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Proposal for the Exploration of a Sulfide Deposit

at

Limonite Creek

Telkwa Pass Area, British Columbia

NTS 93L/12

Lat. 54° 33'N., Long. 127° 48'W

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January 4, 1990

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SUMMARY OF CONCLUSIONS AND RECOMMENDATIONS

Several large exotic limonite deposits (ferricrete) occur down-slope from an oxidizing sulfide deposit north of Limonite Creek in the Telkwa Pass area, British Columbia. The sulfide deposit is not visible at the surface and it is not known whether the sulfides occur as massive sulfides or disseminated sulfides.

Pyrite is probably a major component of the sulfide body as evidenced by the fact that oxidizing pyrite yields ferrous sulfate, from which the exotic limonite deposits were ultimately formed.

However, chalcopyrite, molybdenite, sphalerite, galena, tetrahedrite and gold occur in many prospects in Telkwa Pass and it is expected that the sulfide deposit at Limonite Creek will contain other base metals and may contain precious metals as well.

It is recommended that detailed geological mapping and geochemical soil surveys be conducted in the area up-slope from the exotic limonite deposits in order to identify the source of the iron - rich solutions.

Proposal for the Exploration of a Sulfide Deposit at Limonite Creek, Telkwa Pass Area, British Columbia

PROPERTY AND LOCATION

Limonite Creek lies in Telkwa Pass, 52 kilometers west-southwest from Telkwa, B.C. (figures 1 and 2). The origin of Limonite Creek is at the outlet of Tauw Lake at elevation 815 meters, from whence it flows 13 kilometers southwesterly where it joins Zymoetz River.

A 500,000 volt transmission power line, which is owned by British Columbia Hydro and Power Authority traverses Telkwa Pass as does a 10 inch high pressure underground gas transmission pipeline which is owned by Pacific Northern Gas Ltd.

An unimproved road traverses the pass and follows approximately the route of the pipeline.

Figure 1.- Map showing location of Telkwa Pass area.

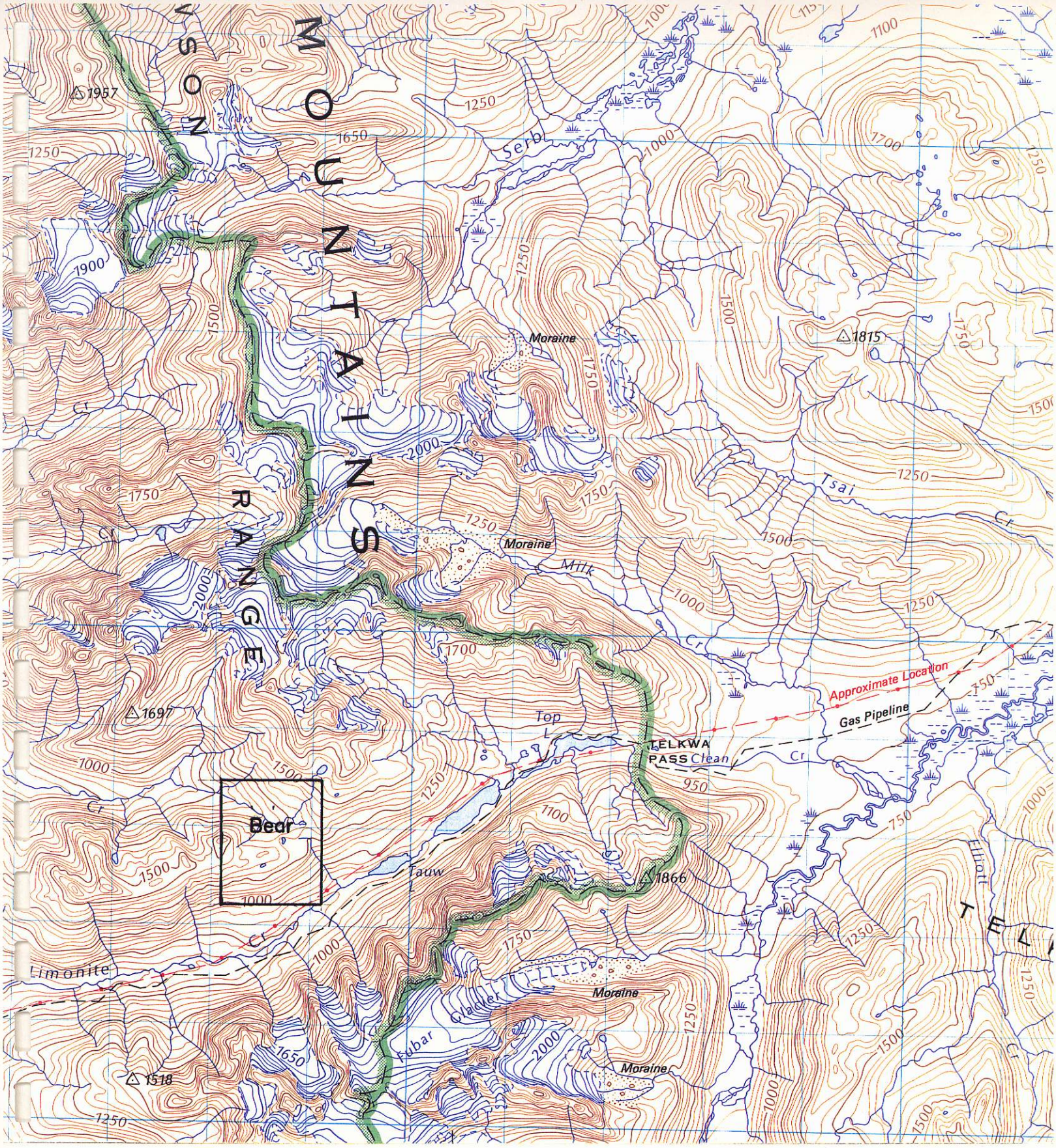


Figure 2.- Topographic Map of Telkwa Pass area.

HISTORY

First record of prospecting in the Limonite Creek area is reported in the B. C. Minister of Mines Annual Report for 1913. In 1914 the Annual Report noted that limonite ("iron ore") deposits were explored by open cuts and trenches. MacKenzie (1915) reporting in the Summary Report for the Geological Survey of Canada, presented a brief description of the geology of the limonite deposits and produced analyses of nine limonite samples. He noted that the limonite:

> " ... plainly has been derived from the decomposition of iron sulfides farther up the mountain side."

In 1957 (Smith, 1957) Shawano Iron Mines Ltd. drilled 27 holes in the limonite deposits, testing them as a source for iron ore. They noted thicknesses up to 22 feet (6.7 meters) of limonite.

In 1962 Noranda Explorations Ltd. reportedly (Chaplin and Woolverton, 1969) drilled a short hole north of the upper gossan, but failed to find the sulfide zone.

Chaplin and Woolverton (1969) reported on geological, geochemical and geophysical surveys done by Evergreen Explorations Ltd. and

Pacific Petroleums Ltd. during the summer of 1969. They noted:

> " ... The biotization, sericitization and silicification of the younger acid intrusive rocks strongly indicate the existence of a porphyry environment."

They concluded however that the mineralization is deep seated.

CLAIMS

One claim, comprised of 20 units, covers the area which is believed to include the source of the exotic limonite. This claim is the Bear, Record No. 11317 (figure 3). Owner of the Bear claim is W. D. Tompson, signator of this report.

Five crown granted claims cover the largest of the exotic limonite deposits south of the Bear claim (figure 3). They have been kept in good standing for many years and are owned by L.H. Jones of Evanston, Illinois.

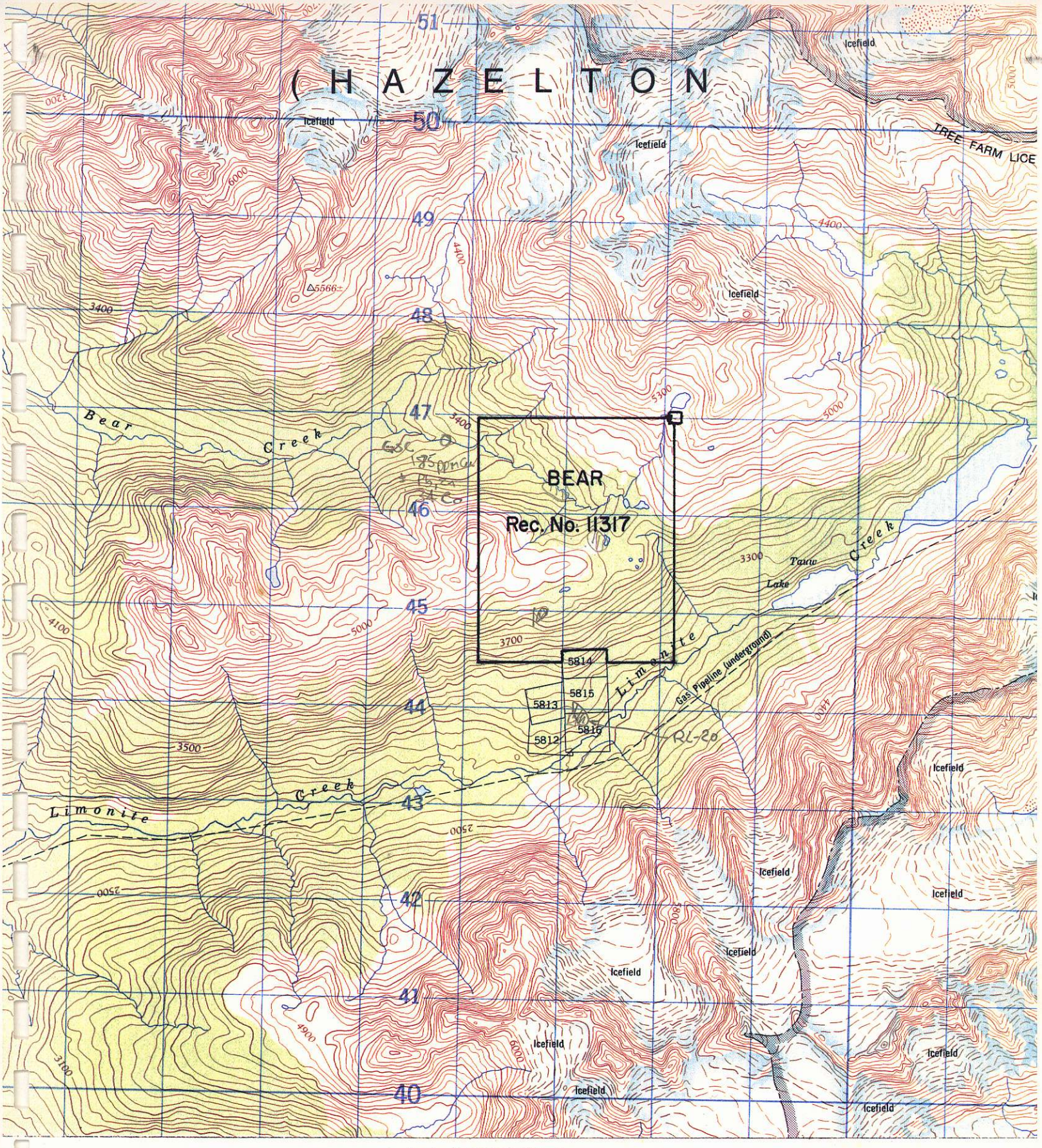


Figure 3.- Map of Bear claim, Limonite Creek area, British Columbia.

GENERAL GEOLOGY

The general geology of the Limonite Creek - Zymoetz River area is shown by Rice (1948) and by Duffell and Souther (1964).

The area is underlain by andesitic flows and pyroclastic rocks of the Middle Jurassic Hazelton group.

These are intruded by Upper Cretaceous to Lower Tertiary granite and granodiorite plutons. To the east of the Limonite Creek prospects is the Howson batholith. It is about 30 kilometers long in a north - south direction and is up to 12 kilometers wide. To the west of the prospect area, the Kleanza Creek apophysis of the Coast Intrusions (Duffell and Souther) projects in an easterly direction perpendicular to the regional trends and terminates (?) 8 kilometers from the Limonite Creek prospect area.

EXOTIC LIMONITE DEPOSITS

Blanchard (1968) in his treatise on leached outcrops defines exotic limonite as :

> " ...limonite that is precipitated from iron-bearing solutions which have moved so far from their source that the source no longer can be identified specifically."

There are three areas of exotic limonite accumulation at Limonite Creek (figure 4). The principal one of these lies on the south-facing slope above Limonite Creek and is the occurrence which was described by MacKenzie (1915) and is described in several reports for the B.C. Ministry of Mines. It covers about 50 acres (MacKenzie, p. 67) and is up to 22 feet thick (Smith, 1957). The other two occurrences are described by Chaplin and Woolverton (1969). They lie 1 1/2 to 2 kilometers north of the original occurrence and are on the northern and eastern slopes of the mountain.

MacKenzie (1915) shows that the limonite occurs in platy layers which lie parallel to the slope of the hill. The limonite replaces vegetation and forms terraces that are in the growth process.

Origin of the Limonite Deposits

Blanchard (1968) shows that under natural conditions pyrite is oxidized by oxygen in the presence of water to form sulfurous acid and ferrous sulfate. He also shows that a variable portion of the ferrous iron may be expected to oxidize to the ferric state. As such, some of the iron may be exported as ferric sulfate.

Sulfide Deposit as Source of Iron

In the case of the deposits at Limonite Creek, a sulfide deposit- either massive sulfides or disseminated sulfides - occurs up-slope from the limonite deposits. The near-surface portions of the sulfide deposit are oxidizing and limonite is being deposited from ferric sulfate solutions, down-slope to the north, south and east from their origins. Precipitation is caused by dilution of the solutions and possibly by reaction of the solutions with hydrocarbons in vegetation.

Other sulfide minerals, e.g. chalcopyrite, sphalerite, galena and tetrahedrite may occur with the pyrite from which the exotic limonite deposits originated. If so, they would be partially or wholly oxidized by the excess acid which is produced by oxidation of the pyrite and some of the metals would be exported in solution.

Figure 4 is a topographic map showing the locations of the exotic limonite deposits and the estimated position of the sulfide deposit which is the source of the iron.

Figure 5 is a north-south cross section through the limonite deposits showing the likely location of the sulfide deposit.

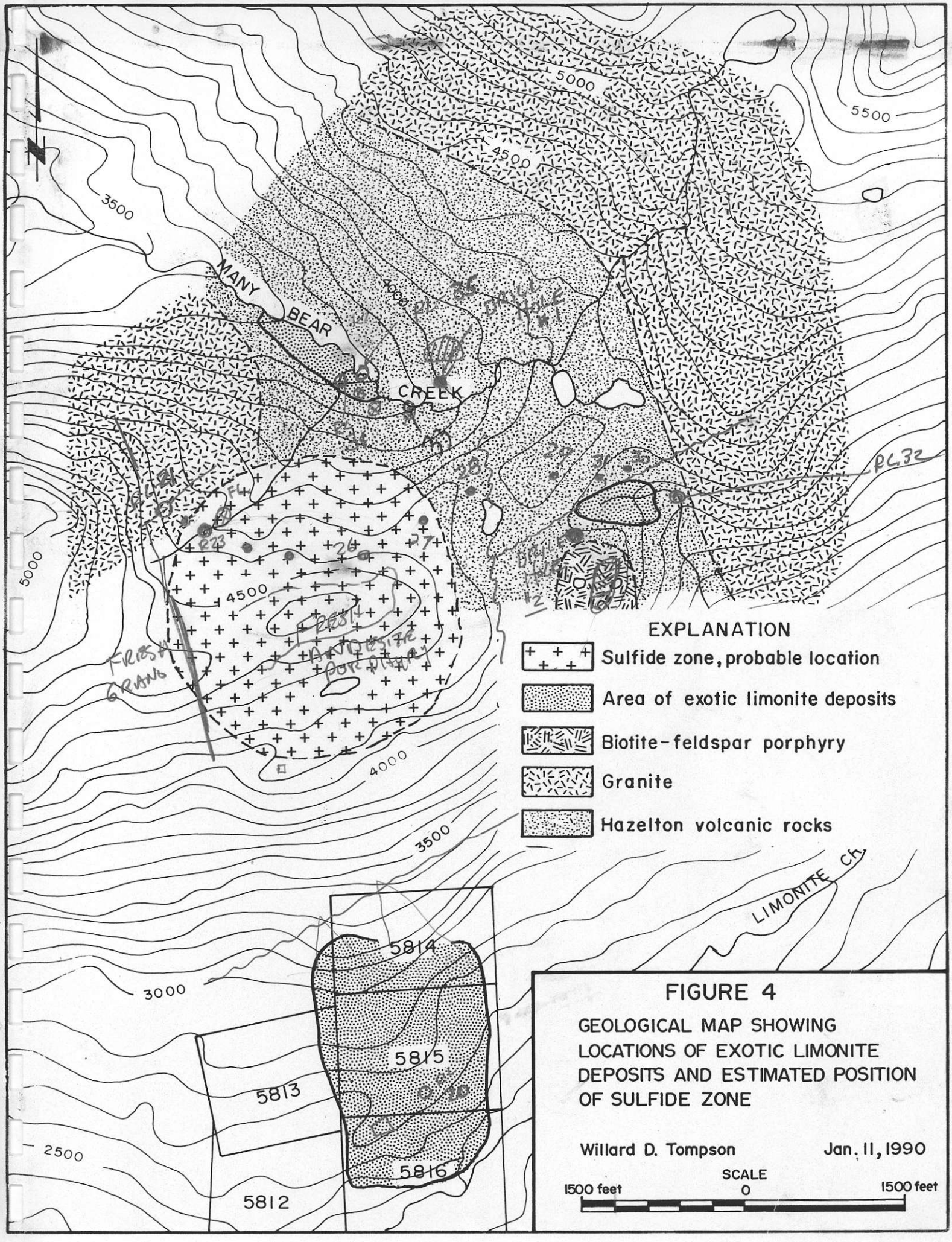


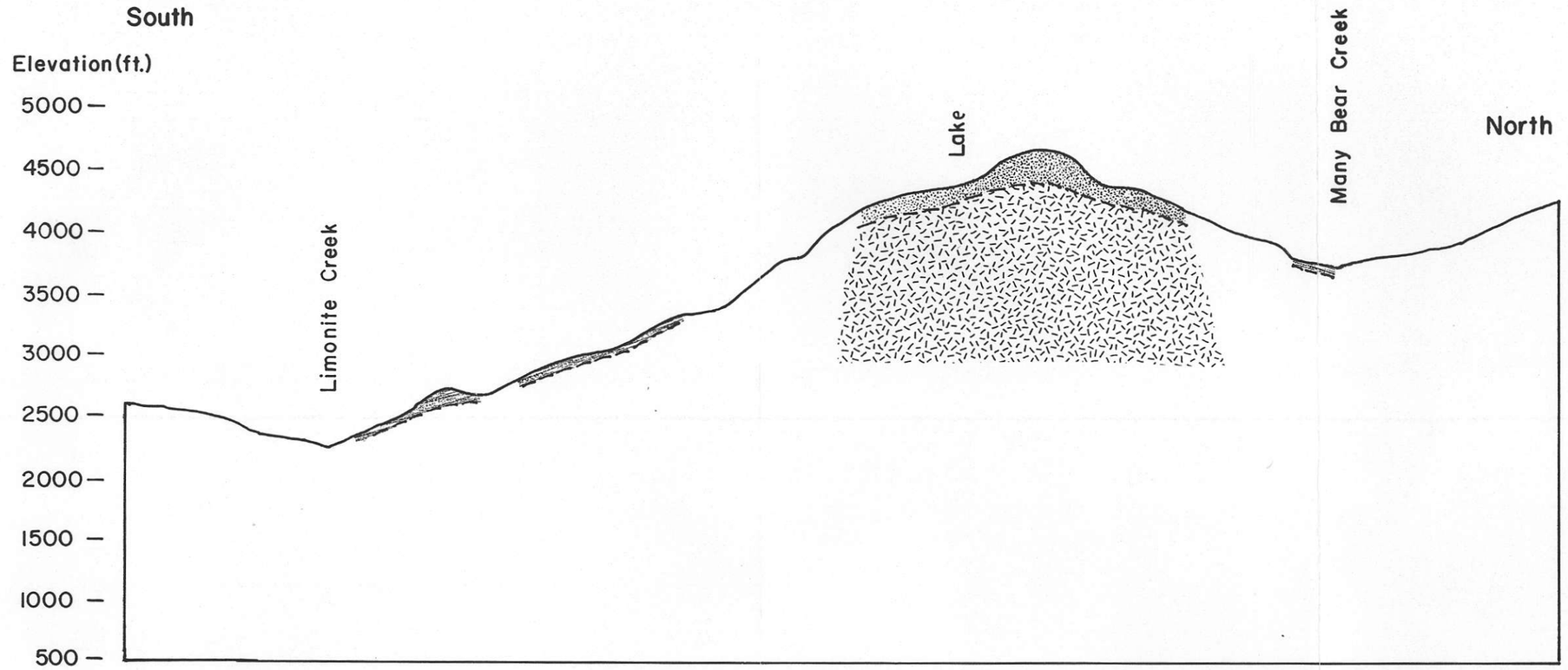
FIGURE 4

GEOLOGICAL MAP SHOWING LOCATIONS OF EXOTIC LIMONITE DEPOSITS AND ESTIMATED POSITION OF SULFIDE ZONE

Willard D. Tompson Jan. 11, 1990

SCALE

1500 feet 0 1500 feet



EXPLANATION

- Exotic limonite deposits.
- Zone of oxidation.
- Sulfide zone.

Figure 5

Cross Section Through Limonite Deposits Showing Likely Position of Sulfide Zone Limonite Creek Area, British Columbia

Willard D. Tompson January 5, 1990

Scale

1500 feet 0 1500 3000 4500 feet

CONCLUSIONS

A massive sulfide body or a large deposit of disseminated sulfides is the probable source for the iron which forms the exotic limonite deposits north of Limonite Creek in the Telkwa Pass area, British Columbia.

The deposits occur in andesitic flows and pyroclastic rocks of the Middle Jurassic Hazelton group and lie between two major plutons; the Howson batholith and Kleanza Creek apophysis of the Coast Intrusions. The plutons are Upper Cretaceous to Lower Tertiary in age and are only 9 kilometers apart in the area of the Limonite Creek prospects.

The sulfide body, which is believed to be the source of the iron in the limonite deposits, probably lies up-slope from the 3 areas of exotic limonite accumulation.

Near-surface rocks in the sulfide zone may be thoroughly leached as a result of large volumes of sulfurous acid which are produced by the oxidation of pyrite, and thus a gossan may not exist at the surface above the sulfide zone.

Chalcopyrite is known to occur with pyrite in quartz veins throughout the area and sphalerite and galena occur in several prospects in Telkwa Pass along with significant values in gold and silver. Thus it may be expected that the sulfide deposit at Limonite Creek will not be exclusively pyrite.

RECOMMENDATIONS

It is recommended that the area of interest (figures 5 and 6) be studied and mapped in detail with close attention to rock alteration and evidence of sulfide leaching.

It is also recommended that a geochemical survey be conducted over and around the altered area using a sample array of 20 by 50 meters. However, it must be borne in mind that if the near-surface rocks were thoroughly leached by sulfurous acid solutions, the relatively mobile copper and zinc compounds may have been completely removed from the rocks in the zone of oxidation (figure 6).

If evidence of sulfide leaching of the rocks is identified, induced polarization techniques may be employed in order to locate buried conductors.

Respectively submitted

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CERTIFICATE

I, Willard D. Tompson, of Smithers, British Columbia, do hereby certify:

1. THAT I am a consulting geologist residing at Van Gaalen Road, Smithers, British Columbia;

2. THAT I hold a Master of Science degree (Geology) from Montana State University;

3. THAT I am a Fellow of the Geological Association of Canada;

4. THAT I have practiced my profession for more than 30 years.

5. THAT this report is based upon a complete review of published information regarding the prospects at Limonite Creek;

6. THAT I am owner of the Bear Claim, record number 11317 which is described herein.

Dated at Smithers, British Columbia this 5th day of January, 1990.

Willard D. Tompson

Consulting Geologist