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GEOLOGICAL REPORT

on the

LAST CHANCE 1 AND 2 CLAIMS  
SMITHERS-HOUSTON AREA  
OMENICA MINING DIVISION N.T.S. 93I/10E  
LAT 54°35'N - LONG 126°44'N

for

ADRIATIC RESOURCES CORP.

by

EDWARD O. CHISHOLM, P.ENG.

Vancouver, B.C.

July 2, 1983

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**SUMMARY**

The Last Chance claims are located on Grouse Mountain, 21 miles southeast of Smithers, B.C. Old workings on the Last Chance 1 and 2 claims expose a subparallel vein system of narrow quartz siderite veins over a length of some 400 feet containing significant gold, silver and copper values reported in previous reports in 1937 as follows:

Gold values ranging from 0.01 oz/ton to 0.33 oz/ton; silver values ranging from 73.2 oz/ton to 312 oz/ton; and copper values from trace amounts to 4.5% in selected samples. Veins range in width from 4 inches to 1.7 feet.

The veins themselves are quite narrow where exposed but warrant exploration for parallel veins and down-dip extensions for greater mining widths in the structure elsewhere on the property.

A preliminary exploration program is recommended at a cost of \$135,240.

## INTRODUCTION

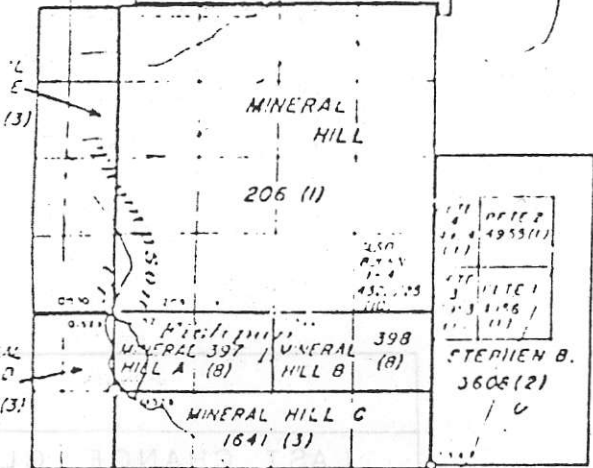
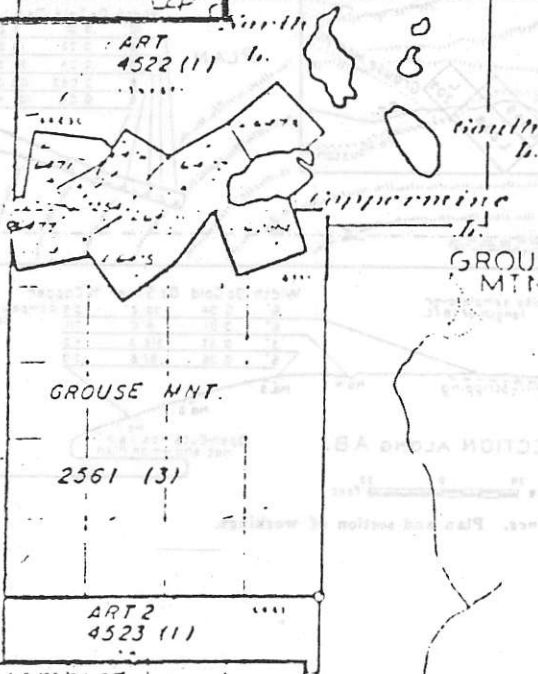
The writer was commissioned by Adriatic Resources Corporation of 1158 Powell Street, Vancouver, B.C. V6A 1J3, to make an examination of the property. This was carried out on June 21, 1983 and the data for this report is derived from this and other published and private sources supplied by the company which are listed in the Appendices attached.

Any legal aspects of the claims are beyond the scope of this report.

## PROPERTY

The Last Chance claim group is comprised of two, 2-post claims, the Last Chance 1 and the Last Chance 2 adjoining claims which are contained centrally in the four-post Chance #1 4-post claim staked over these at a later date containing 16 units in a square block.

Claim Name	Record No.	Expiry Date
Last Chance 1	4883	November 8, 1983
Last Chance 2	4884	November 8, 1983
Chance #1	5028	March 9, 1984



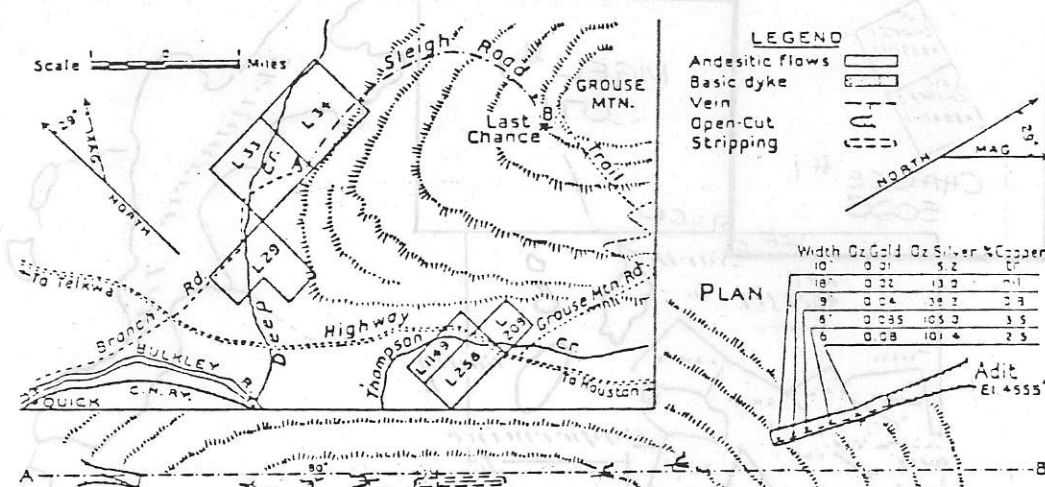
125° 45'

OMIPI A. MITCHELL DIVISION

CLAIM MAP  
±1:50,000

E. O. CHISHOLM, M.A., P. ENG.  
CONSULTING GEOLOGIST

TO



**LEGEND**

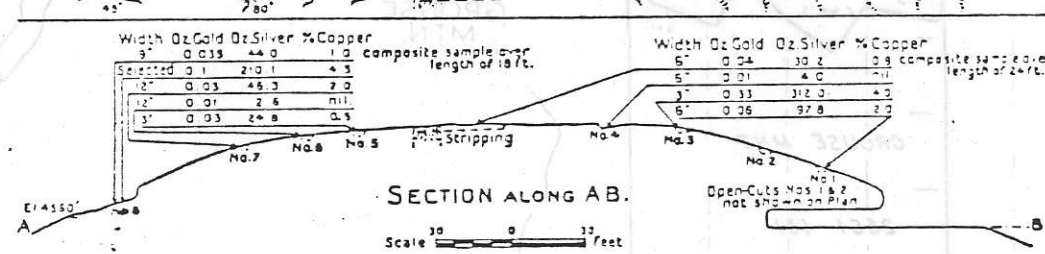
- Andesitic flows [Symbol]
- Basic dyke [Symbol]
- Vein [Symbol]
- Open-Cut [Symbol]
- Stripping [Symbol]

NORTH

**PLAN**

Width	Oz Gold	Oz Silver	% Copper
10'	0.31	13.2	0.1
18'	0.32	13.2	0.1
9'	0.04	38.2	0.9
8'	0.035	103.2	3.5
5'	0.08	101.4	2.3

Adit E14555'



Width	Oz Gold	Oz Silver	% Copper
9'	0.033	44.0	1.3
Selected	0.1	270.1	4.3
12'	0.03	46.3	2.0
12'	0.01	2.6	nil.
3'	0.03	27.8	0.9

composite sample over length of 18 ft.

Width	Oz Gold	Oz Silver	% Copper
6'	0.24	30.2	0.8
5'	0.01	4.0	0.1
3'	0.33	312.3	4.3
6'	0.06	97.8	2.7

composite sample over length of 24 ft.

**SECTION ALONG AB.**  
Last Chance. Plan and section of workings.

**LAST CHANCE CLAIMS**

**PLAN AND SECTION OF WORKINGS**

Scale	Date	JAN 1985	NTS 93160
Revised	By	R.H.	Pg 4

### LOCATION AND ACCESS

The Chance, Last Chance claim group is located on the northwest flank of Grouse Mountain, 34 kilometers (approximately 21 miles) southeast of Smithers, B.C. at elevation 4600' A.S.L.; latitude 54°35'N; longitude 126°44'W.

The TransCanada Highway #16 is 2-1/2 miles southwest and access can be gained to the claims via a four-wheel drive farm road for a distance of 4-1/2 miles. The access road is not possible until early June depending on snow conditions in the area. Helicopter transportation is available at Smithers and Houston, 122 miles northwesterly. Daily air service is available from Vancouver to Smithers.

### HISTORY

Early history of the mineral exploration in the area is reported in the Annual Reports of the Minister of Mines for 1914 to 1929, and the Geological Survey of Canada by J. D. McKenzie, 1915. Recent history is recorded by J. M. Black, Minister of Mines Annual Report for 1951 and N. C. Carter in Geology and Exploration and Mining in British Columbia, 1970 volume.

Briefly: Copper and zinc showings were discovered by Samuel Bush near Coppermine Lake, 1-1/2 miles southeasterly from the veins on the Last Chance 1 and 2 claims. The Last Chance 1 and 2 claims are shown at the

Cornucopia group of the accompanying geological map of the property by B. H. Church. In 1916, a 56 foot shaft was sunk by the Cassiar Crown Copper Company by 1912 a 1000 foot crosscut was completed but "no appreciable mineralization" was encountered and work stopped.

Work was then concentrated on the Ruby showing some 1500 feet southwest until 1923. A lens of mixed sulphides was traced several hundred feet in a short adit crosscut on the 4500 foot level, but the deposit was not considered economic and no activity took place for several years. Activity revived in 1926 and a camp was constructed and extensive exploratory work resulted in 3700 feet of drifts and crosscuts, and 160 feet of raises. A shaft linked the Ruby workings with the Copper Crown. Work was suspended in the summer of 1926 when the total ore proved insufficient to ship. The Lakeview showing was re-examined during the period 1924 to 1925 and an adit driven 80 feet along a narrow vein.

Elsewhere in the area exploration from 1924 to 1929 lead to the discovery of the Rainstorm, Hidden Treasure and Cornucopia (Last Chance) showings. A number of short adits in the Hidden Treasure and Cornucopia (Last Chance) areas, date from this period. The Cornucopia, Last Chance work included some nine open cuts, surface stripping and a 50 foot drift adit. A winter road was also constructed. In 1937 a geologist from the B.C. Department of Mines examined the workings on the Last Chance and collected 15 samples. The assays are shown in Figure 4 attached taken from Robert Holland's report of December 6, 1982.

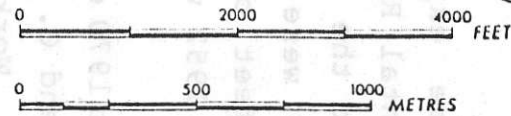
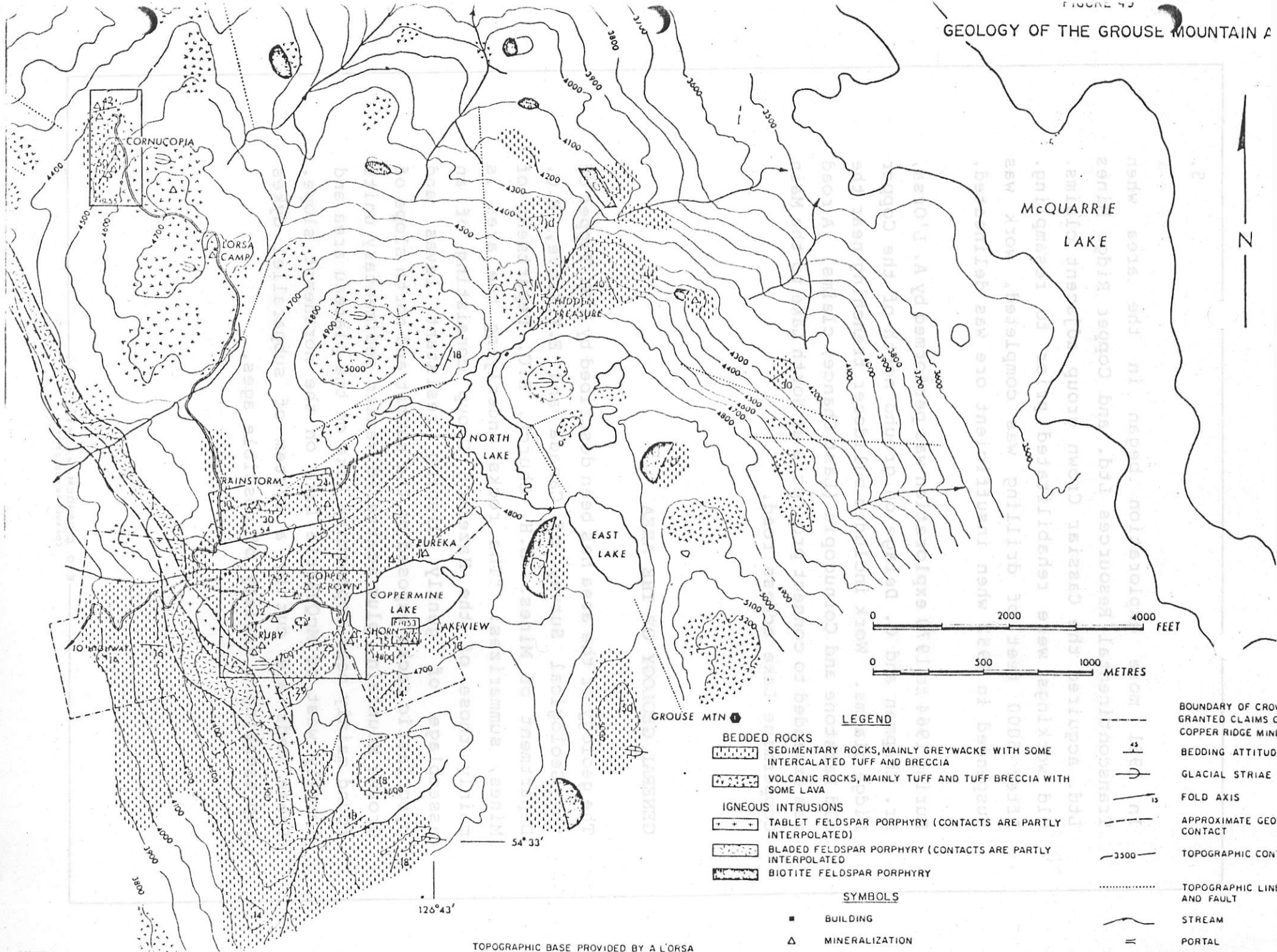
In 1951 more exploration began in the area when Transcontinental Resources Ltd. and Copper Ridge Mines Ltd. acquired the Cassiar Crown group adjacent claims. Old workings were rehabilitated prior to resampling. After 5000 feet of drilling was completed, work was suspended in 1952 when insufficient ore was delineated.

During 1964 to 1970 exploration was performed by A. L'Orsa, Mr. Chapman and C. Delage on ground north of the Copper Ridge claims. Work included bulldozer trenching near the old Ramstone and Cornucopia (Last Chance) claims. A road was extended to connect prospects at North Lake to the Main Coppermine Lake access road.

#### GENERAL GEOLOGY OF THE AREA

The geology of the area has been described by H.W. Tipper of the Geological Survey of Canada and E.Y. Grove, B.C. Department of Mines. B.H. Church, B.C. Department of Mines, summarizes: "The rocks underlying the area is mainly those of the Hazelton Group consisting of an assemblage of gently dipping resistant lavas and pyroclastic rocks exposed on the summit and north slope of Grouse Mountain, plus scattered weaker sedimentary units found mainly near Coppermine Lake on the plateau area and locally west of McQuarrie Lake on the northeast slope. These beds are cut by a system of subparallel dykes representing a variety of possible ages.





**LEGEND**

- BEDDED ROCKS**
- SEDIMENTARY ROCKS, MAINLY GREYWACKE WITH SOME INTERCALATED TUFF AND BRECCIA
  - VOLCANIC ROCKS, MAINLY TUFF AND TUFF BRECCIA WITH SOME LAVA
- IGNEOUS INTRUSIONS**
- TABLET FELDSPAR PORPHYRY (CONTACTS ARE PARTLY INTERPOLATED)
  - BLADED FELDSPAR PORPHYRY (CONTACTS ARE PARTLY INTERPOLATED)
  - BIOTITE FELDSPAR PORPHYRY

**SYMBOLS**

- BUILDING
- MINERALIZATION

- BOUNDARY OF CROWN GRANTED CLAIMS
- COPPER RIDGE MINE
- BEDDING ATTITUDE
- GLACIAL STRIAE
- FOLD AXIS
- APPROXIMATE GEOLOGICAL CONTACT
- TOPOGRAPHIC CONTOUR
- TOPOGRAPHIC LINE AND FAULT
- STREAM
- PORTAL

TOPOGRAPHIC BASE PROVIDED BY A L'ORSA

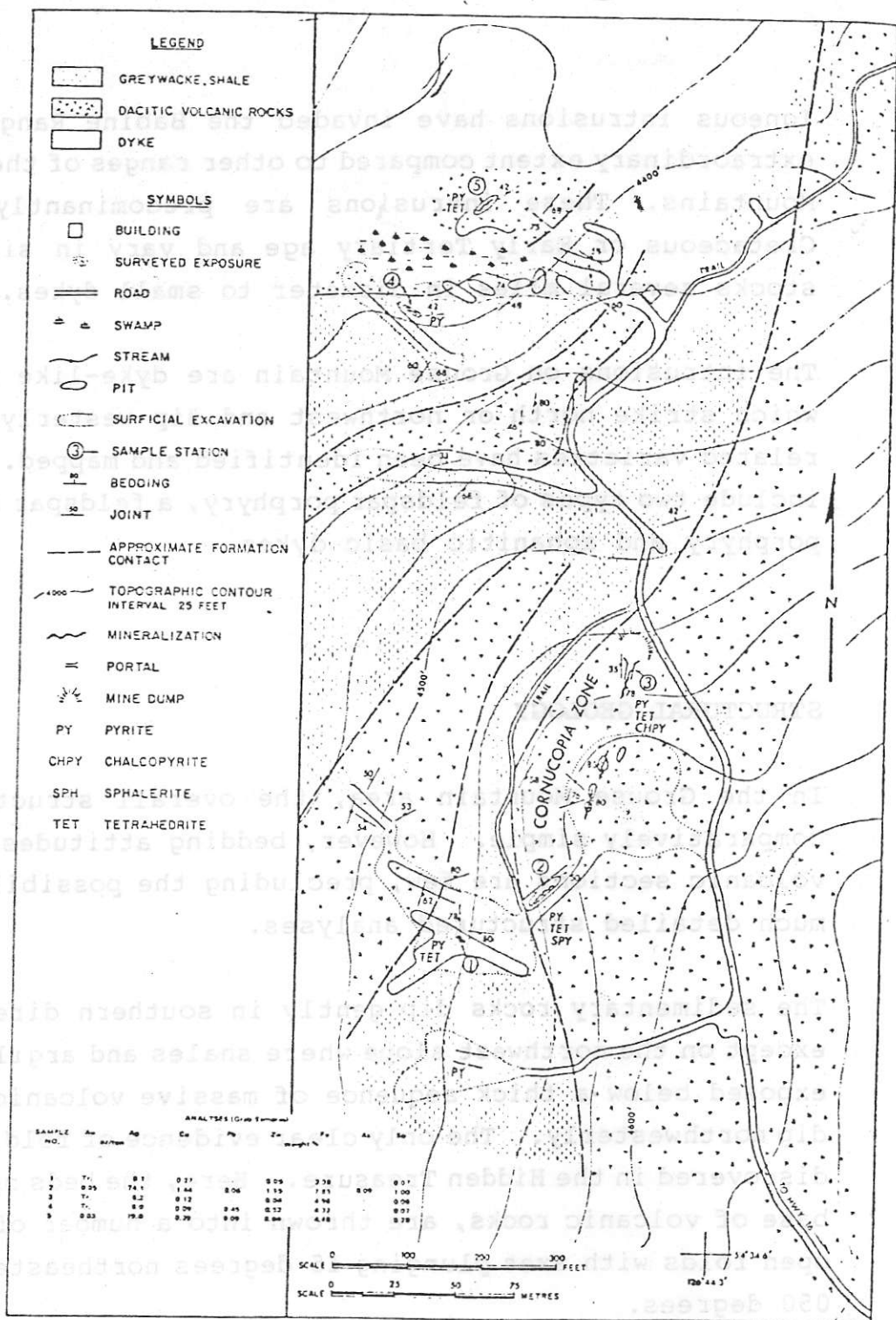


Figure 55. Geology of the Cornucopia zone, Grouse Mountain.

Igneous intrusions have invaded the Babine Range to an extraordinary extent compared to other ranges of the Skeena Mountains. These intrusions are predominantly Upper Cretaceous or Early Tertiary age and vary in size from stocks several miles in diameter to small dykes.

The intrusions on Grouse Mountain are dyke-like bodies, which strike north or northwest and dip westerly. Four related varieties have been identified and mapped. These include two types of feldspar porphyry, a feldspar biotite porphyry and aphanitic basic dykes.

#### STRUCTURAL GEOLOGY

In the Grouse Mountain area, the overall structure is comparatively simple. However, bedding attitudes in the volcanic sections are few, precluding the possibility of much detailed structured analyses.

The sedimentary rocks dip gently in southern directions except on the northwest slope where shales and argillites, exposed below a thick sequence of massive volcanic rocks dip northwesterly. The only clear evidence of folding was discovered in the Hidden Treasure. Here, the beds near the base of volcanic rocks, are thrown into a number of small open folds with axes plunging 15 degrees northeasterly at 050 degrees.

Movement on fractures is generally slight, however, in a few cases important faults have been identified. For example, major northerly-trending faults, following pronounced topographic lineaments, pass just west of the summit and sever the east half of Grouse Mountain from the main mass. A wedge of volcanic conglomerate located one-half mile southeast of Coppermine Lake has been caught between these faults and rotated against adjacent blocks.

Perhaps more significantly, many fractures have simply opened with little or no slip displacement to accommodate numerous dykes and veins. The favoured direction of dyke intrusion is coincident with the northwesterly-striking joint set. Barren quartz veins commonly fill northwesterly striking fractures, whereas sulphide-bearing fissures often strike northeasterly.

## MINERALIZATION

The occurrence of sulphide mineralization on Grouse Mountain has been variously described as: fissure veins, breccias, stratiform deposits, replacements, and, more generally, 'zones of mineralization' or 'showings'. The principal sulphides are sphalerite, chalcopyrite, less commonly galena, and locally tetrahedrite. They are usually accompanied by quartz and some carbonates. Regarding the sources of mineralization, Church speculates that: "the mineralization is very much fracture controlled in the Grouse Mountain area. The deposits appear to be simply, the result of solutions moving upward and along developed fracture systems, filling dilatant joints and gashes and locally replacing some walls. In the few cases where sulphides are found parallel to bedding planes, it seems likely that the egress of hydrothermal solutions were locally blocked causing some lateral flow and mineralization. The source of mineralized solutions is unknown, however, several lines of evidence suggest that they may be distillates of a deeply buried stock. For example, it appears that many of the dykes and veins on Grouse Mountain were emplaced after, or about the same time, as a pre-existing system of geometrically related fractures. Spatially, veins are often close to dykes; some mineralization is actually found along dyke contacts and in cases, veins strike off abruptly from contacts. Chemical and mineralogical evidence suggests that the dykes are consanguineously related, possibly differentials of a syenomonzonite-gabbro of the Goosly type."

## LOCAL GEOLOGY OF THE LAST CHANCE (CORNUCOPIA) CLAIMS

- Church describes in detail the showings on the Last Chance group visited by the writer as follows:

"The Cornucopia zone comprises a number of small showings on the northwest slope of Grouse Mountain between 4,400 and 4,600 feet elevation (Figure 49 attached). These consist of silver bearing quartz veins and breccias following joints and shears in an alternating sequence of dacitic and volcanic rocks, siltstones and argillites (Figure 55 attached).

"The principal mineralization is found in a steep northeasterly striking quartz carbonate vein adjacent a dyke of intermediate composition. This was explored by an adit and surface trenching for a length of 20 feet. According to the Annual Report of the Minister of Mines for 1925 (p. A140):

"The high-grade mineral occurs in a vein which varies in width from 6 to 15 inches and which shows in places grey copper, specular iron, and copper-stains. A sample of the best mineral showing assayed: gold, 1.7 ounces per ton; silver, 204 ounces per ton; copper, 6.5 percent."

A grab sample of the vein taken by the writer in the vicinity of the portal assayed: gold, trace; silver, 6.2 ounces per ton; copper, 0.12 percent; lead, nil; zinc, 0.04

percent; iron, 0.96 percent; antimony, 0.06 percent. Another sample from an open cut on an apparent extension of the vein, about 300 feet southeast of the portal, yielded: gold, 0.05 ounce per ton; silver, 74.1 ounces per ton; copper, 1.44 percent; lead, 0.06 percent; zinc, 1.95 percent; iron, 7.85 percent; arsenic, 0.09 percent; antimony, 1.00 percent.

A detailed account under the name 'Last Chance Claims' is given in the Annual Report of the Minister of Mines for 1937 (pp. C11, C12).

Additional mineralization is exposed in a bulldozer trench about 400 feet southwest of the portal. This is a northerly trending zone of shattered siltstone cemented by milk quartz with accompanying pyrite and argentiferous tetrahedrite (see accompanying X-ray results). Two similar but poorly exposed occurrences are found in altered dacite tuff and carbonaceous shales near a small swamp at the base of a steep slope about 600 feet northwest of the portal. The average assay of three grab samples from the breccias is: gold, trace; silver, 16.5 ounces per ton; copper, 0.25 percent; lead, 0.18 percent; zinc, 0.50 percent; iron, 4.06 percent; antimony, 0.14 percent."

The writer's observation on the brief examination made concurs with Church's detailed examinations of the Last Chance (Cornucopia) showings. No additional samples were taken by the writer.

A plan and section of the Last Chance workings with assays, taken from a report on the property by Robert Holland dated December 6, 1982, is attached (Figure 4). It was excerpted from the B.C. Dept. of Mines Annual Report of the Minister of Mines 1937, p. C11, and contains the most detailed sampling of the showings on the Last Chance Claims group on record. So far as known by the writer, no recent work has been carried out on the property.

Holland summarizes the mineralization of showings as follows:

#### "Mineralization

Quartz-siderite veins, ranging from stringers to over 0.5 meters in width, cut the andesite. Smaller cross-cutting veinlets also occur. Mineralization consists mainly of tetrahedrite with lesser amounts of pyrite and azurite staining. Two of the veins exposed to date are considered important and all lie along a linear trend striking approximately north 30 degrees east as shown in Figure 4. Vein walls are entirely or mainly free breaking and are often oxidized even underground.

The main vein is traced by stripping, open cuts and the adit, for over 65 meters, and extends from the adit, south to open cut #5. (See Figure 4) The vein strikes north to somewhat east of north and dips steeply east. In the adit the vein ranges from 18 to 50 cm in width and, on surface, 8 to 18 cm. In 1937 five samples were



collected from the adit and five from the surface trenches covering the entire exposed length of the vein. Assay values, as shown in Figure 4, ranged from 4.0 to 312.0 oz. per ton silver, averaging 73.2 oz. per ton silver over an average width of 18.5 cm. Gold values ranged from 0.01 to 0.33 oz. per ton and copper up to 4.0 percent.

South of the main vein, two small veins are exposed in cuts 6 or 7, striking north to slightly west of north and dipping west and east respectively. A 30 cm sample from each vein taken in 1937 assayed 2.6 and 46.3 oz. per ton silver respectively with minor gold and 2.0 percent copper in the latter.

Still further south, the second important vein is exposed for 5 meters in open cut #8 and can be seen to strike north 51 degrees east and dip 45 degrees southeast. The vein averages 23 cm in width and contains the heaviest mineralization exposed. A selected specimen assayed 210.1 oz. per ton silver, 0.1 oz. per ton gold, and 4.5 percent copper. A 23 cm sample ran 44.0 oz. per ton silver, 0.035 oz. per ton gold and 1.0 percent copper. An adit was proposed to be drifted northeast on this vein, however it is uncertain if it was even driven.

As the above four veins lie along the same strike line, there is a good possibility that they are part of the same vein system and that variations in strike and dip can be attributed to vein curvature or minor faulting and rotation. If such is the case, a minimum strike

length of 110 meters can be obtained. The vein system is still open to the north and south into areas of drift cover and no attempt has been made to evaluate the down dip potential."

The above description agrees with the observations made by the writer on his recent examination of the claims.

### CONCLUSIONS

Previous work on the Last Chance claim group have demonstrated the presence of narrow, high-grade silver veins containing erratic gold values associated with intrusive stocks and dykes. The area explored on the claim group is relatively small compared with the size of the property and is obscured by the widespread, but shallow overburden. Apparently no modern exploration methods designed to trace the ultimate length of the vein structures or the occurrence of additional or larger deposits of this nature has been made. Since the mineralization is related to defined structural faults which provided channels from underlying intrusive emanation, an exploration method of finding these faults and determining if they contain economic quantities of gold, silver and copper is suggested.

**RECOMMENDATIONS**

It is recommended that a detailed geological map be prepared over the property, and a VLF geophysical survey conducted to delineate favourable fault channelway for potential drill targets. This should be accompanied by a detailed geochemical survey to locate possible mineralization along the fault zones themselves. Following this, anomalous zones should be trenched by bulldozer and, if warranted, tested by diamond drilling.

The following three phase exploration programme is recommended. Successive phases are dependent on successful results being obtained on preceding phases.

ESTIMATED COST OF  
RECOMMENDED EXPLORATION PROGRAM

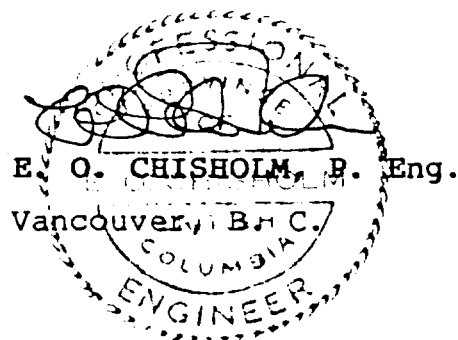
Phase I

1.	Linecutting to establish grid 16 miles of grid lines @ \$400/mile	\$ 6,400
2.	Geochemical and soil survey and assays 800 soil samples @ \$6.00/sample 50 rock samples @ \$20.00/sample	4,800 1,000
3.	Bulldozer trenching - 200 hrs. @ \$50.00/hr.	10,000
4.	Geological mapping, and samples and supervision Geologist - 30 days @ \$250.00 Assistant - 30 days @ \$150.00	7,500 4,500
5.	Engineering evaluation fees	3,000
6.	Truck (4X4) rental	1,500
7.	Miscellaneous equipment & supplies	5,000
	<b>Sub Total</b>	<b>43,700</b>
8.	Contingencies @ 20%	8,740
	<b>TOTAL - PHASE I</b>	<b>\$ 52,440</b>

## Phase II

1.	Diamond drilling to test anomalies estimated 2,000 ft. @ \$25.00/ft.	\$ 50,000
2.	Assaying - 50 samples @ \$20.00	1,000
3.	Mobilization and demobilization	2,000
4.	Transportation rental	1,500
5.	Geologist - 30 days @ \$250.00	7,500
6.	Miscellaneous equipment & supplies	5,000
7.	Evaluation report	2,000
	<b>Sub Total</b>	<b>69,000</b>
8.	Contingencies @ 20%	13,800
	<b>TOTAL - PHASE II</b>	<b>\$ 82,800</b>
	<b>TOTAL COST - Phase I and II</b>	<b>\$135,240</b>

On the completion of Phase I and Phase II with successful results, an ongoing program of surface and underground work may be necessary. At present, insufficient data is available to plan this stage effectively.



REFERENCES


1. Holland, Robert, December 6, 1982. "Summary Report on the Last Chance 1 & 2 Mineral Claims.
2. Cavey, George, consulting geologist with Omineca Consultants Ltd., April 18, 1983. Review of the above report by Robert Holland with revised programme of costs.
3. B. C. Dept. of Mines report 1935, p. C40.
4. B. C. Dept. of Mines report 1937, p. C11 & C12.
5. B. C. Dept. of Mines report 1938, p. C49.
6. B. C. Dept. of Mines report 1939, p. 99.
7. Geological Survey of Canada, 1940. Paper 40-18, Houston Area, British Columbia, p.11.
8. Geological Survey of Canada, 1942. Map 671A.
9. Geological Survey of Canada, 1949. Map 971A, Smithers-Fort St. James.
10. Geological Survey of Canada, Open File 351,176, Smithers, B.C. 93L.
11. Church, B.H., 1972. B.C. Dept. of Mines "Geology and Exploration and Mining in British Columbia", 1972 volume, pp. 397-417.

CERTIFICATE

I, Edward O. Chisholm of the City of Vancouver in the Province of British Columbia, hereby certify that:

1. I am a geologist with offices at 844 West Hastings Street, Vancouver B.C., V6C 1C8.
2. I am a graduate of the University of Toronto, Ontario, Master of Arts, 1939.
3. I am a member of the Professional Engineers of Ontario and British Columbia.
4. I have no direct or indirect interest in either the property or securities of **Adriatic Resources Corp.** or its affiliates, nor do I expect to receive any such interest.
5. This report is based on examination of the property on June 21, 1983, on Company reports and records, and on government reports published on the area.
6. I hereby consent to the use of this report by the Company in connection with a prospectus or a statement of material facts relating to the raising of funds for this project.

DATED at Vancouver, in the Province of British Columbia, this 2nd day of July, 1983.



EDWARD O. CHISHOLM, P. Eng.

The seal is circular with a dashed outer border. Inside the border, the words "PROFESSIONAL ENGINEER" are written in a semi-circle at the top, "PROVINCE OF" in the middle, and "BRITISH COLUMBIA" at the bottom. A signature is written across the seal.