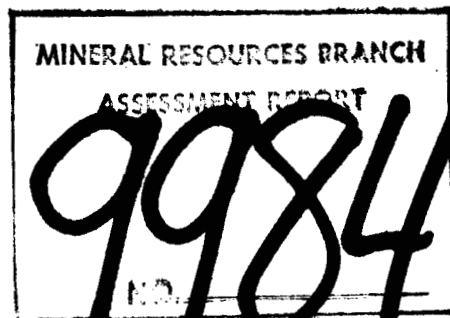


GEOLOGICAL REPORT
ON THE BIG P2 CLAIM
OF THE CLAIM GROUP
BIG P1,2,3, and LITTLE P1.



GEOLOGICAL REPORT
ON THE BIG P2 CLAIM
of the CLAIM GROUP
BIG P1,2,3, and LITTLE P1.

VERNON MINING DIVISION
NTS 82/15E and 16W
118° 30' W and 49° 54' N

Owner and Operator:
ZALMAC MINES LTD.

Report Prepared
by

L.A. Bayrock, Ph.D., P. Geol.(Alta.)
BAYROCK SURFICIAL GEOLOGY LTD.
1568 Vinson Cr. Rd.
West Vancouver, B.C.

Dec. 3, 1981

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GEOLOGICAL REPORT ON THE BIG P2 CLAIM of the
CLAIM GROUP BIG P1,2,3, and LITTLE P1.

INTRODUCTION

Location:

The Lightning Peak mineralization area is located approximately in the vicinity of $118^{\circ} 30'$ West longitude and $49^{\circ} 54'$ North latitude in British Columbia, the Osoyoos Division of Yale Land District, and within Vernon Mining District. It straddles two NTS 1:50,000 sheets, 82E/15E and 82E/16W. In elevation the area is between 5,000 to 7,000 feet above sea level. The location of the area of Lightning Peak mineralization is shown on Figure 1.

Access:

Access to the area may be gained from Vernon, B.C. by Highway 6 through the town of Lumby, 62 miles, and then by an unimproved road for 17 miles. Numerous small trails are present in the area of interest, making it possible to gain access to any portion of the mineralized area to within two miles.

Physiography:

The claims are located on a gently sloping plateau and partly on a steep slope of the plateau in the vicinity of Lightning Peak. The claims are below the timber line and at an elevation of approximately 1,700 meters above sea level. General location of the claims is shown on Figure 1.

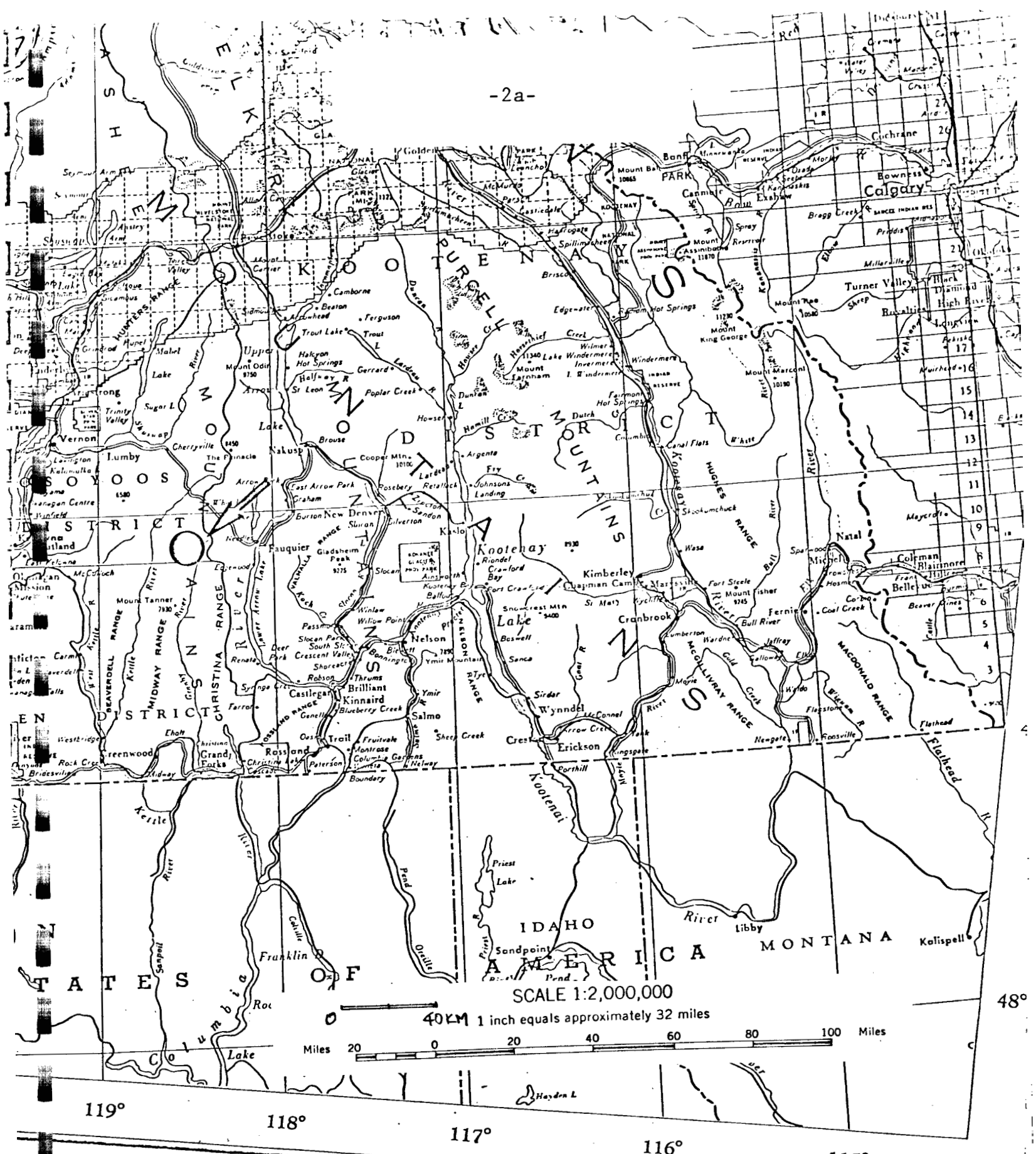
Property Definition:

The property is comprised of the following claims:

Big P1	-----10	units (whole and partial)
Big P2	----- 4	units (whole and partial)
Big P3	-----1 8	units (whole and partial)
Little P1	----- 2	units (partial)
Total	----- ²⁸ 32	units.

The locations of the claims are shown on Mineral Claim Index Map M82E/15E which is included in a pocket at the end of this report. The above 4 claims have been grouped.

Zalmac Mines Ltd. is the owner and operator of the property.



Copies may be obtained from the Map Distribution Office, Department of Mines and Technical Surveys, Ottawa.

FIGURE 1: LOCATION OF LIGHTNING PEAK AREA

Brief Economic Assessment:

The property is located almost entirely within the Lightning Peak roof pendant. The roof pendant has numerous mineral showings and past producers. One of the past producers, the Waterloo, is being developed for mining at present.

The property has very few outcrops, as most of the area is covered by variable thicknesses of glacial till and colluvium. One small group of outcrops contains the Lumpy Showing. The Lumpy Showing is a skarn in recrystallized limestone. The probability of economic skarn type of mineralization is high but exploration is difficult because of the overburden.

History of the Property:

The area of Lightning Peak has received sporadic prospecting and mining starting at the close of the 19th century. Up until 1930, small high grade ore shipments were made to the smelter at Trail, B.C. from numerous locations in the area. From the 1930's the Waterloo deposit was mined intermitently until 1954.

One of the showings of the area is the Lumpy Showing located with Big P2 claim. Although some very high grade silver ore was found on the showing, it never received extensive mining because of the small size.

After 1925, all activities ceased on the property.

In the late 1960's, Great Horn Mining Syndicate Inc. (B.C.D.M. Ass. Rpt. 1812) staked the entire roof pendant and conducted geochemical soil surveys over the entire area. Shortly after, the Great Horn Mining Syndicate dropped the holdings. The area of the claims under consideration remained open until it was staked and acquired by Zalmac Mines Ltd. on November 10, 1980. The claims are unsurveyed.

Fieldwork:

A geological survey of the old workings and outcrops in the Lumpy Showing area was conducted from the 9th to 12th of September 1981. The survey was aimed at establishing types of mineralization in the area and to gain insight toward planning of exploration in the area.

The survey was conducted by Dr. L.A. Bayrock who was assisted by Mr. P. Zaleski of Zalmac Mines Ltd.

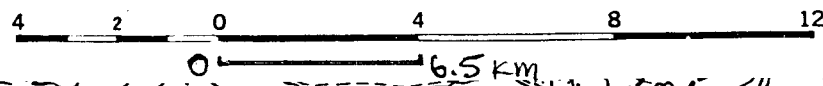
GEOLOGY OF LIGHTNING PEAK AREA

An excellent account of the geology of the Lightning Peak area is give by Cairnes (1930). Thus only a short summary is given here with pertinent additions and reinterpretations based on data which comes to light after the above date.

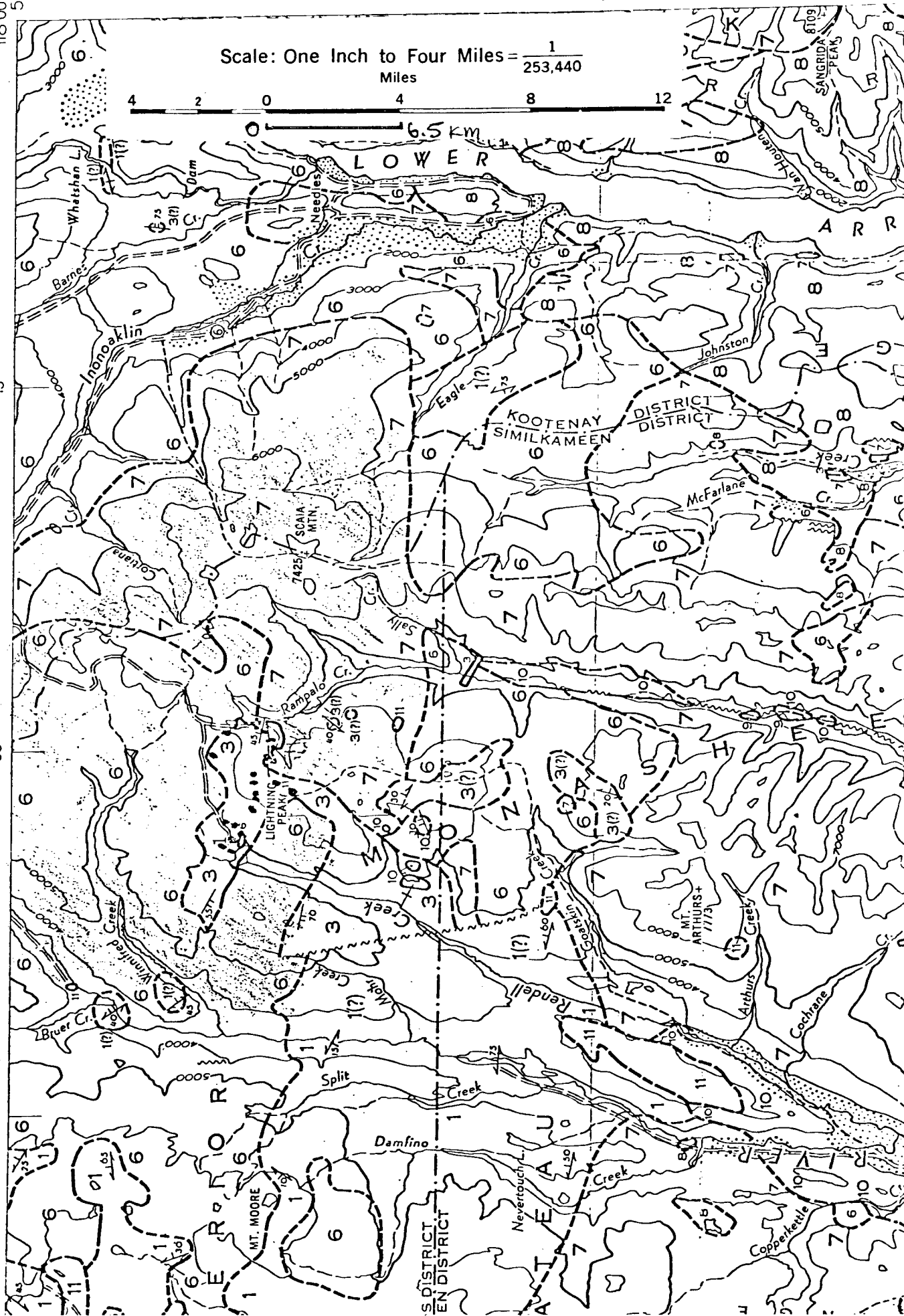
FIGURE 2: GEOLOGY OF KETTLE RIVER (Little 1957)

SHEET 82E (East Half)
118°00' 50"00"

Scale: One Inch to Four Miles = $\frac{1}{253,440}$
Miles



DEPARTMENT OF MINES AND TECHNICAL SURVEYS
GEOLOGICAL SURVEY OF CANADA



RIES

S DISTRICT
EN DISTRICT

A T I E A U
Creeks

Copperkettle

The general geology of the whole area, NTS sheet 83E (East Half) has been mapped by Little (1957) to a scale of one inch to four miles (1:253,440). A portion of the map is shown on Figure 3. The Lightning Peak area forms a roof pendant of sediments and volcanic rocks (The Anarchist Group of Permian Period) surrounded by the Nelson and Valhalla granites of Cretaceous Period. The following sequence of deposition and intrusion is presented beginning with the oldest in the area:

1. Deposition of the Anarchist group-volcanic rocks, sedimentary volcanics, sandstone and limestone.
2. Granitic intrusions - Nelson and Valhalla granites.
3. Dykes, pegmatites and quartz porphyry intrusions during or following granitic intrusions; mineralization and formation of skarns.
4. Olivine basalts - only a small area of Lightning Peak.
5. Erosion to present land surface including glaciation.

Anarchist sediments are composed of a variety of rocks which include both sedimentary and volcanic deposits. Of interest here is the extent of limestone within the group. According to Cairnes (op.c.pp.89A and 90A) the limestone belt extends from the Potosi group in the west to and across the Lumpy property. The limestone is important as it is the host of skarn mineralization. Skarn mineralization may be both high grade and low grade and of large extent. Heavy glacial drift cover obscures much of the bedrock.

During the granitic intrusions and following them shortly the roof pendant became intensely metamorphosed and metasomatized. Specifically, the hot solutions from the granite carrying iron and magnesia changed the sedimentary rocks, particularly the limestone to skarn. Skarn is a rock suite which shows metasomatic (hot solution) alteration by the addition of iron and magnesia. Calc-silicate hornfelses and garnetites are produced. A limestone having been changed to massive garnet (garnetite) is one of the ultimate proofs for skarns. Cairnes (ap.cit.p.90A) states:

"In places the limestone has been altered to massive garnetite composed largely of reddish garnet associated with some crystalline calcite".

Following the episode of the roof pendant alteration and intrusion by dykes of acid composition, an olivine

basalt extrusion took place. This was of very small dimensions as it forms only the top of Lightning Peak.

Subsequent erosion removed the overlying rock exposing the granites and the roof pendant.

Glacial deposition of till during the Pleistocene covered much of the bedrock so that outcrops are few to missing over large areas.

The Lightning Peak roof pendant is extensively mineralized. According to B.C. Dept. of Mines and Petroleum Resources MIN FILE (a computerized mineral resources file) there are 20 mineral showings in the area. Cairnes (ap. cit.) gives 21 showings. All of the showings fall within the area of the roof pendant. The showings are records of old investigations from 1904 onwards where the major interest was centered on the veins with high grade mineralization.

It is obvious that granites surrounding the Lightning Peak roof pendant had high heavy metal concentrations as evidenced by the large number of mineral occurrences in the area. Thus it follows that there is a good chance of finding an economic mineral deposit associated with the granites of Lightning Peak. Mineralization by solutions coming from a granite is mainly in the rocks very near the contact of the granite with the country rocks.

FIELD WORK SUMMARY

The Lumpy Showing area was surveyed by chain and compass and the results are shown on Map I. Two different rock types were recognized in the field; recrystallized limestone and intrusive granite to granodiorite.

A total of 21 trenches in different states of preservation were mapped. Apparently, these trenches were excavated in the early 1920's. Two adits are present, the eastern adit being 21.5 meters long and the western 8 meters long. Beside the old workings, eight small outcrops were mapped.

The limestone is recrystallized to a coarse marble. No original bedding planes were visible. The color varies from white to rusty red at the surface and grey to greenish grey below the surface. In the adit the limestone was almost entirely altered to diopside and calcsilicates in places.

The intrusive rocks are light to dark grey in color, fine to coarse grain, and massive. The composition of the intrusives is variable from almost of alaskite composition to that of a mafic granodiorite. Primarily because of poor exposures the relationships of the different compositions could not be established.

The intrusives vary from massive bodies to narrow vertical dykes, some of which are barely 10 cm wide. The contacts between the limestone and the intrusives

are usually deeply weathered and have the appearance of gossan where observed at the surface. No unweathered contacts were encountered. The gossan zones vary from a few cm to over 1 meter in width.

The strikes of the contacts vary considerably from place to place as the intrusive bodies appear to be irregular in shape and size.

Minor shear zones were observed in trenches 12, 14, and 21. These have a strike of 60° azimuth.

The shear zones of trenches 21 and 14 were apparently the original Lumpy Showing as reported in B.C.M. of M. Ann. Rept., 1925, p.A196:

"Some very high-grade secondary silver ore was found on the Lumpy claims, which occurred in stringers and small segregations, but the original locators were unable to trace this lead at depth, chiefly owing to the broken nature of the ground".

The limestone below the surface as examined in the two adits is pyritiferous with pyrite constituting from 1 to 10 per cent. The rusty color of the limestone at the surface is interpreted as being due to the weathering of the pyrite. Thus, it may be said that all of the limestone examined is pyritiferous.

Visible disseminated galena and sphalerite were observed in trench 14 in unweathered pieces of rock which came from at least 2 meters below the surface. No galena or sphalerite were seen in any of the surface outcrops. It is assumed that low percentage mineralization has been weathered out in the surface samples.

Hand samples were collected from all of the exposures and these were analysed for scheelite by ultraviolet light. From 76 samples, only 11 showed weak to moderate green fluorescence. No blue or yellow colors were seen which are characteristic of scheelite. Thus it is concluded that it is highly unlikely that scheelite is present at the locality examined.

Five rock samples were analysed for Cu, Pb, Zn, Ag, and Au. The results are given in Table I. Sample 1 was collected across the dump of the eastern adit by taking small chip samples of numerous rocks. Theoretically, it should give an average composition of the adit. Sample 2 is a grab sample from the wall at the entrance of the western adit. Sample 3 is a grab sample of weathered limestone from Trench 13. Sample 4 is a sample of unweathered limestone from the dump of Trench 14. Specks of galena and sphalerite were present. Sample 5 is a grab sample from Trench 15 of unweathered limestone.

TABLE I

Rock Analyses Results - Lumpy Showing.

Samples collected by G. Lustig, Pancontinental Mining (Canada) Ltd. and analysed by Min - En Laboratories, N. Vancouver. Samples collected in September 1981.

Sample	Per Cent		Oz/Ton		Au	\$
	Cu	Pb	Zn	Ag		
1- Chips from dump E.Adit	.003	.1	.1	.06	.005	5.74
2- Grab from W.Adit	.003	.02	.02	.10	.002	2.84
3- Grab trench # 13	.002	.01	.01	.08	.001	1.82
4- Grab trench #14	.012	1.37	1.07	4.76	.003	92.62
5- Grab trench #15	.002	.83	.05	.18	.001	12.68

The value per ton was evaluated as of September 28th, 1981. Sample 4 is definitely of ore grade. Sample 5 is marginal and the rest are too low to be ore grade.

The mineralized zone of the Lumpy Showing is small and is apparently associated with the two small shear zones of Trenches 21 and 14.

The extent of the limestone could not be determined. The contacts of limestone with other lithologies of the Anarchist group are covered with overburden in the Lumpy area and were not observed. The limestone horizon, as mapped, is at least 220 meters long and at least 80 meters wide.

The contacts of intrusives with limestone are favorable mineralization locations. The continuation of the contacts should be explored in two directions into area covered by overburden. These are: 1) to the west and northwest, and 2) to the east and southeast.

REFERENCES CITED

- 1) B.C.D.M. ASS. REPT. 1812
- 2) B.C.M.of M., ANN REPT., 1925, p. A196.
- 3) CAIRNES, C.E. (1930): Lightning Peak Area, Osoyoos Dist., B.C.; G.S.C. Sum. Rept. 1930, Part A, pp. 79A - 115A.
- 4) LITTLE, H.W. (1957): Geology of the Kettle River Area; G.S.C. Map 6-1957, Scale 1:253,440.

STATEMENT OF QUALIFICATIONS

I, Luboslaw A. Bayrock, of West Vancouver, do hereby certify that:

1) I am a consulting geologist with a business address at 1568 Vinson Creek Road, West Vancouver.

2) I am a graduate in Geology with a Bachelor of Science degree from the University of Alberta, 1953, Master of Science degree from the University of Alberta, 1954, and Doctor of Philosophy degree from the University of Wisconsin, 1960.

3) I am a registered member as a Professional Geologist of the Association of Professional Engineer, Geologists and Geophysicists of Alberta. I am a member of the Geological Society of America.

4) I have practiced my profession as a geologist continuously since graduation.

L.A. Bayrock, Ph.D., P. Geol.(Alta)

West Vancouver, B.C.

December 3, 1981

STATEMENT OF WORK PERFORMED AND EXPENDITURES

Geological Survey:

Geological survey and report. ----- \$6,126.75

Sample Essays:

Five samples (5/6 of \$241.50)----- \$ 201.25

Total ----- \$6,328.00

BAYROCK SURFICIAL GEOLOGY LTD.

1568 VINSON CREEK RD.

WEST VANCOUVER, B.C.

V7S 2Y1

TELEPHONE: (604) 926-7234

ZALMAC MINES LTD.
7808 DeJong Drive
Vernon, B.C.

DATE December 6, 1981

INVOICE NO 80-19 469

Attention: Mr. P. Zaleski

Invoice payable upon receipt. Interest 2% per month.

PROFESSIONAL FEE

Fieldwork from Sept. 8th, noon to Sept. 12th, noon
4 days @ 815.00 per day -----\$3,200.00
Writing of Report 3 days @ 815.00/day -----\$2,500.00

TECHNICAL SERVICES

Drafting 4.5 hours @ 20.00/hr.-----\$ 90.00
Typing, dictation, sample sorting and delivery,
preparation of reports etc,
2 days @ 140.00/day-----\$ 280.00

DISBURSMENTS

Materials for finishing of report, four copies,----\$ 45.00
Purchase of Maps. -----\$ 11.75

Total this Invoice-----\$6,126.75

INVOICE

N^o 8945

MIN-EN LABORATORIES LTD.

705 WEST 15TH STREET
NORTH VANCOUVER, B.C.
CANADA V7M 1T2

Phone: (604) 980-5814 or 988-4524
Telex: 04-352828

DATE Sept. 23/81
YOUR ORDER NO.

TO . Pancontinental Mining,
· 2526 Burian Drive,
· Coquitlam, B.C.

QUANTITY	STOCK NUMBER/DESCRIPTION	UNIT PRICE		AMOUNT	
6	assays - Cu,Pb,Zn,Ag,Au	37	50	225	00
6	assays sample prep	2	75	16	50
	TOTAL			241	50

THESE ARE PROFESSIONAL SERVICES AND PAYABLE WHEN RENDERED.
OVER 30 DAYS 1.5% INTEREST WILL BE CHARGED PER MONTH.

M82E/15E

TO NORTH SEE MAP B2L/2 E

Date 81-10-29

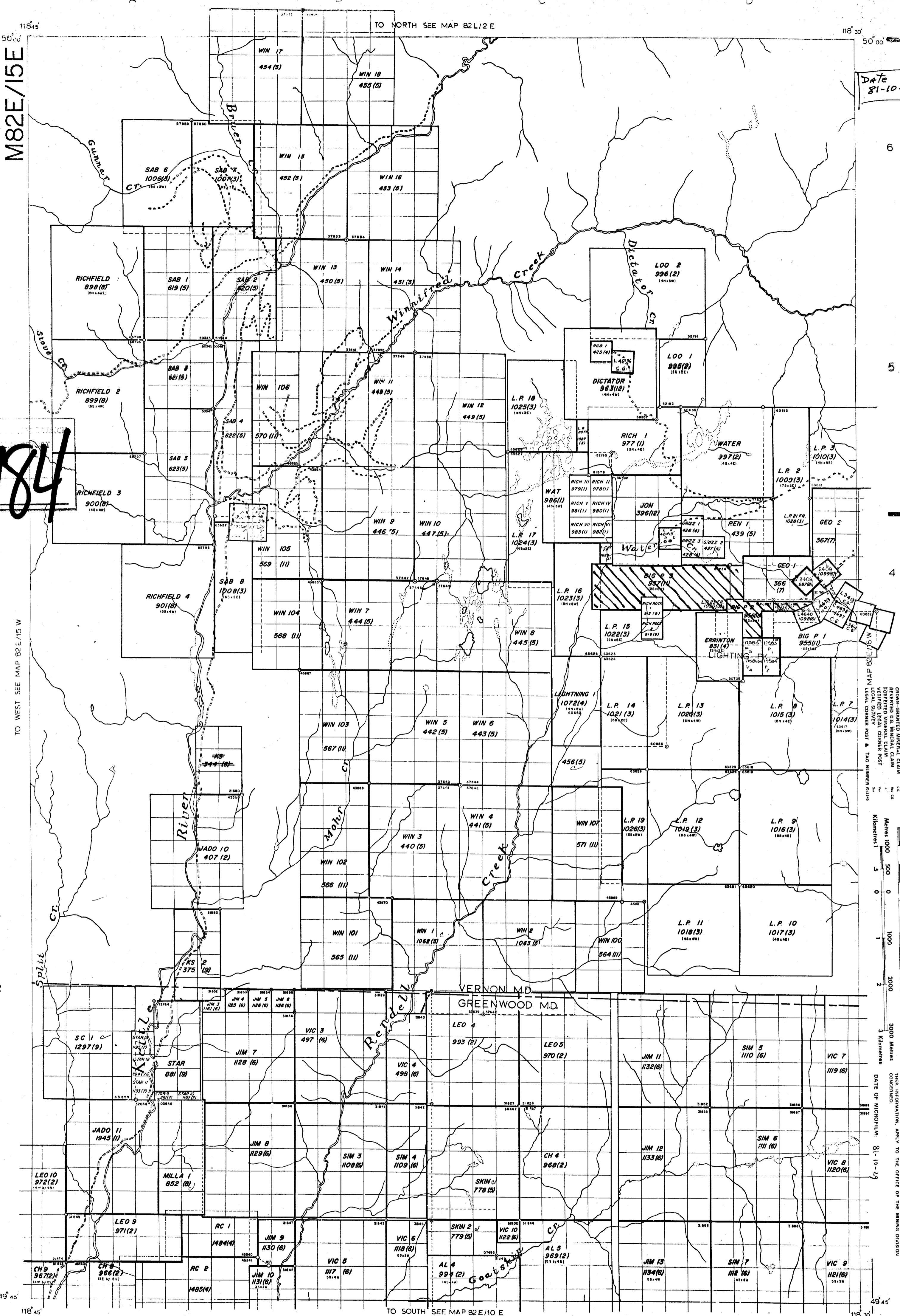
9984
NO

TO WEST SEE MAP B2E/15 W

118 45'

TO SOUTH SEE MAP B2E/10 E

118 30'



LEGEND

- GRANT-ORIGINATED MINERAL CLAIM
- REVERTED CO. MINERAL CLAIM
- FORFEITED MINERAL CLAIM
- VERIFIED LEGAL CORNER POST
- LEGAL CORNER POST
- LEGAL CORNER POST # TAG NUMBER 0348

2 Miles
 1000 Meters
 500 Meters
 0
 1000
 2000
 3000 Meters

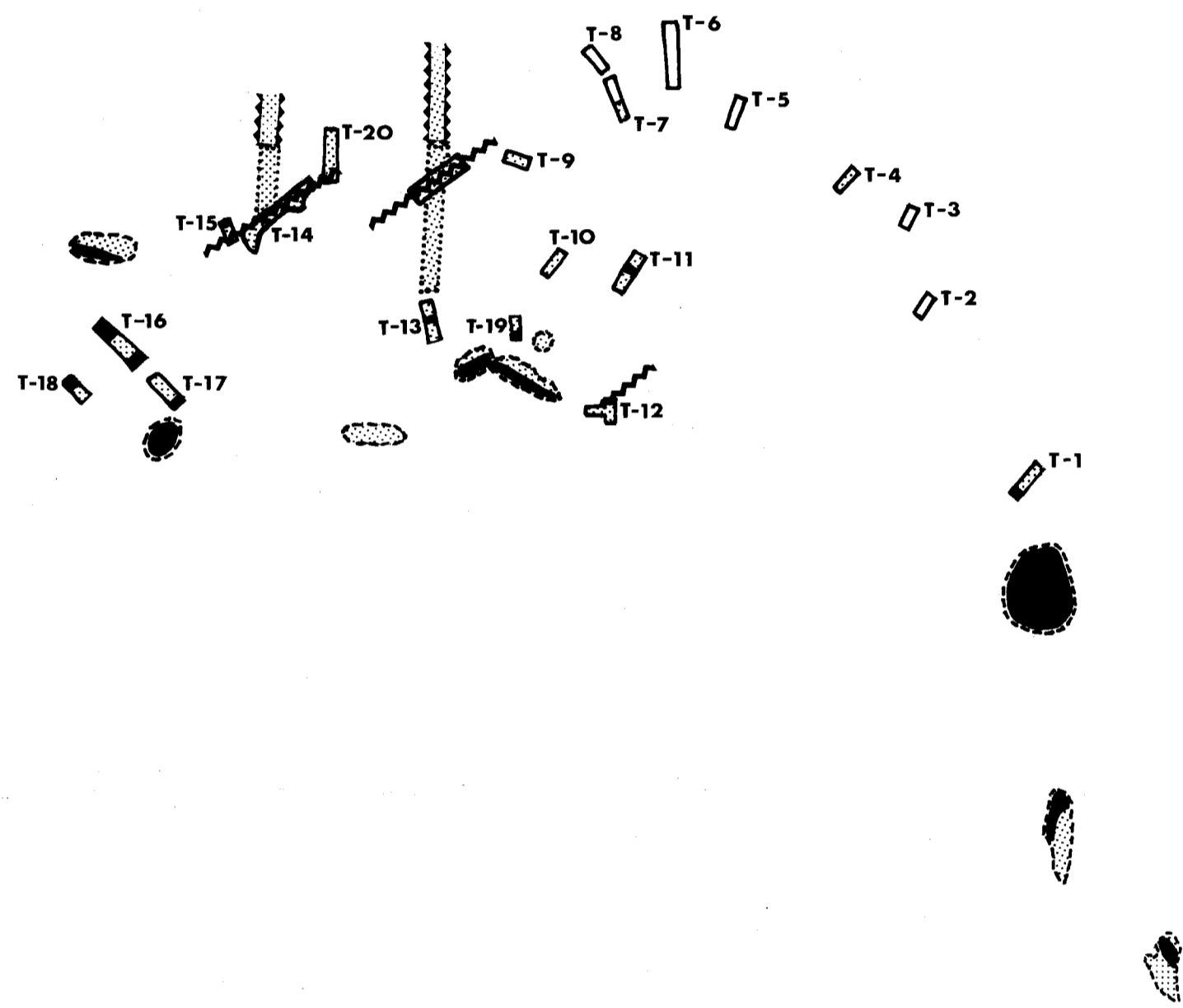
DATE OF MICROFILM: 81-10-29

UNLESS VERIFIED OR SURVEYED, THE MAP POSITION OF A LEGAL CORNER POST IS BASED ON THE LOCATOR'S SKETCH FOR THE CONSIDERED. APPLY TO THE OFFICE OF THE MINING DIVISION.





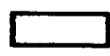

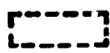
APPROXIMATE LOCATION
CLAIM POST 60633

BIG P2

LITTLE P1



LEGEND

-  LIMESTONE
-  INTRUSIVE - GRANITE TO GRANO-DIORITE
-  ADIT
-  SHEAR ZONE
-  TILL
-  DUMP
-  OUTCROP

20 m
SCALE 1:1000

BAYROCK SURFICIAL GEOLOGY LTD.

LUMPY SHOWING
GEOLOGY

COMPILED BY:	LAB	DATE:	9/81	PROJECT:	80-19
DRAWN BY:	LDP	DATE:	9/81	SCALE	1:1000
MAP NO.	1				

MINERAL RESOURCES BRANCH
ASSESSMENT REPORT
9984