SUMMARY REPORT

ON THE LIKELY PROJECT

CARIBOO MINING DIVISION

NTS 93A/11W, 12E Latitude 52[°]39'; Longitude 121[°]36'

CAROLIN MINES LIMITED

bу

JOHN DELEEN, M.E., P.Eng.,

Vancouver, B.C.

June 30, 1982

TABLE OF CONTENTS

	THEE OF SOMETIME	PAGE
۱.	SUMMARY	1
11.	CONCLUSION	2
	INTRODUCTION	3
IV.	LOCATION AND ACCESS	5
٧.	CLAIMS AND CLAIM GROUPS	6
VI.	HISTORY	7
VII.	GEOLOGY	10
VIII.	WORK COMPLETED ON THE LIKELY PROJECT	1 4
	A. GEOPHYSICS B. GEOCHEMISTRY	1 4 1 7
IX.	RECOMMENDATIONS	21
х.	ESTIMATE OF EXPENDITURE	23
	CERTIFICATE	24
	BIBLIOGRAPHY	25
	TABLE - List of Claims and Claim fol Groups	lowing page 6
	TABLE II - Assay Distribution Parameters	15
	APPENDIX I - Analytical Procedures APPENDIX II- Histograms of Geochemical Data	
	AFFERDIA II- HISLOGRAMS OF GEOCHEMICAL DATA	

LIST OF ILLUSTRATIONS

		following page
FIGURE 1 - Location Map	1:2,400,000	5
FIGURE 2 - Access Map	1:250,000	5
FIGURE 3 - Claim Map	1:100,000	in pocket
FIGURE 4 - Regional Geology	1:300,000	10
FIGURE 5 - Geology and Geophysics	1:20,000	in pocket
FIGURE 6 - Geochemistry-North Gri	d	**
	1:5,000	11
FIGURE 7 - Geochemistry-Central "	1:5,000	11
FIGURE 8 - Geochemistry-South "	1:5,000	"

I. SUMMARY

The Likely Project consists of 27 modified grid claims Jointly containing a total of 368 units, which are, owned by Carolin Mines and figures Resources Inc. Limited / The claims, which are drained by several streams that produced placer gold in the past, are underlain by an assemblage of mafic lavas, volcanoclastic sediments and intrusive rhyolite to diorite dykes and stocks. Prior to 1981, the exploration work completed by various companies to find the lode mineralization in the area had included limited soil geochemistry, diamond drilling and reconnaissance geological mapping. This work failed to find the source of the placer gold in the Likely area. In February 1981, an airborne magnetometer and electromagnetometer survey was completed by Carolin Mines, and eight anomalous areas were found. In October 1981, four of these areas were investigated by geochemical surveys, and anomalous gold values were found in the four areas investigated. The anomalous gold values were found in the samples both with and without anomalous arsenic values.

A program of geochemical sampling, magnetometer surveying and geologic mapping is warranted on the four areas investigated and also on the remainder of the claim area. With the completion of this work, a program of percussion drilling will be needed to evaluate gold-bearing anomalies.

II. CONCLUSION

The first part of the investigation of the Likely claims in 1982 will be a geochemical and magnetometer survey and a geological mapping program for an expenditure of \$175,000. The second part of the investigation will be a percussion drilling program for an expenditure of \$175,000. The total estimated expenditure for 1982 will be \$350,000.

111.INTRODUCTION

The Likely Project, which covers an area of approximately 8,680 hectares, is located in the old Likely Placer Mining District of British Columbia. The claims were optioned from R. E. Mickle by Aquarius Resources Ltd. and Carolin Mines Limited in 1979. Carolin Mines purchased the Aquarius interest in 1982. These claims were optioned on the premise that local bedrock gold deposits produced the placer gold. Added encouragement was received when an airborne magnetometer and electromagnetometer survey, followed by geochemical surveys, was completed in 1981. The following geophysical anomalies were identified as priority targets:

- 1. T-1: EM Anomaly on JUN 9 Claim
- -2. T-2: EM Anomaly on Easy 6 Claim
- 3. T-3 : EM Anomaly on Easy 1 Claim
 - 4. T-4: Magnetic and EM Anomaly on Easy 5, Easy 3 and JUN 10 claims
- 5. T-5: Magnetic Anomaly on Easy 4 and Easy 1 claims
 - 6. T-6: Magnetic Anomaly on June, Dug and Rose 3 claims
 - 7. T-7: Magnetic Anomaly on July 1 Claim
 - 8. T-8: Magnetic Anomaly on JUN 9 and Dug claims

Four of the geophysical anomalies, T-2, T-4, T-5 and T-6, were investigated by geochemical surveys. All of these anomalies were found to contain anomalous values of gold (Figures 5, 6, 7 & 8).

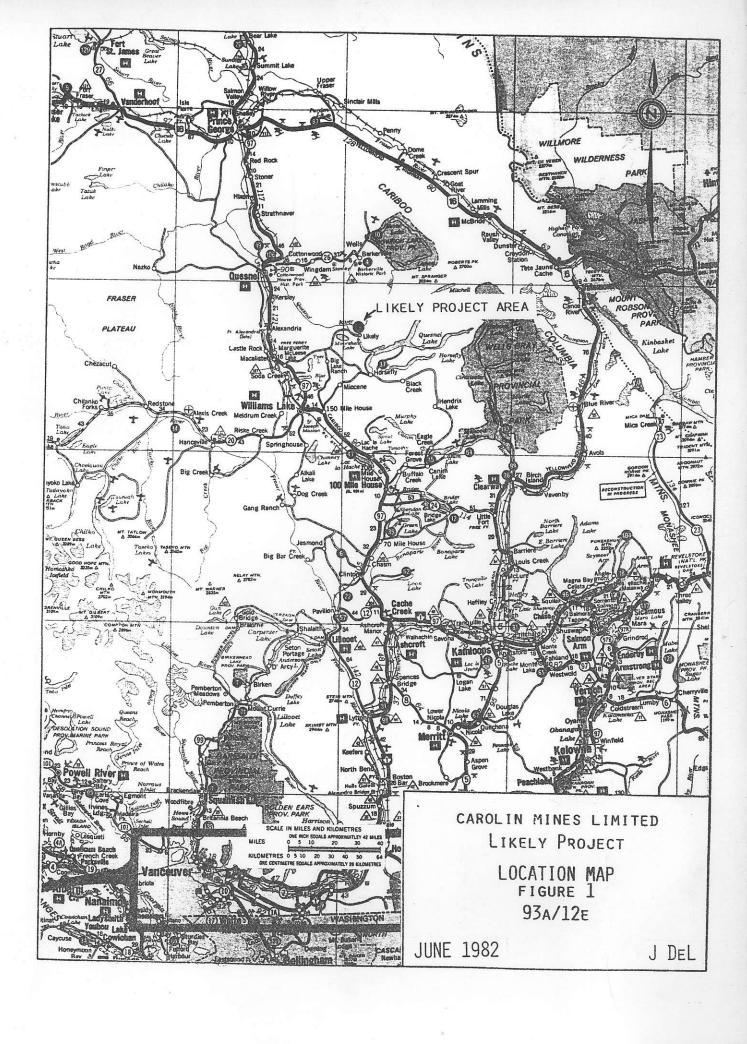
Follow-up work on the anomalous areas already investigated and on the remainder of the claim area is warranted. Geochemical surveys are recommended over the entire claim block despite the fact that an airborne survey has been completed. The airborne survey would identify areas of sulfide mineralization. It would not, however, disclose the presence of veins or zones of silicification or disseminated gold deposits occurring in argillaceous sediments. The proposed work will, therefore, outline, in part, the targets already found, prospect all of the claims, and give useful information upon which a decision can be made to hold or eliminate some of the claim blocks. This report, therefore, covers the work completed to date and makes recommendations for an exploration program for 1982. It has been completed from a property examination made on June 9, 1981, and from the reports listed in the bibliography.

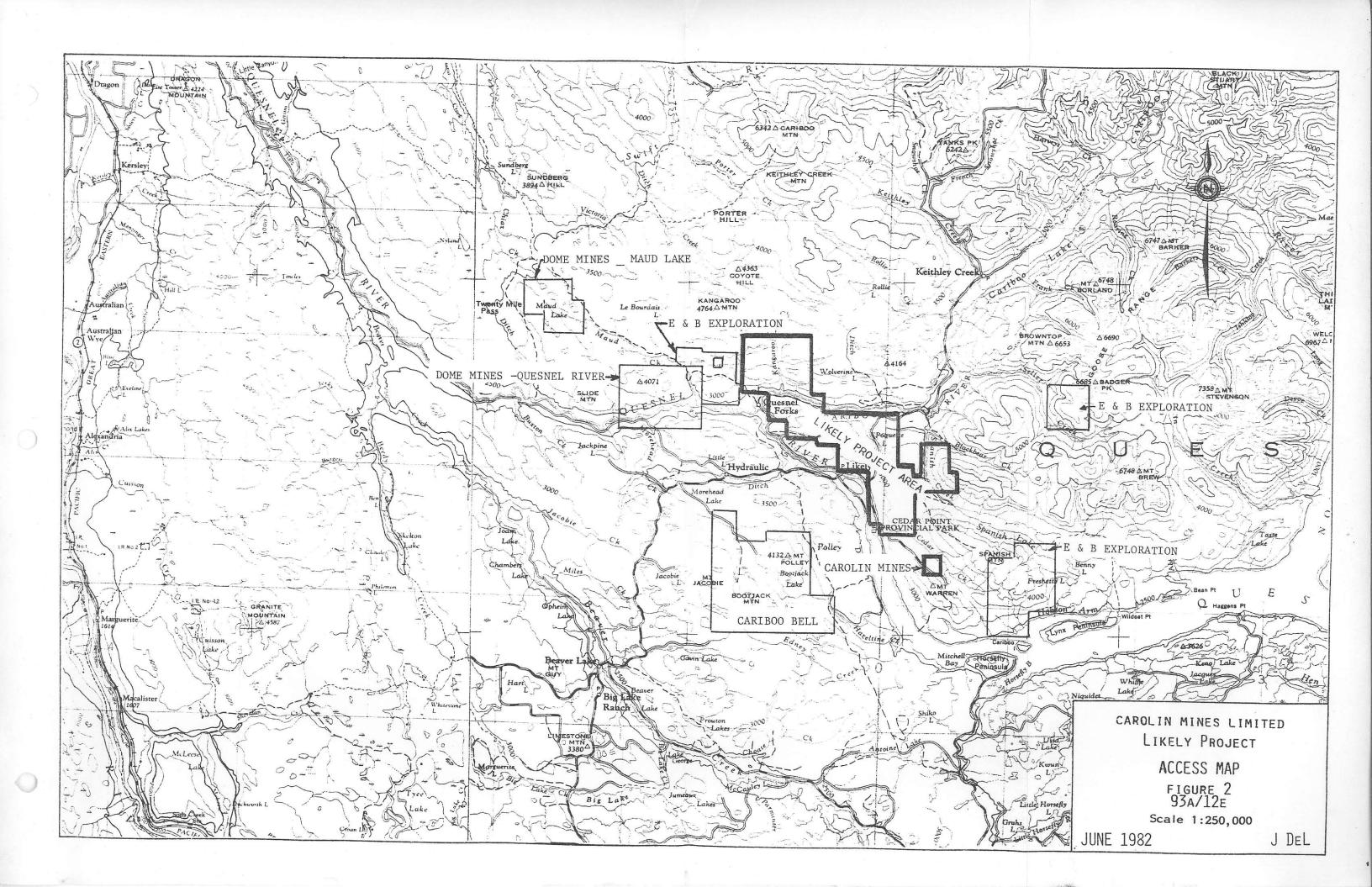
IV. LOCATION AND ACCESS

The Property is located immediately to the east of the towns of Likely and Quesnel Forks between Spanish and Quesnel Lakes in the south and the southern flank of Kangaroo Mountain in the north (Figure 2). Most of the claims are located to the south of the Cariboo River and to the northeast of the Quesnel River. The isolated JUL 1 Claim is located on the northeastern slope of Mount Warren 1.8 km to the southeast of the main block of claims (Figure 2). The Property is located in the Cariboo Mining Division of British Columbia at latitude 52°30' and longitude 121°30'.

The area is accessible from Highway 97 at 150 Mile House by 75 km of all-weather gravel road to Likely (Figure 1). All-weather roads lead from Likely to Quesnel Forks and Keithley Creek through the central portion of the Property. Numerous logging roads, which vary from good two-wheel-drive roads to overgrown walking paths, provide access to all parts of the Property. Logging has extended to the east boundary of the JUN 9 Claim along Westenhiser Creek north of the Cariboo River, and access to the Kangaroo drainage is by foot.

Elevations vary from 604 m on the Quesnel River to 1500 m on the March 1 Claim (Figure 3).





V. CLAIMS AND CLAIM GROUPS

The Likely Project consists of 24 modified grid claims, two 2-post claims and one fractional claim totalling 368 units which are owned by Carolin Mines Limited (Figure 3). These claims are located on topographic maps 93A/12E and 93A/11W. The claims were optioned by Carolin Mines and Aquarius Resources Ltd. with each company having 50 percent ownership. In June 1982, Carolin Mines purchased the Aquarius Resources' share of the claims in the Likely Project. The title to the claims as of June 25, 1982 was still in the name of both companies. The Likely Project claims indicated on Figures 2 and 3 are to be transferred to Carolin Mines Limited. Two small blocks of claims, the Peso E and the Peso B, comprising 24 units, are not included in this agreement. These claims are held by Aquarius Resources Ltd. and partners other than Carolin Mines. The data on the claim map, Figure 3, is taken from the records of the Mining Recorder in Vancouver, B.C., and is complete to June 25, 1982.

The claims which comprise the Likely Project have been placed in four groups and four separate claims as follows:

TABLE I

List of Cla	ims and Cla	im Groups	(from	n north to south)	
Group Name	Claim Name	Record <u>Number</u>	Units	Date Recorded	Expiry Date
Group 1	JUN 6 JUN 7 JUN 8 JUN 9 JUNE	1794 1795 1796 1797 1050	20 20 20 20 20 20	July 7,1980 July 7,1980 July 7,1980 July 7,1980 June 28,1979	July 7, 1984 July 7, 1984 July 7, 1984 July 7, 1984 June 28, 1983
Group 2	DUG Rose 4 Fraction Rose 3 Rose 2 Easy 7 Easy 6	999 4197 4196 3992 1007 923 1051	12 1 15 12 20 20 20	May 22, 1979 Dec.15, 1981 Dec.15, 1981 Aug.24, 1981 May 23, 1979 Dec. 7, 1978 June 29, 1979	May 22, 1984 Dec.15, 1983 Dec.15, 1983 Aug.24, 1983 May 23, 1984 Dec. 7, 1983 June 29, 1983
Group 3	Easy 4 Easy 1 Easy 5 Aug 1 Easy 3	880 877 881 1149 879	20 20 6 6 15	Nov. 2, 1978 Nov. 2, 1978 Nov. 2, 1978 Nov. 2, 1978 Aug. 31, 1979 Nov. 2, 1978	Nov. 2, 1984 Nov. 2, 1984 Nov. 2, 1984 Aug. 31, 1984 Nov. 2, 1984
Group 4	Nov 4 March 1 March 2 Jun 11 Jun 10 Lake 1	1366 1531 1532 1799 1798 3994	67 unit 20 20 4 18 18	Dec. 6, 1979 March 17, 1980 March 17, 1980 July 7, 1980 July 7, 1980 Aug. 24, 1981	Dec. 6, 1983 March 17, 1983 March 17, 1983 July 7, 1983 July 7, 1983 Aug. 24, 1983
not grouped	Rose 1 Gold 1 Gold 2 Jul 1	3993 1800 1801 1852	88 uni: 2 1 1 9 13 unit	Aug. 24, 1981 July 7, 1980 July 7, 1980 Aug. 8, 1980 s total	Aug. 24, 1982 July 7, 1983 July 7, 1983 Aug. 8, 1982

VI. HISTORY

The first gold discovery in the Cariboo was in mid 1859 on the Horsefly River about 20 km south of the Likely Project. By late 1859, numerous miners were working shallow diggings on gravel bars around the junction between the Cariboo and Quesnel Rivers. Subsequent discoveries of richer placer deposits at Keithley Creek in 1860 and then the bonanza of Williams Creek in 1861 attracted a stampede of men through the area.

Quesnel Forks townsite was laid out by the Royal Engineers in 1861, and remained the main supply centre for the Cariboo until 1865 when the Cariboo Wagon Road was completed via Quesnel and Lightning Creek.

Placer mining in the Quesnel Forks region is discussed in detail by Cockfield and Walker (1933), and is summarized as follows:

- Shallow workings were mined on the gravel flat around the Quesnel Forks townsite where gold was found on certain clay layers. Glaciofluvial bench gravels were also productive along the Cariboo River.
- 2. High level gravels from buried channel deposits on bedrock were worked on a large scale at the Bullion Mine hydraulic operation 5 km downstream from Likely. Another high level old channel deposit was worked along lower Morehead Creek, 13 km downstream from Quesnel Forks.

- 3. Recent bar gravels on the Quesnel River were deposited from small tributary creeks cutting the old high level channel. Gravels in the small tributary creeks were also extensively mined.
- 4. Apparently eluvial (residual) concentrations of gold were found in Cedar Creek and Poquette Creek Valley.

The famous Bullion Mine operated from 1894 to 1905, when somewhat over 12 million yards of Pleistocene gravels were processed to yield \$1,233,900 (approximately 59,700 ounces). The Bullion Mine was operated on a small scale between 1933 and 1942.

Placer gold has been found in all creeks draining the Likely Project claims. The most notable production came from Cedar Creek, Likely Gulch, Gold Creek, Rose Gulch and Spanish Creek (Figures 3 & 5).

Exploration in the area since 1965 has resulted in the discoveries of the Cariboo Bell porphyry copper-gold deposit on Mount Polley and the Dome Mines Limited Quesnel River Gold Deposit between lower Maud Creek and Slide Mountain (Figures 2 and 3). The Cariboo Bell Property is being actively investigated by E. & B. Explorations, Inc. Copper and gold values are reported to be related to pyrite in breccia zones and pipes. The published tonnage developed to date is 50 million tons of 0.4 percent copper. E. & B. Explorations, Inc. completed a drilling program on the property in 1981. They will complete a major drilling program in 1982.

have developed 950,000 tons of open pit gold ore containing 0.21 ounces of gold per ton (Dome Mines, Annual Report 1981). It is believed that the gold mineralization is related to the pyritic zones in the volcanics. These zones are located near or on the margins of small stocks.

In 1981, the results of a regional geochemical survey, completed in the Likely area by the Provincial Government, were published. Consequently, several blocks of claims were staked. Two major exploration groups who acquired claims in the area, as well as those noted above, were Mattagami Lake Exploration and E. & B. Explorations (Figures 2 and 3).

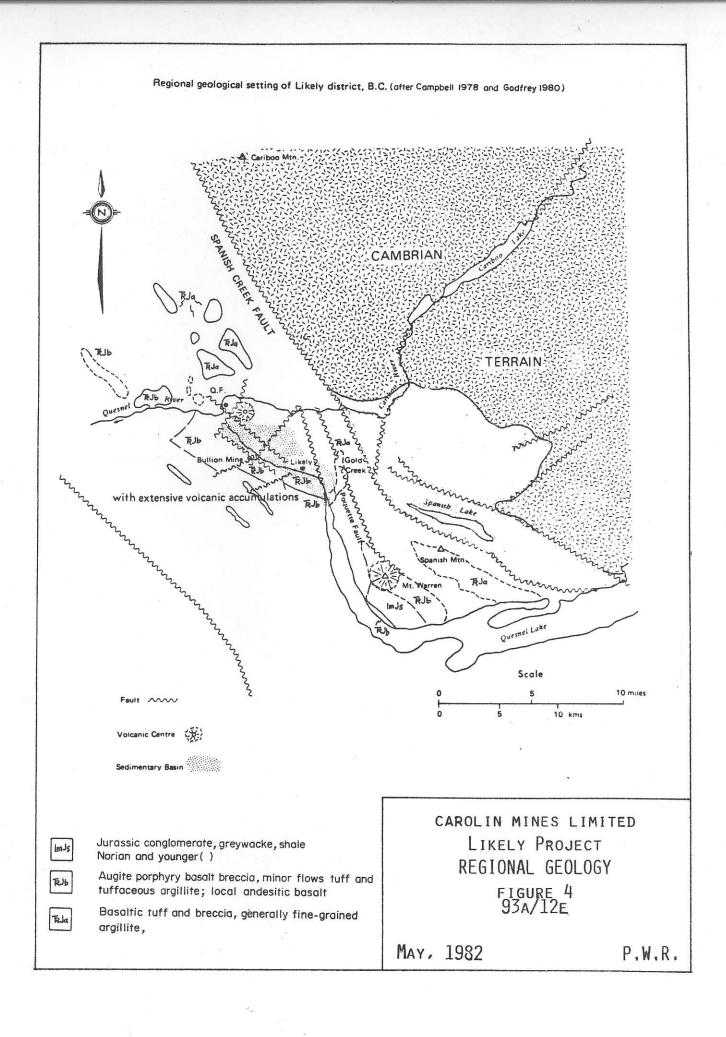
Reconnaissance geological observations completed by R.A. Hrkac, R.H. Beaton and the Geological Survey of Canada (Open File 574, 1978) have been plotted on Figure 5. The following notes on the geology were completed by R. Hrkac in 1981 (see reference in bibliography).

Rocks on the claim group include a series of sediments and metamorphic rocks: argillites, phyllites, quartzites, slates, schists and greenstones. These rocks are generally exposed on the margins of the Property in steep sided valleys.

The main rock unit on the Property is a volcanic series of andesitic and basaltic flows, agglomerates and tuffs. The volcanic sequence has been intruded by small dykes and sills of diorite, syenite and rhyolite. The outcrops of the basalt and andesite were found to contain pyrrhotite and pyrite. Some gold values were obtained in the quartz veins in the rhyolite dykes.

JUNE, DUG, EASY 4, 6 & 7 MINERAL CLAIMS

The June, Dug, Easy 4, 6 and 7 mineral claims are underlain by olivine – augite basalts and agglomerates (Figure 5). The volcanics are cut by northeast-trending rhyolite dykes. Anomalous gold values are related to the dykes and their contained quartz veinlets. However, to date, no significant portion of the dykes has proven to be economic.



The basalts are dark green, fine to medium-grained, and at times porphyritic, containing tabular augite phenocrysts. Calcite amygdules and fine calcite veinlets are common. Fine, disseminated pyrite is present in amounts much less than one percent. The agglomerates, with fragments up to 8 x 10 cm, are composed of the basalts described above. When tested with HCl, a moderate to strong reaction occurs in both the basalts and the agglomerates.

On the EASY 4 mineral claim, the basalts contain epidote alteration as patches, veinlets and replacement of augite. Here calcite veinlets are more numerous, and up to two cm in thickness. Despite the increase in alteration, pyrite remains a minor constituent.

The basalts are intruded by vertical to steeply-dipping rhyolite dykes striking from N25E to N80E. Most are one to two metres wide. On the EASY 7 Claim the attitude of a dyke was N85W/75S while on the JUNE Claim opposite Kangaroo Creek a rhyolite dyke, or dykes, was noted to have a width of 120 metres.

The rhyolite is pale, grey-green, fine-grained and contains white and clear quartz grains and green feldspar. It weathers to a prominent rusty-orange colour that penetrates one to

three cm into the rock, both at surface and along joints and fractures. Approximately one percent pyrite is present as cubes and finely disseminated grains. Quartz veinlets having a width of from one to five millimetres are common. While most of the veins are vertical and strike at right angles to the strike of the dykes, a few veins have a random orientation. The weathered surfaces of the rhyolite reacts with HCI, however there is little or no reaction with HCI on the fresh surface of the rhyolite. The basalts adjacent to the dykes are altered to a medium green, fine-grained rock.

On the June Claim located south of Kangaroo Creek, a vertically dipping shear zone strikes north-south across a rhyolite dyke. The shear is 1 metre wide, and contains 0.3 metres of semimassive pyrite. Three samples were cut across this zone during an examination in 1977. The best assay returned less than 0.003 oz/ton Au and 0.04 oz/ton Ag. Minor amounts of galena, tetrahedrite and chalcopyrite are seen rarely in some of the quartz veinlets associated with the rhyolite.

Mutual Resources Ltd. carried out an exploration program on the Easy 1 Claim. Their work consisted of soil sampling, rock geochemistry, channel sampling and four diamond drill holes. They failed to find any significant gold mineralization.

Intermittent exposures of andesite occur along the Keithley Creek road from Likely Gulch to the north end of Poquette Lake.

The andesite is medium green, fine to medium-grained, with minor epidote and calcite alteration and little or no reaction with HCl. It contains less than one percent fine, disseminated pyrite.

South of Gold Creek the andesite is cut by rhyolite dykes averaging one metre in width. The dykes strike northeasterly, and have vertical to steep southeasterly dips. They are identical to the rhyolites previously described.

A major fault zone is well exposed along the Spanish Lake Road south of Gold Creek, near the mouth of Gold Creek and along a road cut north of Gold Creek and west of Poquette Creek. Within the fault, andesite and rhyolite are sheared into haphazard blocks, and numerous rust-coloured earthy gouge zones occur from several mm to 0.5 metres wide, and are commonly occupied by quartz veinlets up to several centimetres in width.

At Gold Creek, the fault has cut a zone consisting of rhyolite with some andesite, and contains a series of vertical, east-west shears one to seven centimetres in width which contain reddish, earthy gouge flanking quartz veinlets. Channel samples taken by R.H. Beaton (1979) across the shears and samples taken by Godfrey in 1980 across the gouge and quartz, have shown that significant gold and silver values are present. The location and decomposed nature of the shears suggest that the precious metal values are due, in part, to surface enrichment.

Diamond drill hole 79-1, completed by Silver Standard Mines, was collared immediately west of Gold Creek below the above outcrop area, and drilled to the southeast at -60 degrees to a total depth of 91.5 metres. The hole entered the fault zone, but failed to reach the east contact or the area vertically below the mineralized shears. No significant assays were reported.

VIII. WORK COMPLETED ON THE LIKELY PROJECT

In order to define target areas on the claims of the Likely Project, an airborne magnetometer and EM survey was completed by Carolin Mines and Aquarius Resources in February, 1981. Six magnetic and two EM anomalies (T-1 to T-8 inclusive) were found (Figure 5). In October, some geochemical surveys were completed on anomalies T-2, T-4, T-5 and T-6. The results of the above surveys are described in the following headings.

A. GEOPHYSICS

The results of the airborne magnetometer and EM survey have been compiled on Figure 5. The following notes have been taken from the field examinations completed by R. Hrkac and D. Rennie and from the writer's field examination.

ANOMALIES T-1 and T-2

These anomalies are located in the northwestern portion of the claim group on the JUN 9 and EASY 6 claims. There are no outcrops and the causes of the anomalies are not known. A ground magnetometer, a gold geochemical, and perhaps an EM survey are warranted on the T-1 anomaly. The T-2 anomaly was investigated by a geochemical survey for gold. The results are described in the geochemistry section.

ANOMALY T-3

An EM anomaly lies on the northeast flank of a magnetic anomaly located partially on the EASY 1 Claim. The anomaly should be investigated by a geochemical survey for gold and a magnetometer survey.

ANOMALY T-4

This is a major northwest-trending anomaly located on the EASY 5, EASY 3 and JUN 10 mineral claims. Magnetic diorite was noted in the outcrops of Fisher Creek. The outcrops in the anomaly on the JUN 10 Claim are basalt which contains pyrrhotite and pyrite. The anomaly was investigated by about 21 km of geochemical survey as indicated on Figure 8. A magnetometer and detailed geochemical survey for gold should be completed on the grid lines.

ANOMALY T-5

This anomaly is located mostly on the EASY 4 mineral claim. A diorite intrusive has been mapped by Silver Standard Mines Ltd. at the southeastern end of the magnetic anomaly. Basalt and rhyolite dykes containing minor amounts of chalcopyrite were noted in the road cuts. The basalt, in the anomalous area, contained moderate amounts of epidote, chlorite, and calcite alteration. A grid 21 km in length, as indicated on Figures 5 and 7, was completed. A detailed magnetometer and geochemical survey should be completed on the grid.

ANOMALY T-6

The T-6 anomaly has a length of about 4000 metres and a width of about 1200 metres. The rocks on the anomaly are generally believed to be flows of basalt and andesite which have been cut by dykes of rhyolite. The basalt and andesite flows have been subjected to propylitic alteration. It is to be noted that this is the same type of environment that Dome Mines found their new gold deposit located approximately 6 km to the west. The anomaly was investigated by 457 soil samples. A magnetometer and detailed geochemical survey are warranted.

ANOMALIES T-7 and T-8

Anomaly T-7 on JUL 1 and T-8 on Rose 2 are to be investigated by a few lines of magnetometer and geochemical gold surveys (Figure 5).

B. GEOCHEMISTRY

Three areas, covering anomalies T-2, T-4, T-5 and T-6, were selected for soil sampling. Three separate baselines with an azimuth of 135° were completed. Line cutting was done by Amex Exploration Services Ltd. of Kamloops. All lines were cleaned out with a chainsaw in order to be wide enough for induced polarization surveys. A total of 66 kilometres of line was cut.

The soil lines were run perpendicular to the baselines at 200 metre intervals and the sample stations were marked every 50 metres by a wooden picket. The soil sampling was conducted by Amex Exploration Services under contract to Carolin Mines Limited. All samples, with a few exceptions, were taken from the B horizon, which varied in thickness from a few centimetres to over 50 centimetres. The samples were taken by a grubhoe, and each sample was placed in a kraft waterproof paper bag and assayed by Acme Analytical Laboratories Ltd. of Vancouver. The analytical procedure is outlined in Appendix 1.

A total of 1201 soil samples were collected on three grids as follows: North Grid, 457 soils; Central Grid, 444 soils; and South Grid, 300 soils (Figures 6, 7 & 8). All samples were analyzed for Au, Ag, As, Cu, Zn, Pb, Mo, Ni, Co, Sb and W. Histograms were plotted for each element except Mo, Sb and W. Statistical parameters of the histogram distributions are listed in Table II and the histograms are included in Appendix II.

TABLE II

ASSAY DISTRIBUTION PARAMETERS

ELEMENT	MEAN	RANGE	THRESHOLD
GOLD	40.05 ppb	5 ppb - 9,500 ppb	4 0 ppb
SILVER	0.25 ppm	0.1 ppm - 5.3 ppm	0.6 ppm
ARSENIC	46.0 ppm	3 ppm - 1,656 ppm	75 p p m
COPPER	48.6 ppm	6 ррт — 779 ррт	85 ppm
ZINC	92.5 ppm	6 ppm - 599 ppm	120 ppm
LEAD	11.1 ppm	1 ppm - 155 ppm	16 ppm
COBALT	19 ppm	2 ppm - 104 ppm	35 ppm
NICKEL	30.5 ppm	5 ppm - 132 ppm	50 ppm

The gold and silver sample populations are typical of the truncated distributions due to the low concentration inaccuracy of Atomic Absorption and ICP (Induction Coupled Plasma) analytical methods. Arsenic, copper, zinc, lead, cobalt and nickel exhibit near normal distributions that are slightly skewed to the right. An overlap of two distinctly different populations is suggested for zinc and lead. Iron content of the samples averaged 4 - 5% which interfered with Sb and W results. Molybdenum values are slightly higher than normal. The ICP run was not corrected enough for the iron background. There is very little variation in Mo, Sb and W values throughout all of the grids.

The gold, silver, copper and arsenic results are plotted for each grid (Figures 6, 7 & 8). Since the lines are 200 metres apart, the data can not be meaningfully contoured. Intermediate lines at 100 metre spacing should be established where the many isolated, anomalous gold samples occur. Closer sample intervals are needed to outline areas of gold enrichment in the soil.

The sample results plotted on Figures 6, 7 and 8 include only the assays for gold above 10 ppb, silver above 0.4 ppm, As above 40 ppm and Cu above 40 ppm. The results of the geochemical survey for gold have followed a pattern expected for gold mineralization as follows:

- high gold or arsenic values are not always found in the same location
- the silver values bear no relationship to the gold values
- 3. the copper in general appears to be related to the gold mineralization

The results of the gold geochemical survey are summarized and plotted on Figure 5 over the anomalous areas found by the airborne magnetometer and EM surveys. Anomalous gold values were found over the magnetometer anomalies on the North and Central Grids (Figures 6 & 7) where only the areas of the magnetometer anomalies were soil sampled. On the Southern Grid, (Figure 5) the area lying 400 metres to the east of the magnetometer anomaly was sampled. Scattered areas of anomalous gold were also found here. The soil sampling grid was extended over an EM anomaly, T-2, on Figure 5. Nine anomalous gold samples were obtained.

The work completed to date on the Likely Project suggests that anomalous gold values can be obtained not only in areas of geophysical anomalies but also in other areas. The widespread anomalous gold indicated by the survey can, in part, be attributed to the Pleistocene glaciation. It has been found in this region that the movement of the glaciers has spread gold-bearing material over large areas. Consequently, the detailed surveys have to be completed to outline target areas for drilling.

IX. RECOMMENDATIONS

The work completed to date has indicated that four of the areas investigated by geophysics and geochemistry contain anomalous gold values. A major program of work is warranted to complete the examination of areas containing anomalous gold values and to complete an initial investigation of all of the claims. This work is also needed for assessment purposes. The work recommended is as follows:

- 1. Complete reconnaissance geochemical sampling, magnetometer surveying and geological mapping on the proposed grid lines indicated on Figure 5. The total length of the proposed reconnaissance grid is 188.2 kilometres and the number of samples taken, at 50 metre spacings, will be approximately 3830.
- 2. Complete the follow-up of the geochemical surveys indicated on Figures 6, 7 and 8. Soil samples should be taken between and on the sides of all the gold-bearing samples indicated on these figures. The sample spacing will now be 25 metres. Fill-in lines, as indicated on these figures, should be completed using 50 metre sample spacing. The total amount of work to complete the detailing of the geochemical survey is as follows:

FIGURE	<u>K!</u>	OF NEW GRID	SOIL SAMPLES NEW GRID @ 50m SPACING	FILL-IN SAMPLES	TOTAL SAMPLES
6		15.0	300	208	508
7		16.7	334	308	642
8		10.4	<u>208</u>	<u>124</u>	332
	TOTAL	42.1	842	640	1,482

A total of 230.3 kilometres of grid line would be completed and 5,312 soil samples would be taken in the 1982 program.

- 3. Complete a magnetometer survey and geological mapping program using the grid lines for location.
- 4. Complete percussion drilling on the anomalous areas. It is expected that 10 areas will require drilling.

The work should be started as soon as possible on the JUL 1 group of claims, as this group expires on August 8, 1982. The work should then proceed to the Rose 1 Claim as its expiry date is August 24, 1982. The remaining claims expire in 1983 and 1984. In order to supervise the work, compile the data and complete a summary report, it is recommended that a geologist be hired or assigned to the Likely Project for a period of six to eight months.

The grid to be completed in 1982 can be completed by using a topofil and flagging the stations. Only the base lines should be cut out and marked by pickets.

ESTIMATE OF EXPENDITURES

The estimated expenditures for the proposed program of exploration is \$350,000 as follows:

STAGE I

Line cutting, collecting samples Geology and magnetometer survey Supervision plus geology	\$ 43,300 30,000 26,800
Assaying 5300 samples @ \$8.50/sample freight on samples Magnetometer Rental	46,000 1,000 1,400 12,800
Field expenses, company geologist Contingency	\$ 161,300 13,700
-	\$ 175,000

STAGE 11

Percussion drilling 5000m @ \$30/m Sampling	\$ 150,000 10,000
Contingency	\$ 160,000 15,000
	\$ 175,000
TOTAL	\$ 350,000

Respectfully submitted

John L. DeLeen, P.Eng.

June 30, 1982

JOHN L. DELEEN

BRITISH

COLUMBIA

OF

SOCIONARIA

COLUMBIA

COLUM

DELEEN CONSULTING GEOLOGISTS LTD.

1015 - 837 W. HASTINGS STREET VANCOUVER, B.C. CANADA V6C 1C4

TELEPHONE (604) 685-5533 TELEX - 04-51313

CERTIFICATE

I, John L. DeLeen, of the City of Vancouver, in the Province of British Columbia, hereby certify the following:

- 1. I am a geological and mining engineer with an office at 1015 837 W. Hastings Street, Vancouver, B.C.
- 2. I am a graduate of the University of British Columbia with a B.A.Sc., (1943) and M.A.Sc., (1946) degrees in Geological Engineering. In 1950, I obtained the degree of Mining Engineer from the University of California.
- 3. I have practised my profession since 1946.

JOHN L. DELEE!

- 4. I am a member of the Association of Professional Engineers of British Columbia.
- 5. I have no interest, direct or indirect, in the Likely Project or in Carolin Mines Ltd., nor do I expect to receive any such interest in the future.
- 6. This report is based upon personal examination of the property on June 9, 1981 and upon the reports of the British Columbia Department of Mines and private reports of Carolin Mines Ltd.
- 7. I consent to the use of this report in a Statement of Material Facts.

DATED at Vancouver, B.C. this 30th day of June 1982.

John U. DeLeen, P.Eng.

BIBLIOGRAPHY

BAILEY, D.G., 1975

Geology of the Morehead Lake Area, South-Central British Columbia, B.C. Dept. of Mines, Geological Fieldwork, 1975, p. 59 - 65.

BEATON, R.H. (1979a)

Geochemical Soil Survey, Grid I, Easy 1 M.C., Cariboo M.D. Private Mutual Resources Ltd. Report, 5pp.

BEATON, R.H. (1979b)

Diamond Drilling Programme, Easy I M.C. Cariboo M.D. Private Mutual Resources Ltd. Report, 5 pp.

CAMPBELL, K.V. and CAMPBELL, R.B. 1970

Quesnel Lake Map Area, British Columbia (93A) Geological Survey of Canada, Paper 70-1, Part A, p.32-35.

CAMPBELL, R.B., 1961

Quesnel Lake Sheet (West Half) British Columbia Geological Survey of Canada, Map 3-1961, scale 1:253,440

CAMPBELL, R.B., 1978

Quesnel Lake Sheet (West and East Halves) British Columbia Geological Survey of Canada, Open File 574, scale 1:125,000

CAMPBELL, R.B. and TIPPER, H.W., 1970

Geology and Mineral Exploration Potential of the Quesnel Trough, British Columbia CIM Bulletin, Volume 63, p.785-790.

COCHRANE, D.R., 1979

Geochemical Assessment Report on the Likely Group (Peso, Peso B and Peso E mineral claims) Cariboo Mining Division, for Aquarius Resources Ltd., 14 pp. November 26, 1979.

COCKFIELD, W.E. and WALKER, J.F. 1933

Geology and Placer Deposits of the Quesnel Forks Area, Geological Survey of Canada, Summary Report 1932 Part A1, p. 76-94. DELEEN, J., 1981

Recommendations for the Investigation of the Airborne Anomalies on the Likely Property, Private Carolin Mines Ltd. Report, July 27, 1981, 8 pp.

GODFREY, J.D., 1980

A Survey of the Mineral Prospects in the Likely District Private Aquarius Resources Ltd. and Carolin Mines Ltd. Report March 19, 1980, 74 pp.

GODFREY, J.D. and CARDINAL, D.G., 1979

Mineral Prospects in the Likely, B.C. District (A Preliminary Survey). Private Aquarius Resources Ltd. Report, 68 pp.

HODGSON, C.J., BAILES, R.J. and VERZOSA, R.S. 1976

Cariboo Bell: A Porphyry Copper Deposit in an Alkalic Sub Volcanic Setting, CIM, C.S. Ney, Spec. Vol. 15, p. 388-396.

HRKAC, R.A., 1980

The Likely Project, Geological Evaluation, Private Carolin Mines Report, July 1980, 7 pp.

HRKAC, R.A., 1981

The Likely Project, Proposed Surface Evaluation of Airborne EM and Magnetic Anomalies, Private Carolin Mines Report, June 1981, 19 pp.

LITTLEJOHN, A.L., 1977

Report on the Peso Claims (Likely Group) Peso, Peso B and Peso E Claims, near Likely B.C. Cariboo Mining Division 19 pp.

RICHARDSON, P.W.

Geochemical Report on the Likely Project, Assessment Report, May 21, 1982.

SHELDRAKE, R.

Report on a Helicopter EM and Magnetometer Survey, Likely Project by Apex Airborne Surveys Ltd., May 15, 1981, Private Carolin Mines Report.

TIPPER, H.W., CAMPBELL, R.B., TAYLOR, G.C. and STOTT, D.F., 1979

Parsnip River British Columbia Sheet 93; Geological Survey of Canada Map 1424A, Scale 1:1,000,000 Map plus correlation chart.

APPENDIX I

ANALYTICAL PROCEDURES

Acme Analytical Laboratories Ltd. 852 East Hastings Street Vancouver, B.C. V6A 1R6

ACME ANALYTICAL LABORATORIES LTD.

852 East Hastings Street, Vancouver, B.C.

GEOCHEMICAL ANALYSIS PROCEDURE

GOLD

The samples are ignited overnight at 600°C. The minus 80 mesh portion is ground in a ring grinder and 10 grams are digested with dilute hot aqua regia. The clear solution is extracted with methyl isobutyl ketone. Gold is determined in the methyl isobutyl ketone extract by atomic absorption. The remaining ground pulp is then set aside and saved for use in other analytical methods or to check initial results.



ACME ANALYTICAL LABORATORIES LTD.

Assaying & Trace Analysis

852 E. Hastings St., Vancouver, B.C. V6A 1R6 Telephone: 253 - 3158

Multi Element Analysis by ICP

Digestion of Sample *

0.5 gram samples are digested with hot aqua regia for one hour and the sample is diluted to 10 ml. The diluted sample is aspirated by ICP and the analytical results are printed by Telex, either in percent or ppm as shown.

<u>Please Note</u>: This digestion is partial for Al, Ca, La, Mg, P Ti, W and very little Ba is dissolved.

Report	ormat								
HO/22N EGC	385ØW								
BURN # : IS 1357	GE16	15:46	3FEB:	1981					
MO 3.92	CU 41.5	PB 9.00	ZN 136	AG .332	NI 15.3	CO 5.7Ø	MN 312	FE% 3.167	AS 5.73
U 4.11	IS .371	TH .424	IS 1073	CD .96Ø	SB 1.94	BI 4.51	V 52.7	CA% 1.1Ø7	Р% .206
LA 22.1	IN 3.50	MG% . 2589	BA% .Ø184	TI% .0014	B Ø5	AL% 1.72Ø	IS Ø	IS 3.Ø6	W .276
*O/M1 EGC									
BURN # 1	GE16	15:48	3FEB:	1981					
. 563 3. 57 6. 42	29.3 .Ø44 2.88	34.6 2.79 .6008	171 765 . Ø252	.154 1.Ø8 .Ø753	33.4 .635 37	11.5 4.25 1.944	794 54.8 Ø	2.536 .6452 2.32	8.77 .109 61
Code									
HO, *0, EGC Computer Intructions. /22N 3850 W Sample Number. /M1 ACME Geochem standard for quality control. 15:46 3FEB1981 Time and Date of Analysis. BURN # 1 GE16 Geochem Computer Program. IS Internal Standard.									

^{*} All samples were sieved to -80 mesh and pulverized to -150 mesh.



ACME ANALYTICAL LABORATORIES LTD.

Assaying & Trace Analysis

852 E. Hastings St., Vancouver, B.C. V6A 1R6

Telephone: 253 - 3158

Interpretation of Results

Standard M-1 is a certified geochem standard used to monitor the results. M-1 has the following analysis.

1. Мо in ppm M1 : 2. ppm 2. Cu in ppm M1 28. ppm 3. Рb in ppm M1 38. ppm 4. Zn in ppm M1 180. ppm 5. Aq in ppm M1 0.3 ppm Ni in ppm M1 32. 6. ppm 7. Co in ppm M1 12. ppm 0. Mn in ppm M1 800. ppm 9. Fe M1 2.5 in 10. in ppm M1 8. As ppm in ppm M1 11. U 3. mag 12. IS Internal Standard. 13. Th in ppm M1 3. DDM 14. Internal Standard. IS 15. Cd in ppm Ml 2. ppm Sb in ppm 3. 16. M1 ppm 17. 2. Βi in ppm M1 mag 18. V in ppm M1 54. ppm 19. Ca 0.62 in M1 % 20. M1 0.11 in 21. La in ppm M1 8. ppm 22. In in ppm M1 2. ppm 23. Ma 0/ M1 0.67 in 24. 0/ /0 0.023 % Ba in M1 in % 0.07 % 25. Ti M1 26. В in ppm MI 12. ppm 1.9 27. A1 in % M1 28. IS Internal Standard. 29. IS Internal Standard. 30. in ppm · M1 1. ppm

Notes:

- 1. Zinc over 5000 ppm interferes on W channel.
- Iron over 1. % interferes on In and Sb channel.

Monitoring of Results:

If analysis of standard M-1 is different than the certification, then compensate (add or subtract) samples appropriately.

Standardization:

Complete set of USGS standards, Canadian Certified Reference Materials and 72 specpure metals from Johnson Matthey.

APPENDIX II

HISTOGRAMS OF GEOCHEMICAL DATA

