conditions, and was on his way out to close a deal for the property, and reap the reward, when the fates decreed otherwise. No information is available at the present time as to the future plans for the property.

Quoting from D.D. Cairne's report of 1913, "The ores at the Engineer mine occur in veins mainly in Jura-Cretaceous shales and finely textured greywackes that vary from dark greenish and brownish to almost black in colour. The veins range from simple veins a few inches in thickness to compound veins over 200 feet thick, and consist largely of quartz, calcite, and intercalated and brecciated wall-rock. The chief metallic mineral is native gold; in addition, small particles of tellurides, as well as some pyrite and native antimony, also occur. The veins are thus of value only for their gold contents.

"The beds have been invaded by dykes of andesite and granite porphyry, and in places are faulted, folded, and considerably distorted, but have a general strike of about N.63°W. and dip to the north-east at an average angle of about 35 degrees.

"Two large, central, compound veins or hubs consisting of quartz and intercalated and brecciatd shale, slate, and altered rocks occur, from which several veins radiate, most of them in north-westerly and south-easterly directions. In addition, a number of veins have been discovered which are not, as yet, traceable to any central quartz area.

"Hub A is at least 200 feet wide at its widest point and is over 300 feet in length. The mass consists largely of quartz, but also contains a large proportion of intercalated bands of shale slate.

"Hub B is very similar in appearance to hub A, contains a large amount of intercalated and brecciated shale and slate, and is in reality a compound vein. It is at least 270 feet wide. Toward the edges of the vein the proportion of rock gradually increases, producing walls of indefinite character.

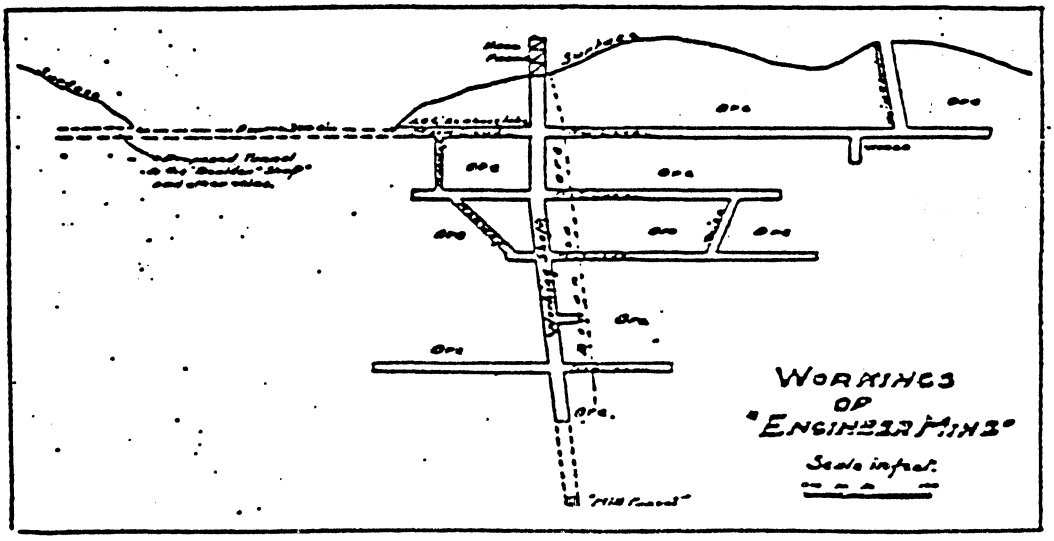
"The majority of the narrower veins are compounded almost entirely of quartz, with comparatively little calcite. The quartz is characteristically well crystallized and long delicate prisms are very common; these occur in parallel bands with comb-structures or radiate from a central mass or particle of ore or rock. In the intercrystal spaces that thus result the metallic minerals have largely been deposited.

"Native gold is the most common metallic mineral in the veins, and is in places plentifully distributed through pockets or shoots of ore either in fine grains or thin scales. Associated with the gold in places are imperfect prismatic forms or brass-yellow tellurides, probably calavertie."

Development-work done on the property consists of a great number of open-cuts and strippings and several tunnels driven on the most promising-looking veins. This surface work has exposed about twenty-five veins, varying in width from a few inches up to 4 feet, the majority of them showing visible gold at some place in them and a few of them containing shoots and pockets of bonanza ore. Two of these are especially rich, the "boulder vein" and the "shaft vein". The greater part of development so far has been on vein E. (See sketch). A shaft has been sunk 275 feet from the surface, from which four levels have been run. No. 1 level is 50 feet below the collar of the shaft and is driven from the surface at 460 feet elevation above the lake. This is the working-level to which all ore and waste is hoisted from the underground workings. From the mouth of the tunnel to the shaft is 115 feet, and the tunnel has been continued beyond the shaft for 355 feet, all on the vein. At 270 feet beyond or south of the shaft a raise has

been put through to the surface. No. 2 level, 45 feet below No. 1, has been driven 100 feet north and 190 feet south of the shaft, on the vein both ways. A manway has been put through from the end of the north drift to the No. 1 level, coming out about 30 feet from the portal. No. 3 level, 50 feet below No. 2, has a short drift of 30 feet, north from which a sloping manway has been put up connecting with a manway from No. 2 level, and a drift sunk of 210 feet, from which a raise has been driven to No. 2 level. No. 4 level, 90 feet below No. 3, has a drift north of 140 feet and south 90 feet, both on the vein. The shaft has been continued for 40 feet below the No. 4 level during the past summer, showing the vein to be 2 feet in width, with visible gold on each wall. All this underground work has been in ore. There is a bonanza shoot of ore showing for a length of about 30 feet on all the levels on the south side of the shaft, varying in thickness from a knife-blade to 6 inches of heavy gold, in one place reaching a width of 18 inches.

In development-work the waste is broken about 10 feet ahead of the ore, which is afterwards taken down with as little shooting as possible and taken to the sorting-tables, where it is broken up and sorted into three grades. The first grade is that showing visible gold, which is sacked for treatment in a ball-mill. The second grade, no visible gold, is known to be high grade, from $125 to $175 a ton, and is sacked for shipment. The balance or third grade is put on the dump for future treatment. The first grade is accumulated until there is sufficient for a run of the mill, from 600 to 1,000 lb. being the usual charge. It is first put through a small jaw-crusher which crushes to about 1/4 inch size; then into a 5-foot ball-mill using steel balls, where it is pulverized in from two to two and a half hours. Two or three flasks of mercury (from 150 to 225 lb.), according to the estimated gold content of the ore, are then added and the barrel revolved for twenty or thirty minutes (a longer time flours the mercury) for amalgamation. The contents are then thoroughly washed and the amalgam removed, squeezed, and retorted. The record run of this mill was 24 lb. 8 oz. (troy) of gold from 160 lb. of ore. The tailings from the ball-mill are washed into tanks, settled, dried, and shipped to the smelter with the second



grade of sorted ore. The amalgamation in the ball-mill is a great improvement over the old 2-stamp Joshua Hendy mill previously used, the polishing effect on the gold of the ball-mill grinding being of great assistance in the amalgamating. The old stamp-mill was supplied with ore taken for the most part from the surface cuts and packed to the mill on men's backs.

A very comprehensive scheme of development had been carefully planned and considerable of it done this year. (See map) What is termed the "mill tunnel" was started from a point above the old mill, and driven 309 feet on a line toward a point directly under the working-shaft on vein E. This tunnel, when completed, will be about 1,200 feet long, and will not only tap five or six intervening veins showing on the surface, but will furnish haulage-way for all the ore from vein E when connection is made by sinking the shaft to connect with this tunnel. It is proposed to install a concentrating plant on the site of the old mill. Further development consists of a crosscut tunnel, called the "boulder vein" tunnel on the same level as the shaft tunnel, No. 1 level, east into the hill to undercut the series of veins exposed farther up the hill, the principal ones being the "boulder and shaft" veins. This will provide for transportation of ore from these upper veins to the shaft, to the "mill tunnel", to the mill. This tunnel has only been worked at intervals and a distance of 50 feet been driven, requiring probably 360 feet farther to reach the "boulder" vein, and about 900 feet to reach the farthest of the upper series of veins, and obtaining a depth of 460 feet under it. The old 3-compartment shaft at the head of the mill will be sunk from its present depth of 75 feet to intersect a very rich vein cropping at the water's edge, and on which a shallow shaft was sunk a short distance back from the water. This vein is known to run into hub A; consequently can be drifted on from the shaft to the hub, and all ore developed from it hoisted through the shaft to the mill storage-bins. This appears to be a very commendable plan of development, for it will not only provide haulage, but will expose any number of working-faces of ore, from which a large capacity mill can be supplied.

Altogether it is a wonderful showing of gold, and there is every reason to believe that it can be developed into one of the greatest gold-producers on the continent.

Special attention should be paid to grades mentioned in the paragraph above the diagram of the mine. The lowest grade ore was sent to the dump for future treatment. The second grade showing no visible gold averaged $125.00 to $175.00 per ton or $1,000.00 to $1,400.00 at today's prices. The first grade ore showed visible gold to the naked eye and was hand sorted. The record run of this first grade ore in the mill was 160 lbs. of ore which yielded 24 lbs. 8 ounces of gold.

In assessing this and previous reports what more can be said but than to quote from the last two lines of this government report:

"ALTOGETHER IT IS A WONDERFUL SHOWING OF GOLD, AND THERE IS EVERY REASON TO BELIEVE THAT IT CAN BE DEVELOPED INTO ONE OF THE GREATEST GOLD PRODUCERS ON THE CONTINENT."

Now all work ceases at the Engineer as a legal battle which will take years to straighten out commences for ownership of the property.

MINISTER OF MINES REPORT BOOK 1919 PAGE 86

With respect to the Engineer mine, nothing has been done this year because of the unsettled state of affairs consequent upon the sudden death of the recorded owner last year, but an administrator has been appointed, and such progress as was possible under the circumstances has been made in the matter of adjustment, and it is probable this property will be in active operation again before the end of next season.

Not only did this tragic accident curtail development of the Engineer it also put the whole Atlin Mining Division in a state of limbo as the following reports indicate.

MINISTER OF MINES REPORT BOOK 1919 PAGE 91

No work of any note has been done on the Engineer mine, and owing to the many complications encountered in adjusting the affairs of the late Captain Alexander, the resumption of operations on this property at an early date is problematical. The property was described in detail in the Minister of Mines' Report of 1917. It is regrettable that this, seemingly the only property in the Division, cannot be brought into production operations and so provide a stimulant to the present stagnant mining conditions in that portion of the Province.

MINISTER OF MINES REPORT BOOK 1920 PAGE 74

With respect to the Engineer mine, I may say that not much development has been attempted since the death of the late Captain James Alexander, who was the registered owner at the time of his death. Last summer four men were engaged in development-work for a portion of the season, but this work was halted from time to time to permit of examination of the underground workings by mining engineers representing prospective purchasers. No shipments of ore were made nor was the stamp-mill used.

As the ownership and even the title to the property has been challenged, not much, if anything, will be undertaken until the pending litigation is disposed of. It is unfortunate for the district that those difficulties have arisen, as they have a decidedly deterrent influence upon the development of this part of the district, for,

whether reasonably or otherwise, prospective purchasers as well as present owners appear to be "marking time" awaiting developments with respect to the Engineer.

MINISTER OF MINES REPORT BOOK 1920 PAGE 85

With respect to the Engineer mine, I need only say that the title and ownership is the subject-matter of pending litigation and that all development is at a standstill.

As to other quartz properties throughout this portion of the district, I may say that the owners are "marking time" awaiting the outcome of the litigation with respect to the Engineer mine, and not much, if any, active development is likely to be undertaken until that is settled.

Nothing has been done in the way of developing the coal or hydromagnesite deposits in this district since last report.

MINISTER OF MINES REPORT BOOK 1920 PAGE 258

Engineer--I inspected this property on July 27th. Four men were employed at the time in keeping the property in repair and doing development-work. The work is in charge of Reggie Brooks, foreman, and I was advised by him that the property was under bond to the Ecla Copper Company, a corporation from the State of Nevada, U.S.A. I found all conditions having reference to the mine-workings, sanitation, ventilation, timbering, etc., also conditions of bunk-houses, cook-houses, etc., to be in strict keeping with the "Metalliferous Mines Inspection Act".

MINISTER OF MINES REPORT BOOK 1921 PAGE 39

The question naturally comes up as to whether this output may be expected to be maintained, or possibly increased. The three great producers, Belmont-Surf Inlet, the Granby Consolidated, and the Premier Gold Mining Company, give every reason to believe that their present outputs can be maintained for some years to come, but are probably up to capacity production under present conditions. Any material increase in output must therefore be looked for from new shippers. The one that appears to give the most promise for the near future, from all reports, is the Engineer mine at Atlin. This property is now free of litigation and in all probability will be put under active operation.

MINISTER OF MINES REPORT BOOK 1922 PAGE 91

Engineer

(See Geological Survey of Canada, Memoir 37, by D.D. Cairnes and Minister of Mines' Reports, 1904, 1918.) This property has been in litigation since the death, in 1918, of its former owner, Captain James Alexander. The suit was carried to the Privy Council, and decision rendered this year in favour of Captain Alexander's heirs, the Smith interests. The mine was taken under option for examination by L.H. and N.A. Timmins, of Montreal, in June of this year and an examination made by their engineers. No information is available as to the results of the investigation. Nothing further seems to have been done. The operation of this property would have a very beneficial effect on the whole Atlin country, and it therefore is hoped that work will be resumed.

MINISTER OF MINES REPORT BOOK 1922 PAGE 90

Engineer

I visited the property in the latter part of June. At that time operations had not been started and no definite plans known for the future. Some time later A. Sostad was put in charge of development-work for New York interests. The crosscut tunnel started just above the lake, and driven some distance by the late Captain Alexander toward the bottom of the shaft on E vein, is being advanced and is reported to have cut one of the four expected cross-veins showing on the surface. Work is being carried on all winter. It is to be hoped that the property will be allowed to operate clear of litigation, with which it has been cursed since Captain Alexander's death on the "Princess Sophia".

By 1924 it looked as though the Engineer was finally going to get its chance to go into production and thereby, once again provide a stimulus for the development of the entire district.

MINISTER OF MINES REPORT BOOK 1924 PAGE 77

The outstanding feature of the Division this year is the resumption of operations at the Engineer mine, which has been idle and in litigation since the owner, Captain James Alexander, was drowned on the "Sophia" in 1918.

Adjoining properties will doubtless become active and prospecting in general will be revived.

MINISTER OF MINES REPORT BOOK 1924 PAGE 77, 79

During the regime of the late Captain Alexander a great deal of prospecting and development-work was done; the former consisting in the main of innumerable open-cuts which exposed some twenty-five small quartz veins showing free gold in many of the exposures. The underground development was practically confined to the "E vein" on which a shaft had been sunk 275 feet, from which four levels had been run both ways. From this work, both surface and underground, considerable ore had been extracted and treated in, formerly, a 2-stamp Joshua Hendy mill and latterly in a small ball-mill. The record run of the ball-mill is said to have produced 24 lb. 8 oz. of gold from 160 lb. of ore. A comprehensive plan of development had been planned and gotten under way to the extent of driving what is known as the "mill tunnel" about 300 feet.

Late last fall the property was examined and bonded by Andrew Sostad for New York interests. A lot of work was done during last winter and continued throughout 1924. The Engineer Gold Mines, Limited, was incorporated in May of this year and took over the bond. This company was organized in the State of Delaware, with a capitalization authorized at $1,000,000 and a paid-up capital of $1,000,000. The head office in the Province is in Vancouver.

Since the company took over the property extensive work has been carried on with a crew of from thirty to sixty men. Camp buildings have been erected, a power plant and transmission-line installed, a concentrator built, diamond-drilling done, and the driving of the "mill tunnel" continued.

Underground work in the driving of the main tunnel was pushed ahead, reaching its objective, under the E vein shaft, in December, at about 1,200 feet. This obtains a depth of 50 feet below the 40-foot sump or 30 feet below the No. 4 level of the shaft. My information is that the same width and rich quality of ore was encountered as occurs in the shaft levels above. A raise is being put up to the bottom of the shaft and drifts run both ways on the vein from the tunnel, thus making this ore-body available for milling right away. Four or five small veins were crossed in the driving of the main tunnel, one of which shows fine ore. All of these will ultimately be developed. With a crosscut tunnel driven under the upper series of veins and connected with the shaft and working-tunnel, the property will be in excellent condition to maintain an ample, rich feed for the mill and a resultant steady output of gold.

Active development work commenced once again in 1925. Unfortunately it appears the promoters of the new company were more interested in the price of the company's stock than the development of the property. During the year some extremely high grade ore was encountered and the company stock soared to over $100.00 per share in New York. Subsequently some of the principals of the company were no longer

interested in mine development and the property was destined to haphazard development.

MINISTER OF MINES REPORT BOOK 1925 PAGE 115

Though the company's stock reached the unwarranted price of over $100 a share in New York this summer, there were no sensational developments whatever in the mine. Many short ore-shoots have been drifted through in different parts of the mine, but none have as yet been explored to disclose any substantial tonnage of milling-ore, and until such tonnage is exposed underground the speculative element remains.

The output for 1925 was 1,700 tons mined and milled, producing 1,814 oz. gold and 843 oz. silver. Any concentrates made are being stored until navigation opens next spring.

It should be noted that production for 1925 averaged over 1 ounce gold and almost 1/2 ounce silver per ton. High grading of the mine was to continue for the next several years.

MINISTER OF MINES REPORT BOOK 1927 PAGE 110

While placer-mining in the Atlin section has been stressed, the lode-mining situation is not discouraging. Unfortunately, the Engineer mine has closed down for the winter again, but, to compensate this, J.M. Ruffner has been working a crew of twenty men at the Atlin Silver-Lead mines since his return to the district in October. With a crew of this size on the ground the value of the property should be determined before long.

MINISTER OF MINES REPORT BOOK 1927 PAGE 112
Atlin Lake Section

Engineer Gold Mines, Ltd.

This company was incorporated in the State of Delaware with a capitalization of $1,000,000, and in May, 1924, was registered in British Columbia. The properties consist of the Engineer group of seven claims, situated on the east side of Tagish lake, near the south end. The main part of the mine was closed last winter while a shaft was being sunk on one of the big quartz hubs, or circular pipes, from which some of the veins seem to radiate. Stoping and underground exploration were resumed in the spring and continued till the early fall, when the mine was again closed down for the winter. It is expected that it will be reopened in the spring, as fairly encouraging results were said to have been obtained from development-work late this last summer (1927).

MINISTER OF MINES REPORT BOOK 1928 PAGE 123

The Engineer was reopened in the spring and explorations were continued on the lower levels, where good ore is said to have been found along the main vein on the 800-foot level. The property has been closed down again for the winter, but it is the intention of the company to resume operations early in the spring.

MINISTER OF MINES REPORT BOOK 1929 PAGE 120

At the Engineer a crew of about twenty-five men started early in April in further exploration of the lower levels. This work was later suspended. Although future prospects for profitable operation under present conditions are not considered bright, definite information regarding any resumption of operations on this property is not available.

Operations ceased temporarily in the fall of 1928 and recommenced early in June, 1929. The lower workings of the mine had been allowed to fill with water, which was pumped out again during June. Operations for the year were suspended in September. An average of twenty men was employed during operations. No ore was milled or shipped during the year.

MINISTER OF MINES REPORT BOOK 1930 PAGE 123
Atlin Lake Section

Engineer

Further exploration of this property was resumed early in the season with a small crew. Development was being concentrated on the extension of the main crosscut with a view to exploring the commercial possibilities of the large replacement shear from which the small high-grade veins radiate. This work was carried on efficiently and continuously throughout the summer season and late into the fall, when financial complications arose. These operations were sponsored by C.V. Bob, of New York. It is understood that further exploration of this property may possibly be undertaken by other interests.

MINISTER OF MINES REPORT BOOK 1931 PAGE 197
Atlin Mining Division
Taku Arm Section

Engineer

This mine is operated by the Engineer Gold Mines Limited. Operations at this mine ceased on October 15th for the year, since which date the work has not been resumed. Two men are stationed at the mine to take

care of the property until operations are recommenced. General conditions were found to be satisfactory.

The Bureau of Mines in 1932 printed bulletin number one which was to make professional mining men take a different and more serious look at the Engineer Gold Mine.

MINISTER OF MINES REPORT BOOK 1932 PAGE 65
Atlin Lake Section

Engineer

During the season some selective mining was undertaken in the known rich areas of the small veins on this property by Reginald Brooks and some gold was extracted. This property is described in former Annual Reports and referred to in Bulletin No. 1, 1932, on page 24, under "Belt (D), Sub-belt (1)". In this it is stressed that the possibility of a mill-grade ore potentiality of this property from the large replaced shear-zones known to occur on the ground remains to be proved and has not yet been adequately explored.

BULLETIN NO. 1 1932
Bureau of Mines

(D) Interior Satellite Contact Margin Belt

This belt embraces the Stikine Division east of a line drawn from about Echo lake to Telegraph Creek, the entire Liard Division, the Atlin Division east of belt (C), north of the 59th parallel and east of Rainy Hollow section. It is geologically characterized by a thick covering of roof-rocks varying from probably pre-Cambrian (Yukon series) to Tertiary and Recent. Numerous granodioritic and granitic satellites (alkali-siliceous) are intrusive into the formations up to probably slightly later than Lower Cretaceous.

Gold-bearing deposits of this belt occur generally in quartz and quartz-calcite veins or quartzose-carbonate replacement zones in Jura-Cretaceous shales, slates, greywackes, andesitic tuffs, amphibolites, hornblende-schists, hornblende diorite, and magnesian rocks. The quartz of the gangue is milky, well crystallized, sometimes drusy or vesicular, occasionally banded and with comb structure, and in places markedly chalcedonic in texture.

Mineralization is typified by native gold, with gold telluride in places, associated generally with subdued galena, pyrite, chalcopyrite, and some tetrahedrite mineraliztion. The deposits are probably of intermediate to low temperature origin, occurring at a high horizon in the roof-rocks above the main batholith-mass and in proximity to what are probably the cupola areas of granitic satellites of the deeply

buried main batholithic mass. In the cited areas a wide distribution of quartz veins occurs, especially in those sections characterized by placer-gold deposits, and are probably the lodes from which these placer deposits originated. Although on account of the long process of erosion and concentration which has resulted in these placer deposits, it is not essential for the lodes from which they originated to have originally contained commercial gold values, it is also not improbable that in some sections or horizons they did. Although generally the present outcrops of these veins may only contain low-grade and sparse gold values, and as some indications of free gold have been found in them, it is not improbable that with further investigation and prospecting with systematic sampling, commercial shoots may be found in them along the present outcrops and along some deeper unexposed horizons of their vertical projection. Barren and low-grade ore horizons intervening between horizons of commercial grade are characteristic of many lode-gold deposits in various parts of the world.

Two types of ore-deposit occur in this belt:-

(1) Native gold and gold telluride with some pyrite, occasionally some allemontite, and practically a total absence of other sulphides.

This type is represented by the Engineer, Gleaner, Kirkland, and Happy Sullivan groups, all situated at the south end of Taku arm, Tagish lake, Atlin Division.

The gold occurs in pockets and small shoots generally in the form of very thin scales, thin leaves, fine dendritic forms, and sometimes peppered through the quartz in fine grains. Cairnes has specified the gold telluride as probably mainly calaverite. The wall-rock is slate, shale, and in the case of the Happy Sullivan, what is probably an altered water-lain tuff. In the small quartz veins and stringers some very rich small pockets of ore occur in erratic distribution. In the brecciated replaced shear-zone type a generally low-grade gold tenor prevails. From the Engineer a limited tonnage of rich ore has been mined and shipped from pockets in the small veins, but a possible mill-grade potentiality of this and adjoining properties from the large replaced shear-zones has not yet been proven and still remains to be adequately explored.

In 1933 one of the last known comprehensive reports was compiled and published on the Engineer Gold Mine.

MINISTER OF MINES REPORT BOOK 1932 PAGES 73 & 74
Atlin Lake Section

Engineer

During 1933 some selective mining was undertaken in the known rich areas of the small veins on this property by Reginald Brooks, and a

small tonnage of high-grade gold ore was extracted and shipped. This property is described in former Annual Reports and is referred to in Bulletin No. 1, 1932, on page 24, under "Belt (D), Sub-Belt (1)". It is stressed that the possibilities of mill-grade ore potentialities from this property, from the large replaced shear-zone known to occur on the ground, remains to be proved and has not yet been adequately explored.

During 1933 an examination of this property was made by the Resident Engineer for the purpose of studying the structural and genetic relation to the veins of the granitic intrusion lying easterly to south-easterly of the Engineer vein system. It would seem that the Engineer veins owe their origin to this granitic intrusion, which comes up at a comparatively flat angle on the south and south-east, assuming a shallow wavy roof southerly and easterly of the Engineer vein system, and then plunges west and north-west beneath the siliceous shales and argillite of the Lower Jurassic Laberge series in which the veins occur. Cutting through the vein system and striking north-westerly a shear-zone occupies a topographical depression extending from the most southerly granitic outcrop, at elevation 3,175 feet, to the lake-shore at the camp. The smaller veins on which former development was mainly concentrated strike at an angle of about 45°, or less, to this shear and are probably faulted by it.

Where the shear-zone has been crosscut in two places on the No. 5 level it shows a width of from 20 to 40 feet of crushed and brecciated slates, containing veins and stringers of quartz, in places showing intensive silicification, and generally is well mineralized with pyrite in veinlets and fine disseminations. At the time of examination (in 1930 and 1933) the sixth, seventh, and eighth levels were flooded and consequently were not accessible. It is reported, however, that the shear-zone was intersected by a crosscut from the eighth level and that it showed similar width and mineralization to that disclosed on the fifth level. It is also reported that where intersected and partially explored on both the fifth and eighth levels, low-grade but indicative gold values were found in sections of the shear-zone.

Very high-grade gold ore occurs in the small veins where they have been opened up, and it characteristically is found in small "pockets", "bunches", or "lenses" in erratic distribution and frequency. Whereas no appreciable tonnage can be expected from these small pockets as shown by present development in the upper horizons, from the eighth level to the surface, yet their exceptional richness should make small-scale, economically conducted, selective mining a profitable enterprise, provided it is not burdened by excessive overhead and company structure. Further depth exploration and development of these smaller veins paralleling the plunging granitic contact is warranted.

The bulk of the mining so far done on the small veins has been on the fifth level and between that level and the surface, mainly on the "E" and "Double Decker" veins. It is understood that only a very limited

amount of stoping has been done between the eighth and the fifth levels. On account of the loss of early records in the wreck of the C.P.S. "Sophia", estimates of production from the mining of the small veins varies between wide limits. Official Government records show, however, that between 1913 and 1932 about 17,418 oz. gold was produced, about 65 percent of it being produced between 1925 and 1927. Further production of this type is possible from further development of the small veins laterally and in depth both below the present lowest working-horizon. Intensive and closely spaced exploration in the area already opened up between the eighth level and surface may also disclose further pockets of high-grade ore. There are several veins on the property which have received little or no exploration at depth, and in which there is a good chance of opening up the characteristic high-grade pockets of ore. These include especially a series of small veins lying east of the shear-zone and amongst which are the "Shaft", "Governor", "Andy", "Boulder", "Blue", "Fov", and "Collins" veins.

A larger and continuous vein called the "Mickey", located towards the north-easterly portion of the property and extending north-easterly from "Hub B", has had practically no underground exploration done on it. It is considered, therefore, that additional possibilities of small-scale high-grade production from the numerous small veins on the Engineer group have not been exhausted or fully explored. With further work additional pockets and lenses of ore in the known veins and also in "blind" veins, or veins not known to outcrop, may be discovered. It is, however, stressed that the character of these smaller veins indicates high-cost mining from restricted but high-grade pockety ore-tonnage. It is possible that in the aggregate ore of appreciable value could be extraced from the small veins.

There is no evident criterion regarding the definite depth to which the present ore-bearing characteristics of the smaller veins may persist. However, it should be considered that the vein characteristics indicate an origin from solutions of medium-low temperature. The veins were consequently formed and mineralized comparatively close to the original surface (say at a depth of about 5,000 to 8,000 feet). The depth-continuity is consequently dependent on the depth to which subsequent erosion has extended. For this type of vein it must also be stressed that the vein-structure itself will continue for an appreciably greater depth than the commercial mineralization in it.

In considering the further exploration and development of this property, the possibility for the development of a larger but lower-grade tonnage than that to be obtained from mining the smaller veins is suggestedf in the possible development of low-grade ore in the shear-zone. The structure and general mode of occurrence of the Engineer vein system suggests the shear-zone was possibly an introductory channel for mineralizing solutions, with slightly higher-temperature and more dispersed mineralizing aspects than the smaller marginal or lateral veins. Gold values in the shear-zone would consequently be expected in dispersed pyritic mineralization in

APPENDIX B

ASSAY CERTIFICATES

:OSSBACHER LABORATORY LTD.
2225 S. SPRINGER AVENUE
BURNABY, B.C. V5B 3N1
TEL : (604) 299 - 6910

CERTIFICATE OF ANALYSIS

J : ARCTIC ENGINEERING LTD.
BOX 59
ATLIN, B.C.
ROJECT No.: DE BACA RESOURCES

CERTIFICATE No.: 84398 - 1
INVOICE No.: 4435
DATE ANALYSED: SEPT.20,1984
FILE NAME: ARC398

PRE FIX	SAMPLE NAME	oz/t Au	oz/t Ag
A	01	0.006	0.04
A	02	0.052	0.28
A	03	0.350	0.42
A	04	0.018	0.32
A	05	1.000	0.82
A	06	0.018	0.10
A	07	0.054	0.22
A	08	0.026	1.38
A	09	0.005	0.08
A	10	0.005	0.06
A	11	0.004	0.30
A	12	0.013	0.10

CERTIFIED BY : F. Rossbacher