GEOLOGICAL BRANCH
ASSESSMENT REPORT

20,370

A Proposal to Discover the Sulfide Deposit

at

Limonite Creek

Telkwa Pass Area, British Columbia

NTS 93L/12

Lat. 54o 33'N., Long. 127o 48'W

Willard D. Tompson

October 4, 1990

ARIS SUMMARY SHEET

District Geologist, Smithers Off Confidential: 91.10.22

ASSESSMENT REPORT 20370 MINING DIVISION: Omineca

PROPERTY: Bear
LOCATION: LAT 54 33 00 LONG 127 48 00
UTM 09 6045164 577619
NTS 093L12W

CAMP: 042 Telkwa Range

CLAIM(S): Bear
OPERATOR(S): Tompson, W.D.
AUTHOR(S): Tompson, W.D.
REPORT YEAR: 1990, 77 Pages
COMMODITIES
SEARCHED FOR: Copper,Zinc
KEYWORDS: Jurassic,Talkwa Formation,Andesites,Tuffs,Limonite
WORK
DONE: Prospecting
PROS 500.0 ha
Map(s) - 1; Scale(s) - 1:5000
RELATED
REPORTS: 02413
MINFILE: 093L 058,093L 075

CONTENTS

CONTENTS (CONT)

ILLUSTRATIONS

Plates

Figures

SUMMARY OF CONCLUSIONS AND RECOMMENDATIONS

A large, massive sulfide deposit which is not exposed at the surface and which lies near the divide between Limonite Creek and Many Bear Creek, is the probable source for the large exotic limonite deposits which occur at the headwaters of those drainages.

Host rocks are felsic to intermediate pyroclastic rocks of the Early to Middle Jurassic Telkwa Formation of the Hazelton group.

Geochemical testing for base metal and precious metal content of the limonite is inconclusive due to the fact that all water flowing through or over the limonite deposits is acidic, with pH of 2.2 - 4.9. Such an acid environment will preclude precipitation of copper and zinc compounds.

Geological and geochemical work, including detailed monitoring of the pH of the drainages, will provide the means of tracing the acidic solutions back to their source, and thus establish drill targets.

Pulse EM surveys are widely accepted techniques in the search for massive sulfide ore bodies, as they can easily target deposits to a depth of 500 meters. It is recommended that the target area be explored by Pulse EM techniques.

A diamond drill program of at least 4000 feet (1220 meters) should be utilized to test drill targets.

Cost of the exploration program as described herein, is $266,200.

A Proposal to Discover the 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.

A good gravel logging road follows the route of the Telkwa River from the community of Telkwa to Milk Creek in Telkwa Pass. Westward from Milk Creek the road through Telkwa Pass was upgraded during the summer of 1990, as required for construction of a new pipeline by Pacific Northern Gas Ltd.

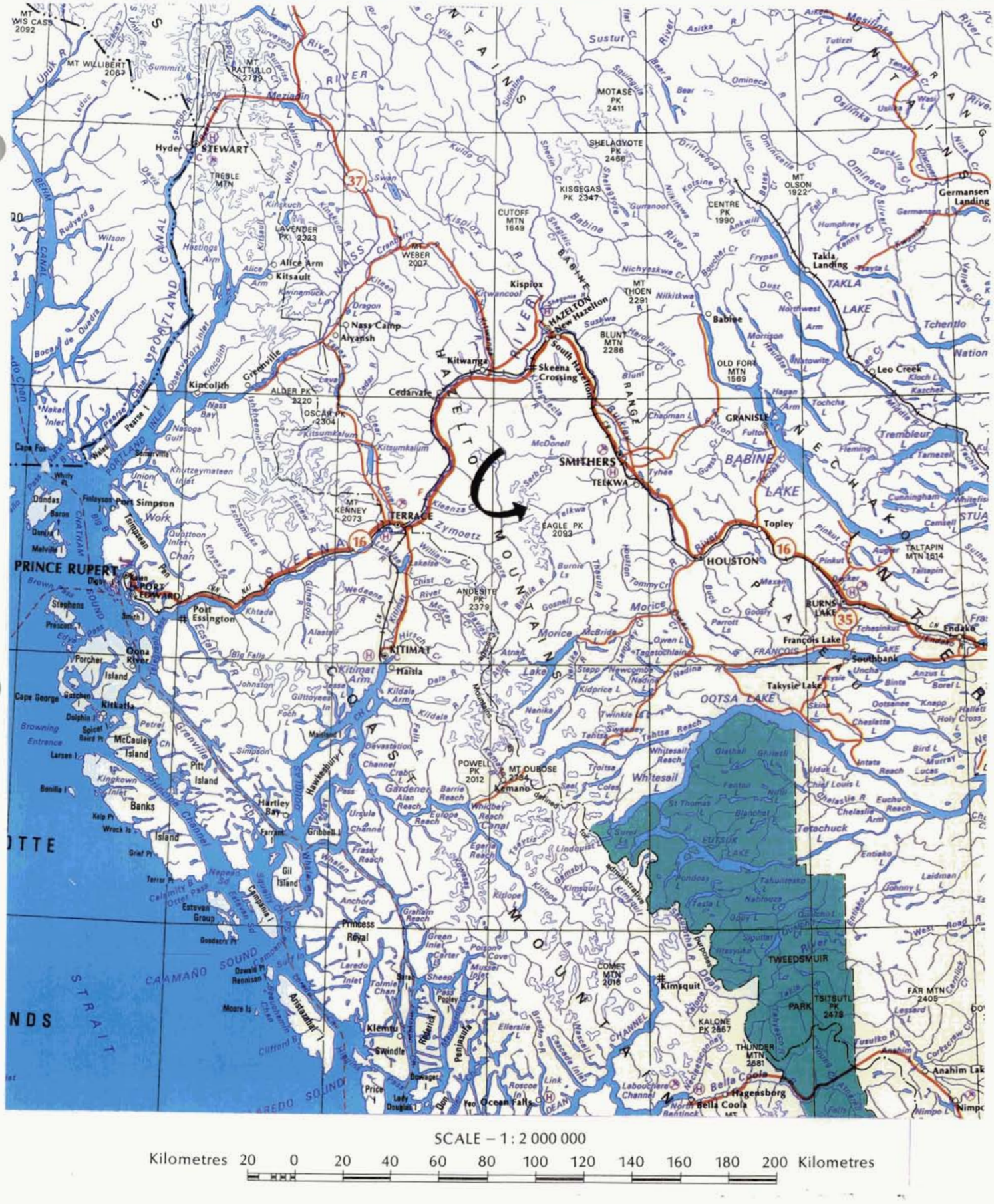


Figure 1.- Map showing location of Telkwa Pass area.

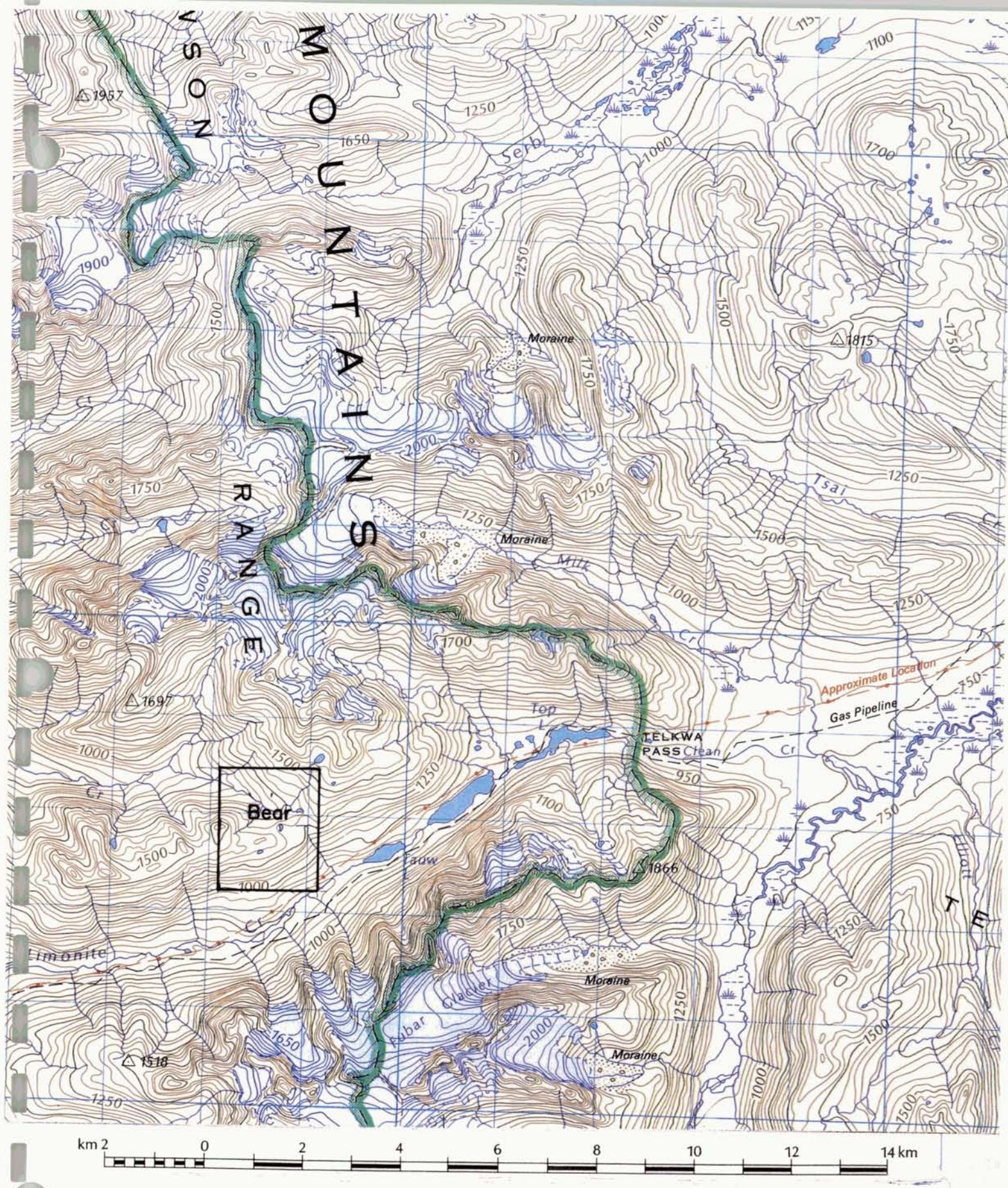


Figure 2.- Topographic Map of Telkwa Pass area.

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. 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 1963, Noranda Explorations Ltd. drilled a short hole north of the "upper gossan", but failed to find the sulfide zone. The hole was stopped at a depth of 37.5 meters because of loss of circulation. 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.

Pacific Petroleums Ltd. drilled two BQ diamond drill holes during the summer of 1970 (plate I). Drill hole number I was drilled to a depth of about 500 feet and DDH 2, to a depth of 726 feet (221 meters). Both were drilled in propylitized dacite tuff and both encountered minor disseminated pyrite with sparse chalcopyrite and rare bornite. The logs of the drill holes are not available.

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.

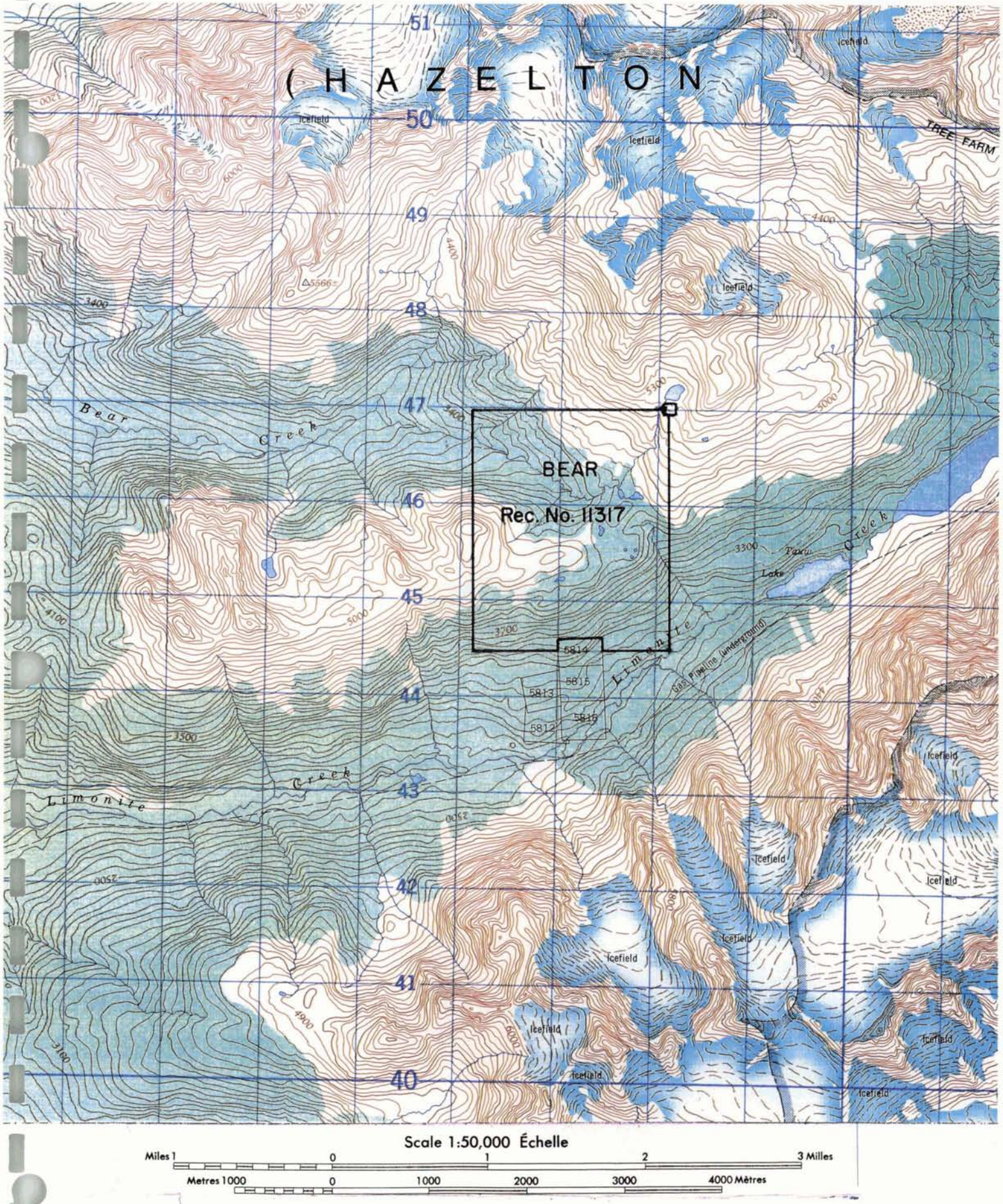


Figure 3.- Map of Bear claim, Limonite Creek area, British Columbia.

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 and Many Bear Creek (plate I). The largest deposit lies on the south facing slope above Limonite Creek and was described by MacKenzie (1915) and 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 lie 1 1/2 to 2 kilometers north of the Limonite Creek occurrence and are on the northern and eastern slopes of the mountain. The "middle deposit" (plate I) is on the divide between Limonite Creek and Many Bear Creek and another deposit is exposed on the south bank of Many Bear Creek.

The limonite occurs as an accumulation of scaly layers which lie parallel to the slope of the hill. Limonite covers and replaces vegetation and is actively forming limonite sheets, layers, and terraces. The process is similar to the development of travertine terraces near hot springs.

Origin of the Limonite Deposits

Blanchard (1968) shows that under natural conditions pyrite is oxidized by oxygen in the presence of water to form sulfuric 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 Limonite

In the case of the deposits at Limonite Creek and Many Bear Creek, a sulfide deposit - either massive sulfides or disseminated sulfides - occurs upslope from the limonite deposits. The sulfide deposit is 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 by reaction of the solutions with hydrocarbons in vegetation.

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

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 which are intruded by Upper Cretaceous to Lower Tertiary granite and granodiorite plutons.

Prominent glacial striae on the mountains north of Limonite Creek, show that glacial movement was northeasterly. Remnants of glaciers survive from 500 to 1200 meters above the valley floor and hanging valleys attest to a thickness of 500 meters of ice in the valley of Limonite Creek during Recent glaciation.

Geology of the Prospect Area

The prospect area is underlain by dacitic lapilli tuff of the Hazelton group (plate I). The fresh rock is typically greyish to slightly purplish in colour, but broad areas are propyliticly altered and have a greenish colour.

Very fine grained fresh pyrite occurs locally in amounts from trace to 5 percent. Very fine grained magnetite is ubiquitous and occurs in trace amounts.

A zone of scricitized, silicified and pyritized tuff occurs 800 meters westerly from D.D.H. 70-2. The zone of alteration strikes easterly and is about 30 meters wide.

A small granodiorite stock occurs near the center of the prospect area. The granodiorite is fresh, possesses hypidiomorphic-granular texture and has nearly one percent glossy, euhedral to subhedral biotite books, which are up to 2mm in diameter.

A strong fault system strikes northerly through the prospect area (plate 1) and its position is reflected by topographic lineaments, swamps and abrupt changes in attitudes of slope. The fault zone is partially occupied by a small group of mafic dikes (Dirom, 1964 and Chaplin and Woolverton, 1969).

Inferred Location of the Sulfide Deposit

It is estimated that about 1 million tons of limonite occur in the deposits. Additionally, an unknown amount of ferrous sulfate, ferric sulfate, and limonite undoubtedly has been removed by Limonite Creek and Many Bear Creek.

It is clear that none of the limonite was derived from rocks which are exposed at the surface.

Thus, in view of the fact that limonite deposits are still forming, the source probably lies buried in the mountain, upslope from and relatively near to the existing limonite deposits.

The limonite deposits are produced by acidic, iron-rich solutions which are derived from an oxidizing sulfide deposit. The iron-rich solutions are discharged at the surface through unknown conduits such as rock contacts, a porous breccia unit, fault planes or some combination of these.

Geochemistry of the Prospect Area

The pH of water flowing through and over the limonite deposits was measured in many places. Measurements were made in the field with an electronic pH detector and in the laboratory. All water flowing through or over the limonite deposits is acidic, ranging from pH 2.2 to 4.9 (figures 4 and 5).

Blanchard (1968, p.48) shows that if pyrite and chalcopyrite oxidize together, all of the copper from the chalcopyrite and all of the iron from both the pyrite and chalcopyrite are dissolved and exported, along with sulfuric acid.

During transport of the metallic ions, limonite (goethite) will precipitate upon slight dilution or reduction of the iron-bearing solutions. However, copper (and/or other base metals) will stay in solution and will not accumulate in the limonite where the environment is sufficiently acidic.

Therefore, due to the acidity of the water flowing through and over the limonite deposits, base metal values in the limonite are expected to be very low.

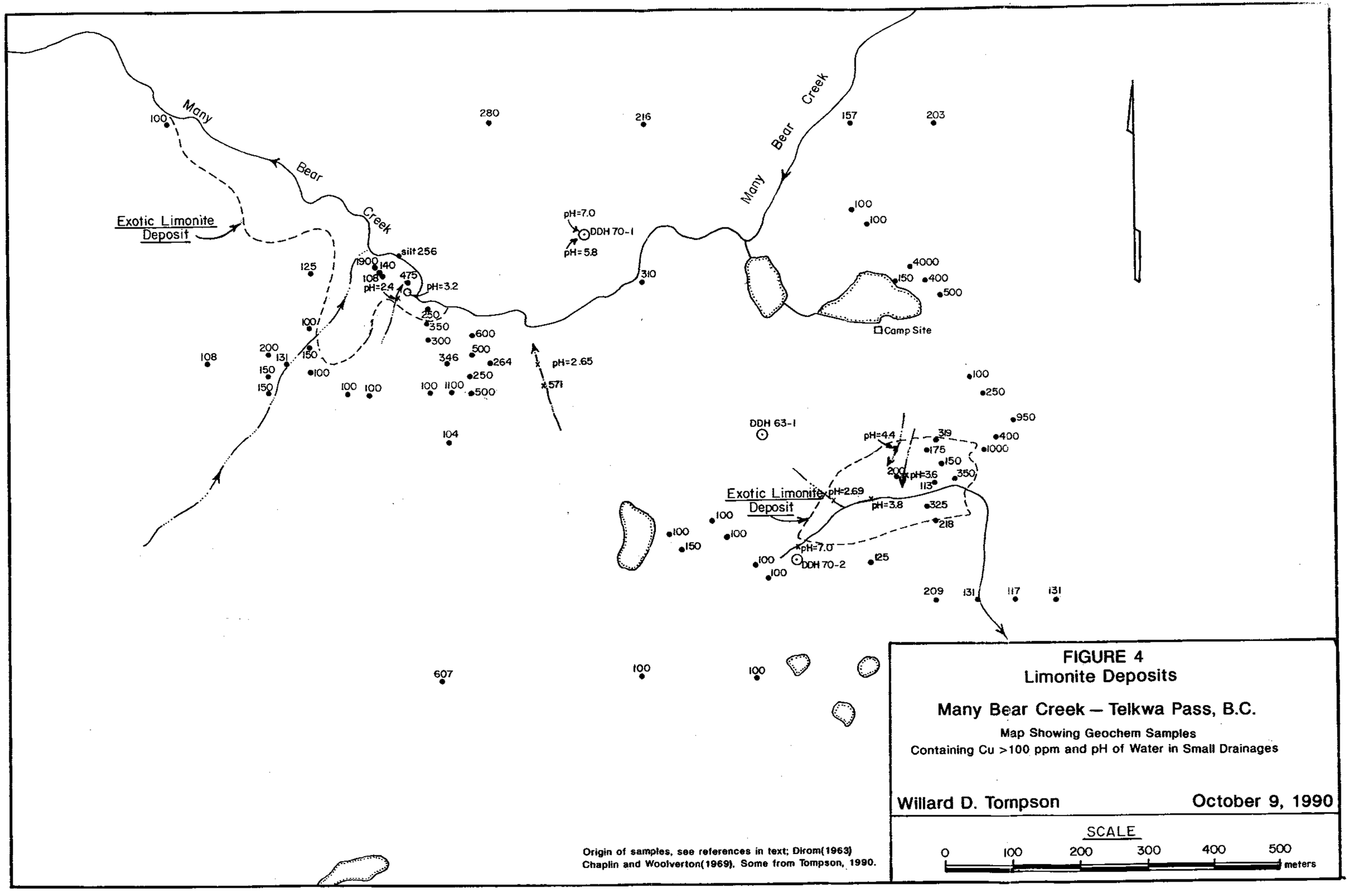
Consequently, anomalous concentrations of base metals in the limonite are more apt to disclose an accident of precipitation of base metal ions resulting from dilution or neutralization of the solutions, rather than reflect high or low concentrations of base metals in the sulfide source.

Geochemical Copper Values in the Exotic Limonite Deposits

Geochemical surveys by previous workers (Dirom, 1964 and Chaplin and Woolverton, 1969) found that copper values in the exotic limonite deposits are low (only the Many Bear Creek deposit and the middle deposit were tested) although a few limonite samples contain copper values from 100 to 1000 ppm.

Reconnaissance geochemical sampling of the exotic limonite deposits during the summer of 1990 produced copper values of 100 to 1900 ppm in 11 of 40 samples.

Geochemical samples having values greater than 100 ppm Cu are compiled on figures 4 and 5.



Origin of samples, see references in text; Dirom(1963) Chaplin and Woolverton(1969). Some from Tompson, 1990.

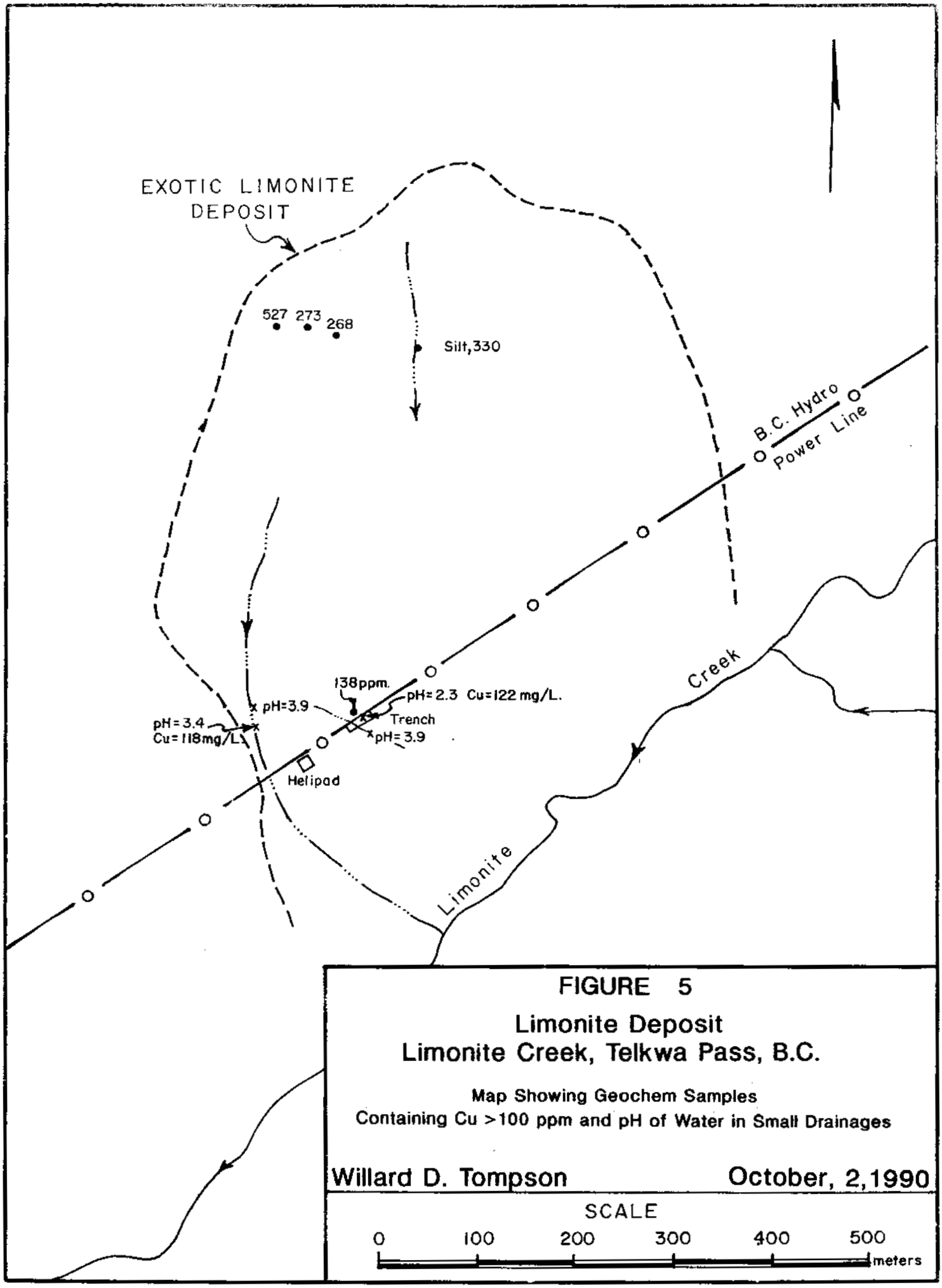
FIGURE 4
Limonite Deposits

Many Bear Creek — Telkwa Pass, B.C.

Map Showing Geochem Samples
Containing Cu >100 ppm and pH of Water in Small Drainages

Willard D. Tompson **October 9, 1990**

SCALE
0 100 200 300 400 500 meters


EXOTIC LIMONITE DEPOSIT
527 273 268
Silt,330
B.C. Hydro Power Line
138ppm.
pH=2.3 Cu=122 mg/L.
pH=3.9
Trench
pH=3.9
pH=3.4
Cu=118mg/L
Helipad
Limonite Creek
FIGURE 5
Limonite Deposit
Limonite Creek, Telkwa Pass, B.C.
Map Showing Geochem Samples
Containing Cu >100 ppm and pH of Water in Small Drainages
Willard D. Tompson
October, 2,1990
SCALE
0 100 200 300 400 500
meters

CONCLUSIONS

A large sulfide deposit containing pyrite as a major constituent is the probable source for the iron which forms the exotic limonite deposits at Limonite Creek and Many Bear Creek in the Telkwa Pass area, British Columbia.

The sulfide deposit occurs in pyroclastic rocks of the Middle Jurassic Hazelton group and lies between two major plutons; the Howson batholith and Kleanza Creek apophysis of the Coast Intrusions which are Upper Cretaceous to Lower Tertiary in age.

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

Chalcopyrite, sphalerite and galena occur in several prospects in Telkwa Pass along with significant values in gold and silver. Thus it is expected that the sulfide deposit in the Limonite Creek - Many Bear Creek area may contain base metals and precious metals as well as pyrite.

RECOMMENDATIONS

A four-phase exploration program is recommended; geological mapping, geochemical surveys, Pulse EM survey and diamond drilling.

The objectives of geological mapping, in addition to establishing the distribution of rock types, rock alteration and structural features would include an attempt to identify conduits which transfer the acidic, iron-rich solutions to the surface. If that can be achieved, it may be possible to trace the solutions back to their origins and thus establish drill targets.

Geochemical silt and soil surveys should be used to try to identify areas in which base metals may have been precipitated with the limonite, or otherwise concentrated in soil or silt.

All streams should be tested for the pH of their water at several elevations throughout their courses. The concept being, that pH will be low (acidic) downslope from sites of discharge, but will return to near 7.0 (neutral) at locations which are topographically above the level at which the acidic water is being discharged.

Pulse EM surveys are widely accepted techniques in the search for massive sulfide ore bodies. They are a time-based electromagnetic system which can easily target massive sulfide deposits to a depth of 500 meters. The data are not greatly affected by topography. If required, surface surveys may be followed up by bore hole Pulse EM techniques. The orientation of a massive sulfide conductor can normally be interpreted from surface data.

It is proposed that specific targets be tested by diamond drilling. About 4000 feet (1220 meters) are recommended upon completion of geological, geochemical, and geophysical surveys.

ESTIMATE OF COST

In view of the fact that the exploration program must be supported by helicopter, it is advantageous to move personnel and equipment by truck to a staging site which is near the project area.

The road through Telkwa Pass was upgraded during the summer of 1990, during which time new pipeline was installed by Pacific Northern Gas Ltd. A large area is cleared at the east end of the middle lake between Top Lake and Tauw Lake. This cleared area is ideal for staging. It lies at elevation 853m (2800 feet) and is 4 kilometers from the proposed camp site.

The following exploration cost estimate is based upon mobilization from the above described staging area to the site of the base camp which is near two small lakes, 2 kilometers northwest of Tauw Lake.

Limonite Creek - Many Bear Creek
Cost Estimate for Exploration Project

Camp operation		
Tents, frames, tools and supplies	$22 000	
Board, 300 man days @ $50	15 000	
Wages and fees	12 000	
		$ 49 000
Geological		
Photogrammetry, maps, supplies	5 500	
Wages and fees	12 500	
		18 000
Geochemical surveys		
Geochem analyses	18 000	
Sampling supplies	1 500	
Wages, linecutting, sampling	17 000	
		36 500
Geophysical surveys		
Pulse EM survey and report	9 000	
Mob and demob	2 500	
Cut lines, wages	5 000	
		16 500
Diamond drilling		
Contract, 4000 ft. @ $22.00	88 000	
Core assays	11 000	
Sampling supplies	1 500	
Construct set-ups (helicopter)	7 500	
D.D. field costs	10 000	
Set-ups, wages	1 700	
		119 700
Transportation		
Truck	2 000	
Helicopter	22 500	
		24 500
Communications		
Radios	1 000	
Telephone	1 000	
		2 000
Total		$266 200

Preparation of a final report, drafting of maps, petrographic studies and copies of maps and reports will cost approximately $25 000.

Respectfully submitted

Willard D. Tompson

REFERENCES CITED

Blanchard, Roland, 1968; Interpretation of leached outcrops: Nevada Bur. Mines, Bull. 66.

British Columbia Ministry of Mines; Annual Reports, 1913, p.108, and 111; 1914, p.123, 174 and 513; 1916, K.301; 1917, p.333 and 1957, p.12.

Chaplin, R.E. and Woolverton, R.W., 1969; A geological, geophysical, and geochemical report on the Allie group: Dept. Mines and Petroleum Resources, Assess. Rep. no. 2413.

Dirom, Gavin E., 1964; Property examination McRae showing: private report for Noranda Exploration Co. Ltd.

Duffell, S. and Souther, J.G., 1964; Geology of Terrace map area, British Columbia: Geol. Survey Canada, Mem. 329.

MacKenzie, J.D., 1915; Telkwa Valley and vicinity, British Columbia: Geol. Survey Canada, S.R. 1915, p.67-69.

Rice, H.M.A., 1948; Smithers - Ft. St. James: Geol. Survey Canada, map 971A.

Smith, David, 1956; Limonite Creek, Shawano Iron Mines Limited: B.C. Ministry of Mines, An. Rep., p.12.

Young, G.A., and Uglow, W.L., 1926; The Iron Ores of Canada, Volume 1, British Columbia and Yukon: Geol. Survey of Canada, Econ. Geol. Series no. 3, p.16.

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

Dated at Smithers, British Columbia this 4th day of October, 1990.

Willard D. Tompson

Consulting Geologist

APPENDIX I

STATEMENT OF COSTS

A total of 11 days were spent on the Bear claim by the writer, each time accompanied by a senior geologist from a major mining company. Work involved reconnaissance rock, soil and water sampling, geological traverses and field measurements of the pH of water in streams, seeps and pools. Each of the geologists contributed to an improved understanding of the geology of the prospect area. Each discussed various concepts as to origin of the limonite deposits, techniques which may be employed to discover the sulfide deposit which is believed to be the source of the iron in the limonite, or conversely whether it is possible to find it and what the composition of the sulfide deposit may be.

Names of the geologists and dates of their visits are shown as follows;

Ian Paterson, June 14, 1990
Jack McClintock, June 27, 1990
Jeff Toohey, July 2, 1990
Wayne Roberts, July 5, 1990
Daryl Hanson, July 25, 1990
Jeff Toohey, August 3, 1990
Mike Zurowski, August 8, 1990
Del Myers, August 20, 1990
Gwen Ditson and Gerald Grey, August 26, 1990
Bob Hewton, August 29, 1990.
Darrel Johnson, July 11, 1990

A value of $600 is credited to assessment value for each day, e.g. $300 for those shown above and $300 for this writer who accompanied them, plus $250 for the second geologist of the Placer Dome party, making a total of $6850 value to be credited to geological fieldwork. Additionally, $6600 is claimed for evaluation of data and preparation of the geological report.

Summary of Costs

Value of geological work	$13,450.00
Maps, photographs, aerial photos, copies, etc	944.40
Petrography, per report in Appendix II	900.00
Assays and geochem analyses, per Appendix III	1,754.25
Drafting contracts Winfield and Havard	185.00
Typing	200.00
Helicopter transport during field work on property, incl. sampling and geol. observations; 11 tripsX0.3 hrs. X $750	2,475.00
Total	$19,908.65

Distribution to Accounts

Geological	
Value of wages and fees	$9,000.00
Maps, photos, copies	700.00
Petrography	900.00
Drafting	100.00
Typing	100.00
Helicopter	1,800.00
Total	$12,600.00
Geochemical	
Value of wages and fees	$4,450.00
Maps, photos, copies	244.40
Assays, analyses	1,754.25
Drafting	100.00
Typing	100.00
Helicopter	675.00
Total	$7,308.65
Total	$19,908.65

APPENDIX II

PETROGRAPHIC REPORT

11-7-10: INTENSELY CLAY-SERICITE-QUARTZ ALTERED GRANITIC ROCK

Medium-grained, white but rusty brown weathering, highly altered granitic rock that is probably derived by alteration of a rock similar to that described in the first three samples of this suite. In this rock, the magnetism has been destroyed; in thin section, the mineralogy is:

Clay (kaolinite? and illite?)	50%
Quartz (secondary)	20%
Sericite (muscovite)	20%
Opaque (sulfide)	5%
Limonite	5%
Rutile, leucoxene	<1%

Although this is a strongly clay-sericite-quartz altered rock, enough relict texture remains in thin section to suggest that it was probably once like the granitic rocks described above. The outlines of relict plagioclase feldspar grains are of similar size and euhedral character. In general, the cores are replaced by a ?clay mineral with low relief and birefringence, possibly a member of the kaolinite group, and the rims are replaced by a higher relief, higher birefringence ?clay mineral that may be illite (hydromica). The former is present as finer grains (about 10 micron diameter on average) and the latter as slightly coarser grained (up to 30 microns).

Sericite, or muscovite, forms coarser grains up to 0.1 mm diameter (100 microns), and is mainly restricted to an anastamosing network of fractures up to 0.5 mm thick.

Quartz, as anhedral interlocking grains of 0.05 mm or less diameter, is found with sericite in the crude veinlets and as irregular patches nearby. It is clearly secondary in form, even though it may merely represent recrystallized and remobilized silica derived from originally coarser primary quartz as seen in the granitic specimens.

Most of the opaque material is very fine (10-20 micron diameter) and is probably mainly limonite. Whether any of this limonte is derived by oxidation of former sulfides is difficult to say; it is possible. There are scattered euhedral Ti-mineral relics up to 0.1 mm across, now replaced by skeletal ?rutile and wooly leucoxene.

There are two unidentified minerals present: in one vein there are fine (20 micron) euhedral prisms of a high relief, moderate birefringence mineral, and a few coarse (0.5 mm) perfectly euhedral grains of a totally isotropic mineral rather like fluorite but with positive relief. It contains inclusions of clay minerals and has well-defined rhombic cleavage; it might be halite or spinel (?).

Note that there are no epidote, carbonate, K-feldspar or chlorite seen in this much more thoroughly and strongly argillic altered rock.

11-7-11: INTENSELY CLAY-SERICITE-QUARTZ-PYRITE ALTERED GRANITIC ROCK

Intensely quartz-clay-sericite-pyrite altered granitic rock, probably of similar character originally as 10-7-2 to 5. Small (1-2 mm) white altered relics of plagioclase make up the bulk of the rock, with fine (0.5 mm) patches of pyrite representing former mafic sites. The rock is strongly weathered to limonite on the outside rind. In polished thin section, the mineralogy is similar to 11-7-10:

Clay (kaolinite?)	35%
Sericite (muscovite)	30%
Quartz (secondary)	25%
Pyrite	10%
Rutile	<1%

In thin section, this rock is made up of a finely intergrown mat of very fine-grained secondary minerals, including quartz, sericite, probable clay, and pyrite.

Sericite (muscovite) forms fine subhedral flakes up to 0.05 mm (50 micron) diameter with moderate positive relief and moderate birefringence.

Clay (?) mineral forms finer flakes up to 10 micron diameter with about the same relief as sericite but much lower birefringence; it may be kaolinite.

Quartz is most easily recognized only where it forms fibrous patches up to 0.2 mm across, mainly with sulfides, and a relief distinctly lower than sericite. Elsewhere, it is difficult to recognize in the section, but probably forms very fine 10-20 microns anhedral grains mixed with the clay(?) and sericite.

Patches of sericite with tiny (10-20 micron) subhedral grains of rutile, that have euhedral to subhedral outlines and are up to 0.3 mm across, probably represent former mafic sites. In some of these, a skeletal texture like that seen in the unaltered quartz monzonite-granodiorite (10-7-5) is seen. Other such sites are heavily replaced by pyrite, with or without minor rutile.

Pyrite is abundant, scattered throughout the rock as fine (20 micron) to coarse (0.2 mm) disseminations, or forming aggregates of anhedral grains up to 0.5 mm across. There are no base-metal sulfides visible. In the oxidized zone, the pyrite is completely replaced by limonite (goethite and minor hematite).

Remnant texture suggests euhedral plagioclase crystals up to 2 mm long whose cores have been replaced by clay plus minor sericite and rims by sericite. The matrix between crystals is replaced by clay(?) and fine pyrite. Thesize and nature of the replaced feldspars suggests this rock could have originally been a granodiorite such as 10-7-5.

Hole 1-Box 2: SERICITE-CHLORITE-EPIDOTE-HYDROBIOTITE ALTERED ?PLAGIOCLASE-PYROXENE PORPHYRITIC ANDESITE

This is a grey-green, coarsely prophyritic but probably volcanic rock characterized by large euhedral relict plagioclase crystals up to 5 mm long and dark mafic relict crystals up to 3 mm long, set in a dark ?chloritic matrix. The rock is magnetic, but does not show more than a trace of (secondary) K-feldspar along thin minor fractures. In thin section, the modal mineralogy is:

Relict plagioclase (?albite)	25%
Sericite (muscovite)	25%
Chlorite	10%
Quartz (partly secondary)	15%
Epidote	7%
Green biotite ("hydrobiotite")	5%
Opaque (magnetite)	5%
(?rutile/leucoxene)	1%
Limonite	1%
K-feldspar (secondary)	1%
Apatite	<1%

Most of the plagioclase, which originally formed coarse euhedral crystals of 2-4 mm size, has been moderately to strongly replaced by fine-grained secondary minerals including sericite (muscovite) and epidote, both up to 0.02 mm (20 microns) in diameter. Between these secondary minerals some remnant feldspar, occasionally with twinning suggesting an albitic composition, can be seen.

Former mafic crystals are represented by patches of chlorite, hydrobiotite, epidote and opaques up to 2 mm diameter, with subhedral octagonal outlines suggestive of original pyroxene. Chlorite forms euhedral flakes up to 0.1 mm diameter, as does hydrobiotite. The chlorite has bright green pleochroism and low (but non-anomalous) birefringence, while the hydrobiotite has distinctive brownish-green pleochroism and high birefringence. Epidote forms anhedral to subhedral grains up to 0.2 mm across, while the magnetite forms similar grains.

The matrix to these former phenocrysts is composed of fine (0.2 mm) ragged anhedral interlocking grains of plagioclase (?albitic), quartz (partly secondary?), and chlorite. There are rare elongated prisms of apatite up to 0.2 mm long. Some opaque grains are brown at thin edges, suggesting they may be Fe-Ti oxides such as rutile or leucoxene.

There are rare thin (0.1 mm) quartz-epidote-minor K-feldspar veinlets crossing the rock. The alteration of this rock is strong but low-grade (propylitic transitional to phyllic: chlorite-epidote-sericite-quartz). The original protolith may have been a plagioclase-pyroxene porphyritic intermediate volcanic ?flow or high-level intrusive dyke or sill, possibly of andesitic or quartz andesitic composition.

Hole 1 - Box 11: PLAGIOCLASE-PYROXENE PORPHYRITIC ?ANDESITIC VOLCANIC, ALTERED TO AMPHIBOLE-EPIDOTE-CHLORITE-SERICITE

Medium to coarsely porphyritic intermediate volcanic rock similar to that from box 2 in this hole but with strong epidote alteration of plagioclase phenocrysts (bright yellow green in hand specimen) and dark green to black mafic phenocrysts. There is only very minor thin veining; the rock is weakly magnetic. In thin section, the mineralogy is:

Amphibole (actinolitic; secondary)	30%
Epidote	30%
Relict plagioclase	15%
Quartz	10%
Chlorite (± some green "hydrobiotite")	5%
Opaques (magnetite, leucoxene, rutile)	5%
Sericite	5%

This rock is composed of euhedral coarse dark green mafic phenocrysts up to 5 mm across and relict plagioclase phenocrysts up to 3 mm long set in a matrix of fine grains (0.25 mm) of the same minerals plus quartz and opaques.

The mafic phenocrysts have the shapes to have been euhedral pyroxene (forming about 15% of the rock), although they are now completely pseudomorphed by fibrous green to pale yellowish amphibole with an extinction angle of about 17 degrees; it is probably actinolite or actinolitic hornblende. There is also minor epidote, chlorite and opaques as anhedral 0.05 mm grains replacing the former ?pyroxene. The chlorite is similar to that described for the specimen from box 2, with low but non-anomlaous birefringence, and there is also some green "hydrobiotite" present as books up to 0.1 mm diameter.

The plagioclase phenocrysts are also completely pseudomorphed by fine-grained (0.1 mm diameter) epidote, with lesser sericite (0.02 mm or less). They were originally euhedral and composed about 35% of the rock.

The matrix was originaly compsed of plagioclase microlites (up to 0.2 mm long) that are slightly fresher than the phenocrysts but are also replaced by epidote and sericite, and mafic grains that are replaced by the fibrous amphibole. It is not clear whether the anhedral 0.05 mm diameter quartz grains in the matrix were primary or secondary.

Fine (0.05 mm or less diameter) anhedral opaque grains of Fe-Ti oxides are abundant in the matrix. Most of these have the wooly appearance of leucoxene/rutile mixtures, but some must be magnetite. The thin veinlets crossing the rock (0.1 mm thick) are composed of epidote and minor quartz. Sulfides are not present.

This is a volcanic ?flow, or possibly a high-level intrusive (sill or dyke) of intermediate, posibly originally andesitic, composition. It has been extensively propylitically altered to actinolite, epidote, sericite, chlorite and hydrobiotite.

Hole 2-167': MILDLY CHLORITE-EPIDOTE ALTERED, ANDESITIC FEEDER DYKE OR SILL

This is a medium-grained volcanic or high-level intrusive rock of similar colour and appearance to those described from Hole 1, but finer-grained. It contains about 20% 1 mm dark green mafic phenocrysts and perhaps 50% similar sized relict plagioclase phenocrysts with seriate texture. It is not magnetic. In thin section, the mineralogy is approximately as follows:

Plagioclase (oligoclase)	65%
Chlorite	15%
Epidote	10%
Quartz	5%
Opaque (Fe-Ti oxides)	5%

This is a relatively simple rock in thin section, principally composed of plagioclase with interstitial mafic relics and fine opaque grains.

The plagioclase in this sample is relatively fresh, with only minor spotting by fine (0.05 mm diameter) epidote grains and minor chlorite. The extinction angles of less than 10 degrees on 010, and relief similar to that of quartz, suggest it is about oligoclase (An_{25}) in composition. This could be a primary composition, although no oscillatory zoning is seen, so it may have originally been more calcic and been altered to oligoclase. The crystals are euhedral to subhedral and average about 1 mm long, but tere is a tendency to seriate texture (gradation in sizes from semi-phenocrystic grains of up to 4 mm diameter down to "matrix" grains of 0.2 mm).

The former mafic grains in this smaple have subhedral outlines suggestive of pyroxene. They were up to 2 mm long, and are now competely pseudomorphed by fine-grained (0.01 to 0.1 mm) chlorite and lesser epidote, plus some opaques. The chlorite has low but non-anomalous birefringence, and is probably magnesian. Colour is green, but pleochroism is weak. The epidote also does not show pleochroism and may be Fe-poor (clinozoisite).

Quartz forms anhedral grains up to 0.1 mm diameter, with a distinctly interstitial texture to the plagioclase and mafic minerals.

This specimen is clearly related to those from Hole 1, both in its mineralogy (plagioclase and pyroxene) and alteration (chlorite-epidote), but it is considerably less altered. It is more clearly a high-level intrusive rock (feeder dyke or sill), with virtually no fine matrix.

Hole 2-710': STRONGLY EPIDOTIZED, CHLORITIZED ANDESITIC FEEDER DYKE OR SILL

Fine-grained, pale green, highly epidotized volcanic rock, cut by thin epidote stringers. There are vaguely defined slightly darker green chloritized mafic relics up to 2.5 mm long that suggest this sample may have been derived by stronger alteration from a high-level intrusive like that of the specimen from 167' in this hole. The rock is not magnetic; in thin section, the mineralogy is as follows:

Relict plagioclase (oligoclase?)	55%
Epidote	25%
Chlorite	10%
Quartz	5%
Opaques (Fe-Ti oxides)	5%

This rock is very similar to that from 167' in this hole, composed principally of interlocking seriate-textured plagioclase that is variably altered to epidote, with interstitial chloritized mafic relics.

The plagioclase, although considerably more replaced by epidote than that from 167', appears to be similar in composition. Extinction angles on 010 of up to 12 degrees, plus relief about the same as that of quartz, suggest oligoclase-andesine (An_{25-30}). The texture of the feldspar suggests it is secondary, or has been homogenized from an originally more calcic plagioclase. The grains are subhedral to euhedral and interlocing, with a seriate texture ranging from 2 mm down to 0.1 mm.

Former mafic grains are subhedral in outline and mainly intersitial to he plagioclase, up to 0.5 mm across (although coarser grains can be seen in the hand specimen). They are pseudomorphed or heavily replaced by epidote and lesser chlorite, often forming a chain of semi-connected irregular blebs of epidote along a microfacture or veinlet of epidote. There is an extensive network of these veins, up to 0.3 mm thick, cris-crossing the rock. The epidote forms anhedral to subhedral grains of up to 0.2 mm diameter, with pale yellow pleochroism indicating a moderate Fe content. The chlorite forms fine flakes up to 0.025 mm diameter, without anomalous birefringence, indicating high Mg content.

Quartz forms scattered anhedral 0.05 mm diameter grains with interstitial texture; it is not possible to determine whether they are primary or secondary.

Opaque minerals appear to be mostly Fe-Ti oxides such as leucoxene, with a "wooly" or semi-opaque character. They are generally anhedral and range up to 0.1 mm diameter.

In summary, this specimen appears to be a slightly finer equivalent of the andesitic feeder dyke or sill seen from 167' in this hole. It is much more strongly altered, although still of low-grade (propylitic: epidote-chlorite) type. There are no sulfides visible.

Craig H.B. Leitch, Ph.D. P.Eng. (921-8780)

APPENDIX III

ASSAYS AND GEOCHEMICAL ANALYSES

Reconnaissance Sampling by Tompson, June 14, 1990

MIN
• EN
LABORATORIES
(DIVISION OF ASSAYERS CORP.)

SPECIALISTS IN MINERAL ENVIRONMENTS
CHEMISTS • ASSAYERS • ANALYSTS • GEOCHEMISTS

VANCOUVER OFFICE:
705 WEST 15TH STREET
NORTH VANCOUVER, B.C. CANADA V7M 1T2
TELEPHONE (604) 980-5814 OR (604) 988-4524
FAX (604) 980-9621

THUNDER BAY LAB.:
TELEPHONE (807) 622-8958
FAX (807) 623-5931

SMITHERS LAB.:
TELEPHONE/FAX (604) 847-3004

Geochemical Analysis Certificate OS-0075-SG1

Company: WILL TOMPSON
Project:
Attn: WILL TOMPSON

Date: JUL-04-90
Copy 1. WILL TOMPSON, SMITHERS, B.C.
2. WILL TOMPSON, C/O MIN-EN LABS.

We hereby certify the following Geochemical Analysis of 1 SOIL samples submitted JUN-18-90 by WILL TOMPSON.

Sample Number	AU-WET PPB	AG PPM	CD PPM	CU PPM	FE PPM	MO PPM	PB PPM	ZN PPM
28252	5	2.0	38	18	345000	1	30	12

Certified by

MIN-EN LABORATORIES

MIN
• EN
LABORATORIES
(DIVISION OF ASSAYERS CORP.)

SPECIALISTS IN MINERAL ENVIRONMENTS
CHEMISTS • ASSAYERS • ANALYSTS • GEOCHEMISTS

VANCOUVER OFFICE:
705 WEST 15TH STREET
NORTH VANCOUVER, B.C. CANADA V7M 1T2
TELEPHONE (604) 980-5814 OR (604) 988-4524
FAX (604) 980-9621

THUNDER BAY LAB.:
TELEPHONE (807) 622-8958
FAX (807) 623-5931

SMITHERS LAB.:
TELEPHONE/FAX (604) 847-3004

Geochemical Analysis Certificate OS-0075-RG1

Company: WILL TOMPSON
Project:
Attn: WILL TOMPSON

Date: JUL-04-90
Copy 1. WILL TOMPSON, SMITHERS, B.C.
2. WILL TOMPSON, C/O MIN-EN LABS.

We hereby certify the following Geochemical Analysis of 2 ROCK samples submitted JUN-18-90 by WILL TOMPSON.

Sample Number	AU-WET PPB	AG PPM	CO PPM	CU PPM	FE PPM	MO PPM	PB PPM	ZN PPM
28253	5	3.0	40	181	370000	1	28	16
28254	5	2.6	42	46	395000	2	31	27

Certified by

MIN-EN LABORATORIES

MIN
• EN
LABORATORIES

SPECIALISTS IN MINERAL ENVIRONMENTS
CHEMISTS • ASSAYERS • ANALYSTS • GEOCHEMISTS

VANCOUVER OFFICE:
705 WEST 15TH STREET
NORTH VANCOUVER, B.C. CANADA V7M 1T2
TELEPHONE (604) 980-5814 OR (604) 988-4524
TELEX: VIA U.S.A. 7601067 • FAX (604) 980-9621

TIMMINS OFFICE:
33 EAST IROQUOIS ROAD
P.O. BOX 867
TIMMINS, ONTARIO CANADA P4N 7G7
TELEPHONE: (705) 264-9996

Geochemical Analysis Certificate

OS-0103-RG1

Company: WILL TOMPSON
Project:
Attn: WILL TOMPSON

Date: JUL-07-90
Copy 1. WILL TOMPSON, SMITHERS, B.C.
2. WILL TOMPSON, C/O MIN-EN LABS

We hereby certify the following Geochemical Analysis of 6 ROCK samples submitted JUN-28-90 by W.TOMPSON.

Sample Number	AU-WET PPB	AG PPM	CU PPM	PB PPM	ZN PPM
11501	5	1.2	4	38	12
11502	5	0.2	6	3	4
11503	5	0.4	52	9	76
11504	10	0.6	86	15	84
11505	5	1.5	13	29	24
11506	5	1.9	37	35	14

Certified by _____

MIN-EN LABORATORIES

MIN
• EN
LABORATORIES
(DIVISION OF ASSAYERS CORP.)

SPECIALISTS IN MINERAL ENVIRONMENTS
CHEMISTS • ASSAYERS • ANALYSTS • GEOCHEMISTS

VANCOUVER OFFICE:
705 WEST 15TH STREET
NORTH VANCOUVER, B.C. CANADA V7M 1T2
TELEPHONE (604) 980-5814 OR (604) 988-4524
FAX (604) 980-9621

THUNDER BAY LAB.:
TELEPHONE (807) 622-8958
FAX (807) 623-5931

SMITHERS LAB.:
TELEPHONE/FAX (604) 847-3004

Geochemical Analysis Certificate

OS-0109-RG1

Company: WILL TOMPSON
Project:
Attn: WILL TOMPSON

Date: JUL-09-90
Copy 1. WILL TOMPSON, SMITHERS, B.C.
2. WILL TOMPSON, C/O MIN-EN LABS.

We hereby certify the following Geochemical Analysis of 2 ROCK samples submitted JUL-04-90 by WILL TOMPSON.

Sample Number	AU-WET PPB	AG PPM	CU PPM	PB PPM	ZN PPM
11507	5	1.8	19	32	18
11508	5	2.2	84	36	22

Certified by

MIN-EN LABORATORIES

Reconnaissance Sampling by Ian Paterson June 14, 1990

PROPERTY EXAMS—WEST

LIMONITE CREEK

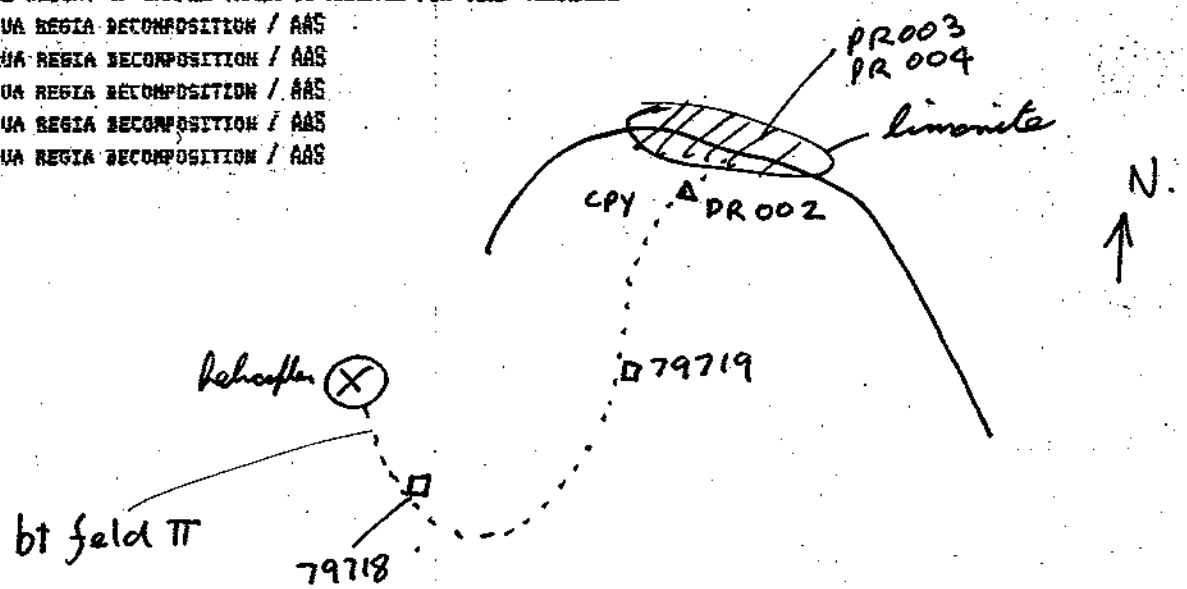
JOB V 90-0163R
REPORT DATE 25 JUN 1990

LAB NO	FIELD NUMBER	Au PPB	Wt Au GRAM	Ag PPM	Cu PPM	Zn PPM	Pb PPM	Co PPM	
R9004691	PR0002	<10	5	3.4	178	1020	1450	22	– outcrop where you fell
R9004692	PR0003	<10	5	<.4	12	13	<4	7	– limonite
R9004693	PR0004	<10	5	<.4	138	70	27	9	– "
R9004694	PR0006	<10	5	<.4	32	24	<4	10	} 20' Power line transl
R9004695	PR0007	<10	5	<.4	47	34	<4	13	}

I=INSUFFICIENT SAMPLE X=SMALL SAMPLE E=EXCEEDS CALIBRATION C=BEING CHECKED R=REVISED
IF REQUESTED ANALYSES ARE NOT SHOWN /RESULTS ARE TO FOLLOW

ANALYTICAL METHODS

Au AQUA REGIA DECOMPOSITION / SOLVENT EXTRACTION / AAS
Wt Au THE WEIGHT OF SAMPLE TAKEN TO ANALYSE FOR GOLD (GEOCHEM)
Ag AQUA REGIA DECOMPOSITION / AAS
Cu AQUA REGIA DECOMPOSITION / AAS
Zn AQUA REGIA DECOMPOSITION / AAS
Pb AQUA REGIA DECOMPOSITION / AAS
Co AQUA REGIA DECOMPOSITION / AAS



PROPERTY EXAMS—MD

LIMONITE CREEK

JOB V 90-0162S
REPORT DATE 26 JUN 1990

LAB NO	FIELD NUMBER	Au FPB	Wt Au GRAM	Ag PPM	Cu PPM	Zn PPM	Pb PPM	Co PPM
S9006883	79719	<10	10	1.1	66	45	<4	5
S9006884	79719	<10	7.5	<.4	44	40	<4	3
S9006885	79720	<10	10	<.4	42	32	<4	2
S9006886	79721	<10	10	.9	55	36	<4	4

- red soil below bl fold rr
- soil from moraine
- weak gossan N of small lake

I=INSUFFICIENT SAMPLE X=SMALL SAMPLE E=EXCEEDS CALIBRATION C=BEING CHECKED R=REVISED
IF REQUESTED ANALYSES ARE NOT SHOWN RESULTS ARE TO FOLLOW

ANALYTICAL METHODS

Au AQUA REGIA DECOMPOSITION / SOLVENT EXTRACTION / AAS
Wt Au THE WEIGHT OF SAMPLE TAKEN TO ANALYSE FOR GOLD (GEOCHEM)
Ag 20% HNO3 DECOMPOSITION / AAS
Cu 20% HNO3 DECOMPOSITION / AAS
Zn 20% HNO3 DECOMPOSITION / AAS
Pb 20% HNO3 DECOMPOSITION / AAS
Co 20% HNO3 DECOMPOSITION / AAS

Reconnaissance Sampling by Jeff Toohey, July 2, 1990

CONTENTS

REFERENCE	DATE
Notes, July 2, 1990 by Jeff Tackoor. at Limonite Cr.	

July 2

Limonite Creek Property
Will Tompson

Examined ferricrete accumulations at power line, then walked upslope. Ferricrete covers very broad area. Walked up to base of bluffs, Hazelton volcs. Moved downslope to start contour soil line.

Alt. reading at first site (approx. centre of ferricrete down slope) 955 m, bluff ~ 100-200 m upslope.

@ 0 m 9095JT0001

soil is deep limonitic orange-brn 40 cm organic layer on top. hole filled w/ H_2O, near seepage

25 m west 9095JT0002

Yellow-brn B-horizon soil, parent material is limonite, not known whether in situ or exotic, organic layer 5a cm deep sample from 60-80 cm

@ 50m W 9095 JT 0003

brn B-hor soil, parent material is not ferricrete but talus w/ rich yel-brn clay, organic layer to 40 cm, sample 50-60 cm.

@ 25m E 9095 JT 0004

near seepage, or-brn B-hor soil, organics 50cm deep, sample 60-70cm, parent material ferricrete, hole filled w/ H_2O immed. Local base of slope

@ 50m E 9095 JT 0005 upslope 20 m

near seep, or-brn B-hor., organics 40 cm, sample 45-55 cm ferricrete parent

Chainage E to small creek 85 m.

9095 JT 0006 silt sample from creek altimetre reads 968m

limonite encrusted rx in creek. recent covering of grey-brn silt.

(2576 ft)

Chopper pad 785 m → 2640 ft heli alt
alt reading soil traverse @ 3200 ft

Flew to top of ridge, prospected briefly Hazelton and. dac. Found float of limonitic br zone w/ qtz - sample 9095-JT-1-R

Float of narrow 5 cm qtz-hem vein - sample 90-95-JT-2-R

Middle Triassic

Flew down to central limonite zone, walked up to old Noranda drill-site, core from DDH #2 in good condition. Zone of bleached qtz-ser-py altd Hazelton and. 508'-532'

Four core samples taken of most altd segments. V.f.g. py visible in h lens, should assay for Au, Ag

Soil sample taken just up slope from chopper landing in central limonite zone.

9095JT0007 brn b-hor. 25-30cm

Aug. 3, 1978 Water Samples

Limonite Cr. - Tower Line Zone

9095JT0008-W Water sample from spring ~ 5 m up from heli-pad.

pH = 4.7

elev. 945 m

Main spring outlet sulphurous smell, green & yellow plant life.

9095JT0009-S Sample tree limb replaced by limonite, possible trapping mechanism for metals precipitation?

elev. 875 m

9095JT0010-W Water sample at spring just east north of heli-pad, similar to site 0008

elev. 800 m

pH = 4.0

9095JT0011-W Water sample from creek 50 m west south of heli-pad

pH = ~~4.0~~ 3.9

elev 800 m

9095JT0012-W	Water sample from creek flowing over
elev. 1260 m	"middle limonite zone"
	south side, near inlet
pH = 3.6	to zone of stream draining
	area of DDH #2
9095JT0013-W	spring flowing from
	north side of
pH = 9.4	"middle limonite zone"
elev. 1260 m.	
9095JT0014-W	Stream draining
	area of DDH #2
pH = 7.0	Not limonitic in
elev. 1270 m	ck bed.
9095JT0015-W	Water sample from
	main spring in
elev. 1150 m	limonite zone in
	Many Bear Creek area.
pH = 3.2	
9095JT0016-W	Water sample from DDH #1
pH = 7.0	
elev. 1245 m	

LORRAINE

Page on

Willy

308

IN 10

June 29

LCP Wil

Golde

pH determinations requested

ROSSBACHER LABORATORY LTD.

2225 S. Springer Ave., Burnaby,
British Columbia, Can. V5B 3B1
Ph:(604)299-6910 Fax:299-6252

CERTIFICATE OF ANALYSIS

TO : TECK EXPLORATIONS LTD.
960-175 SECOND AVE.
KAMLOOPS, B.C.
PROJECT : 1395
TYPE OF ANALYSIS : ICP

CERTIFICATE # : 90259
INVOICE # : 10377
DATE ENTERED : 90-07-10
FILE NAME : TEC90259.I
PAGE # : 1

PRE FIX	SAMPLE NAME	PPM MO	PPM CU	PPM PB	PPM ZN	PPM AS	PPM NI	PPM CD	PPM MN	% FE	PPM AS	PPM U	PPM AU	PPM HG	PPM SR	PPM CD	PPM SB	PPM BI	PPM V	% CA	% P	PPM LA	PPM CR	% MG	PPM BA	% TI	PPM B	% AL	% K	% SI	PPM W	PPM BE	PPB Au AA
S	9095 JT0001	1	527	5	83	0.2	1	18	267	16.26	2	5	ND	ND	11	1	6	2	1	0.22	0.113	14	36	0.01	9	0.01	81	4.90	0.01	0.01	1	1	5
S	9095 JT0002	1	198	11	57	0.1	2	3	20	32.37	6	5	ND	ND	3	1	14	20	3	0.04	0.104	1	46	0.01	5	0.01	84	0.34	0.01	0.02	1	1	5
S	9095 JT0003	1	51	1	36	0.1	2	4	10	22.50	4	5	ND	ND	4	1	3	2	1	0.01	0.113	1	12	0.01	8	0.01	110	0.20	0.01	0.02	1	1	5
S	9095 JT0004	1	273	11	50	0.1	1	3	54	28.83	4	5	ND	ND	7	1	14	6	32	0.09	0.113	6	3	0.01	1	0.01	120	1.93	0.01	0.01	1	2	5
S	9095 JT0005	1	268	4	39	0.1	2	4	13	27.93	2	5	ND	ND	5	1	6	2	7	0.07	0.104	8	1	0.01	1	0.01	266	2.48	0.01	0.02	1	1	5
S	~~9095 JT0007~~	2	25	5	27	0.4	5	3	168	3.97	3	5	ND	ND	20	1	2	2	100	0.12	0.070	4	1	0.13	33	0.16	5	1.36	0.01	0.02	1	4	5
S	9095 JT0006	1	330	1	27	0.2	17	125	1213	6.74	2	5	ND	ND	17	1	2	2	1	0.27	0.113	12	1	0.03	15	0.01	42	0.34	0.01	0.02	4	1	5
A	9095JT-1-R	1	607	14	60	0.9	3	1	47	9.99	32	5	ND	ND	23	1	116	2	57	0.06	0.174	1	1	0.04	135	0.20	11	0.68	0.01	0.02	1	2	5
A	9095JT-2-R	1	87	3	47	0.2	20	1	1140	2.92	13	5	ND	ND	6	1	24	5	10	0.06	0.043	1	19	0.08	68	0.01	5	0.34	0.26	0.02	1	1	5
A	DDH#2 510'	5	44	7	25	0.1	8	1	100	3.89	25	5	ND	ND	213	1	2	10	6	5.25	0.331	1	1	0.01	38	0.01	2614	0.19	0.10	0.01	1	1	5
A	DDH#2 528'	1	35	7	36	0.1	7	1	42	6.31	34	5	ND	ND	532	1	2	13	5	3.95	0.296	1	11	0.01	25	0.01	3202	0.24	0.10	0.01	1	1	5
A	DDH#2 530'	4	16	16	19	0.1	5	1	23	2.16	28	5	ND	ND	284	1	2	14	5	4.22	0.287	1	7	0.01	37	0.01	1769	0.24	0.14	0.01	1	1	5
A	DDH#2 531'	5	15	13	21	0.1	5	1	26	1.75	23	5	ND	ND	261	1	2	17	8	3.15	0.252	1	13	0.04	79	0.01	1378	0.37	0.20	0.01	1	1	5

CERTIFIED BY : J. Rossbach

ROSSBACHER LABORATORY LTD.

2225 S. Springer Ave., Burnaby,
British Columbia, Can. V5B 3B1
Ph:(604)299-5910 Fax:299-6252

CERTIFICATE OF ANALYSIS

TO : TECK EXPLORATIONS LTD.
960-175 SECOND AVE.
KAMLOOPS, B.C.
PROJECT : 1395
TYPE OF ANALYSIS : ICP

CERTIFICATE # : 90368
INVOICE # : 10512
DATE ENTERED : 90-08-21
FILE NAME : TEC90368.I
PAGE # : 1

PRE FIX	SAMPLE NAME	PPM MO	PPM CU	PPM PB	PPM ZN	PPM AG	PPM NI	PPM CO	PPM MN	% FE	PPM AS	PPM U	PPM AU	PPM HG	PPM SR	PPM CD	PPM SB	PPM BI	PPM V	% CA	% P	PPM LA	PPM CR	% MG	PPM BA	% TI	PPM B	% AL	% K	% S	PPM W	PPM BE	PPB Au AA
S	9095JT 00095	13	74	71	152	0.2	9	51	189	32.03	30	5	ND	ND	2	2	22	2	42	0.01	0.10	1	94	0.01	111	0.01	5	0.04	0.01	0.02	2	1	5

TO FOLLOW!

CERTIFIED BY : J. Rossbach

CAVENDISH ANALYTICAL LABORATORY LTD.

2225 S. Sprinoer Ave., Burnaby,
British Columbia, Can. V5B 3J1
Ph:(604)299-2560 Fax:299-6252

CERTIFICATE OF ANALYSIS

TO : TECK EXPLORATIONS
960-175 SECOND AVE.
KAMLOOPS, B.C.

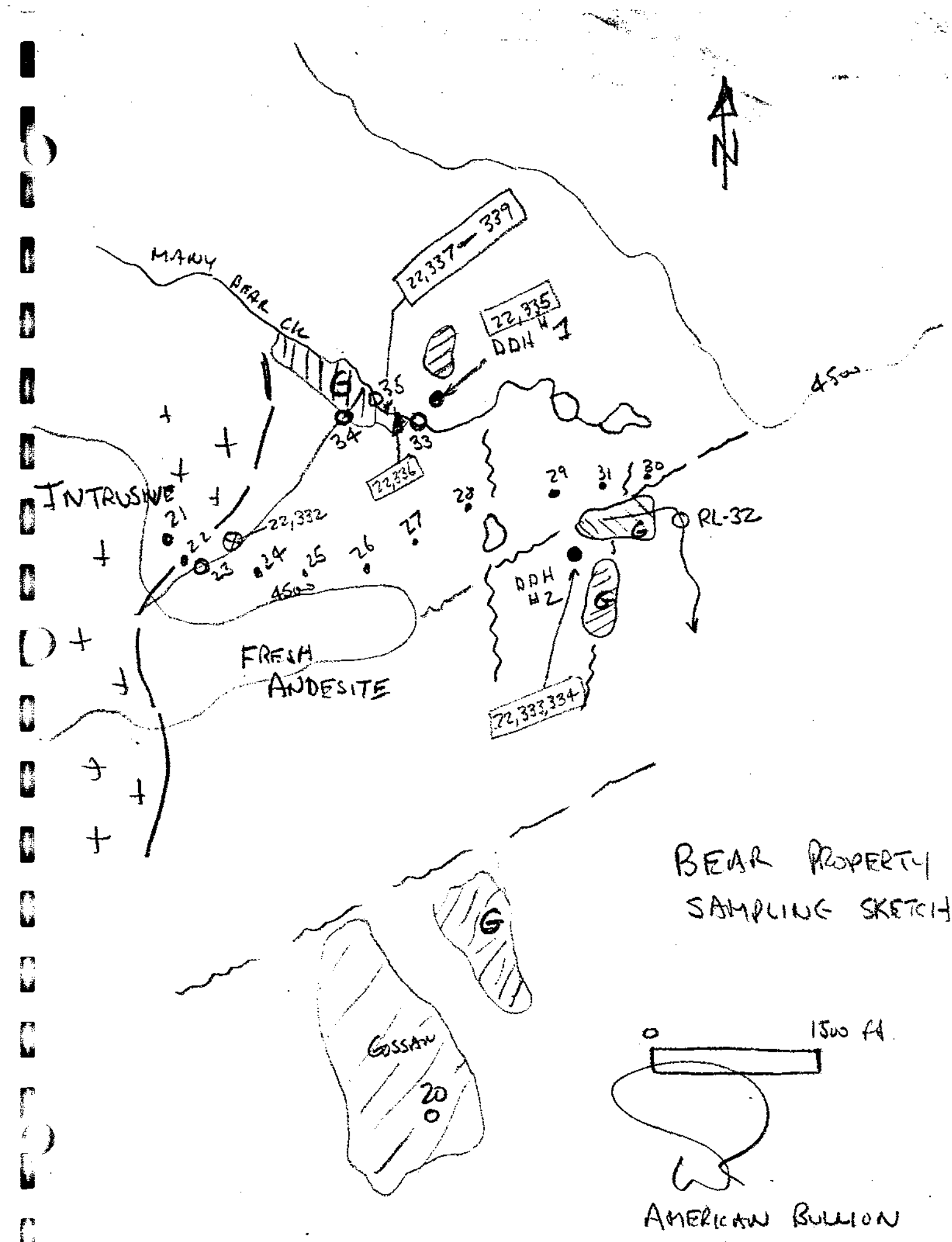
PROJ # : 1395
TYPE OF ANALYSIS : ICP

CERTIFICATE # : 90368
INVOICE # : 10512
DATE ENTERED : 90-08-27
FILE NAME : I368W
PAGE # : 1

PREFIX	SAMPLE NAME	PPM AL	PPM CA	PPM FE	PPM MG	PPM P	PPM SI	PPM TI	PPM AS	PPM BE	PPM BI	PPM CD	PPM MO	PPM PB	PPM SB	PPM AG	PPM AU	PPM BA	PPM CO	PPM CR	PPM CU	PPM LA	PPM MO	PPM MN	PPM NI	PPM SR	PPM U	PPM V	PPM W	PPM ZN	PPM B	PPM NA
	9095-JT 0008	4.44	93.1	0.22	5.2	0.27	2.63	0.052	0.035	0.002	<.04	<.002	<.01	<0.25	<.02	<.003	<.005	0.027	0.017	<.003	0.033	0.033	<.002	0.250	0.007	0.475	N\A	0.009	<.03	0.032	3.35	5.9
	9095-JT 0010	3.18	82.8	9.48	4.6	0.36	2.49	0.052	0.030	0.002	<.04	<.002	<.01	<0.25	<.02	<.003	<.005	0.030	0.010	<.003	0.008	0.021	<.002	0.243	0.012	0.425	N\A	0.015	<.03	0.030	3.04	5.5
	9095-JT 0011	2.00	87.9	1.24	3.8	0.60	2.17	0.023	<.018	0.001	<.04	<.002	<.01	0.033	<.02	<.003	<.005	0.030	0.008	<.003	0.012	0.006	<.002	0.225	<.005	0.434	N\A	0.001	<.03	0.013	2.83	5.5
	9095-JT 0012	3.30	15.5	2.57	3.2	0.02	1.92	0.047	<.018	0.001	<.04	<.002	<.01	<.025	<.02	<.003	<.005	0.028	0.012	<.003	0.009	0.023	<.002	0.136	<.005	0.138	N\A	0.011	<.03	0.016	1.09	4.5
	9095-JT 0013	1.54	21.9	0.05	2.9	0.07	1.05	0.058	<.018	0.002	<.04	<.002	<.01	<.025	<.02	0.004	<.005	0.022	0.010	<.003	0.107	0.024	0.004	0.084	0.007	0.164	N\A	0.015	<.03	0.013	0.91	4.0
	9095-JT 0014	<.01	<.1	0.01	<.1	<.05	0.27	<.005	<.018	<.001	<.04	<.002	<.01	<.025	<.02	<.003	<.005	<.002	<.005	<.003	0.002	0.001	<.002	0.006	<.005	<.001	N\A	0.003	<.03	<.002	<.01	1.8
	9095-JT 0015	7.48	171.8	50.22	10.0	0.77	2.70	0.093	0.038	0.003	0.09	0.003	<.01	<.025	0.04	0.007	<.005	0.050	0.069	0.016	0.037	0.056	0.003	0.410	0.039	0.965	N\A	0.021	<.03	0.056	7.06	6.4
	9095-JT 0016	0.45	475.3	0.05	2.8	0.93	1.42	<.005	0.048	0.003	<.04	<.002	<.01	<.025	<.02	<.003	<.005	0.056	<.005	<.003	[illegible]	0.019	0.007	0.141	<.005	2.744	N\A	0.021	<.03	0.002	12.33	10.2

CERTIFIED BY : W. Pease

Reconnaissance Sampling by Wayne Roberts, July 5, 1990



BEAR PROPERTY
SAMPLING SKETCH

BEAR Property (WELL THOMPSON) SAMPLE LEDGER

ASSAY TAG No.	SAMPLE INTERVAL Metres	SAMPLE INTERVAL Feet	SAMPLE LENGTH Metres	SAMPLE LENGTH Feet	ppb Au	Ag	PPM Cu	PPM ZN	DESCRIPTION
22-332	float				19		36		R23 ck. s.l'd And tuff, qtz veinlets 5-8% py.
333		508-513		5.0 ft	9		22		DDH #2, white, s.l'd, altered And tuff, 2-3% dis. py
334		523-530		7.0 ft	4		12		" " " " " " <2% py.
335					1		183		DDH #1, grabs propylitic altered And. Ep, py. Tr cpy veinlets
336		grabs off creek bank			6		30		Qal downstream of DDH #1, silicified + altered And
337		float			5		1800		" " " " , And por. 1/4" vein, py, cpy,
338		float			2		140		" " " " , pale green, altered And, vugs py.
22-339		float			3		108		" " " , s.l'd And, qtz calcite stringers Tr py. Tr cpy.
20	Gossan				5		56	34	
RL-21	Soil				10		94	76	
22	Soil				10		103	78	
23	silt				5		51	53	
24	Soil				10		83	13	
25	"				5		58	22	
26	"				20		141	21	
27	"				5		46	44	
28	"				10		31	41	
29	"				5		56	47	
30	"				10		21	31	
31	"				10		278	36	
32	Silt				5		97	22	
33	"				5		342	106	
34	"				5		21	15	
35	"				5		221	27	

MIN-EN LABORATORIES
(DIVISION OF ASSAYERS CORP.)

SPECIALISTS IN MINERAL ENVIRONMENTS
CHEMISTS • ASSAYERS • ANALYSTS • GEOCHEMISTS

VANCOUVER OFFICE:
705 WEST 15TH STREET
NORTH VANCOUVER, B.C. CANADA V7M 1T2
TELEPHONE (604) 980-5814 OR (604) 988-4524
FAX (604) 980-9621

THUNDER BAY LAB.:
TELEPHONE (807) 622-8658
FAX (807) 623-5931

SMITHERS LAB.:
TELEPHONE/FAX (604) 847-3004

Geochemical Analysis Certificate

OS-0121-SG1

Company: AMERICAN BULLION
Project:
Attn: W.ROBERTS

Date: JUL-13-90
Copy 1. AMERICAN BULLION, VANCOUVER, B.C.
2. AMERICAN BULLION, C/O MIN-EN LABS

We hereby certify the following Geochemical Analysis of 16 SOIL samples submitted JUL-08-90 by W.ROBERTS.

Sample Number	AU-WET PPB	CU PPM	ZN PPM
RL 20	50	56	34
RL 21	10	94	76
RL 22	10	103	78
RL 23	5	51	53
RL 24	10	83	13
RL 25	5	58	22
RL 26	20	14	21
RL 27	5	46	44
RL 28	10	31	41
RL 29	5	56	47
RL 30	10	21	31
RL 31	10	278	36
RL 32	5	27	22
RL 33	5	342	106
RL 34	5	51	45
RL 35	5	222	77

GEAR PROPERTY
TRUCK PAD

Certified by

MIN-EN LABORATORIES

MIN
•EN
LABORATORIES [redacted].

SPECIALISTS IN MINERAL ENVIRONMENTS
CHEMISTS • ASSAYERS • ANALYSTS • GEOCHEMISTS

VANCOUVER OFFICE:
705 WEST 15TH STREET
NORTH VANCOUVER, B.C. CANADA V7M 1T2
TELEPHONE (604) 980-5814 OR (604) 988-4524
TELEX: VIA U.S.A. 760107 • FAX (604) 980-9621

TIMMINS OFFICE:
33 EAST IROQUOIS ROAD
P.O. BOX 867
TIMMINS, ONTARIO CANADA P4N 7G7
TELEPHONE: (705) 264-9996

Geochemical Analysis Certificate

OS-0121-RG1

Company: AMERICAN BULLION
Project:
Attn: W.ROBERTS

Date: JUL-12-90
Copy 1. AMERICAN BULLION, VANCOUVER, B.C.
2. AMERICAN BULLION, C/O MIN-EN LABS

We hereby certify the following Geochemical Analysis of 8 ROCK samples submitted JUL-08-90 by W.ROBERTS.

Sample Number	AU-FIRE PPB	CU PPM
22332	19	36
22333	9	22
22334	4	12
22335	1	183
22336	6	30
22337	5	1900
22338	4	140
22339	3	108

BEAR [illegible]
TELKWA PASS

Certified by [signature]

MIN-EN LABORATORIES

Reconnaissance Sampling by Darrel Johnson, July 11, 1990

SAMPLE DESCRIPTIONS, BEAR MINERAL CLAIM, OMINECA M.D.
JULY 11 1990

NUMBER	TYPE	LOCATION	DESCRIPTION
11-7-1	Water	Limonite spring,south side of property, by hydro tower	Water
11-7-2	Water	South flowing creek, west of hydro tower/chopper pad	Water
11-7-3	Water	Many Bear Cr. drainage, bubbling spring below chopper landing site	Water
11-7-4	Rock	40 m south of Many Bear Cr.	Grab of earthy, layered limonite
11-7-6	Wood	South bank Many Bear Creek	Partially preserved wood embedded in limonite
11-7-7	Water	Pool, 50 m south of Many Bear Creek	Water
11-7-8	Water	Noranda DDH 62-1 NW. side of Many Bear Creek	Water flowing from casing
11-7-9	Water	70 m northwest of Noranda DDH 62-1	Clear water for comparison
11-7-10	Rock	Approx 400 m southwest of Noranda DDH 62-2, part way up knob.	Grab, foliated, pyritic, felsic volcanics, bedded? 320/70S
11-7-11	Rock	20 m southwest of 10	Grab, similar to 11-7-10
11-7-12	Rock	60 m southwest 0f 11	Grab, rusty, 'rhyolite' sheared 280/90
11-7-13	Rock	5 m east of 12	Mafic dyke, bounded by fault, 300/55NE
11-7-14	Rock	Adjacent (south) to 13	Rubble from fault

COMP: CORONA CORP.
PROJ: 1040 P.O. 90-0083
ATTN: D.JOHNSON/W.TOMPSON

MIN-EN LABS — ICP REPORT

705 WEST 15TH ST., NORTH VANCOUVER, B.C. V7M 1T2
(604)980-5814 OR (604)988-4524

FILE NO: 0S-0136-RJ1
DATE: 90/07/17
* ROCK * (ACT:F31)

SAMPLE NUMBER	AG PPM	AL PPM	AS PPM	B PPM	BA PPM	BE PPM	BI PPM	CA PPM	CD PPM	CO PPM	CU PPM	FE PPM	K PPM	LI PPM	MG PPM	MN PPM	MO PPM	NA PPM	NI PPM	P PPM	PB PPM	SB PPM	SR PPM	TH PPM	U PPM	V PPM	ZN PPM	GA PPM	SN PPM	W PPM	CR PPM	AU PPB
11-7-4	.1	600	1	8	1	.1	1	270	.1	19	17	326580	110	1	10	1	1	60	1	150	16	1	1	1	1	.1	1	1	1	1	1	5
11-7-10	.1	5110	1	1	9	.1	1	440	2.3	1	17	13350	540	1	60	8	1	1080	1	120	16	1	20	1	1	18.8	28	1	1	6	50	5
11-7-11	.1	4420	1	1	30	.1	1	90	.1	4	30	23630	490	1	10	1	1	900	1	90	18	1	18	1	1	18.1	3	1	1	1	24	10
11-7-12	.1	16370	1	1	45	.2	2	100	.1	4	80	53980	810	2	5150	126	1	410	1	370	26	1	13	1	1	61.0	35	3	1	1	24	10
11-7-13	.1	53300	1	1	23	.3	5	570	.1	31	31	59330	390	10	42050	1328	1	150	65	440	23	1	14	1	1	157.6	161	1	2	6	158	5
11-7-14	.1	5450	35	1	74	.2	1	300	.1	2	33	16780	1180	1	630	20	3	400	1	410	17	1	38	1	1	19.9	4	1	1	1	55	5
11-7-15	.1	2120	23	1	38	.1	4	90	.1	5	96	41090	230	1	270	3	7	60	1	380	20	1	8	1	1	20.7	3	1	1	3	113	5

COMP: CORONA CORP.
PROJ: 1040 P.O. 90-0083
ATTN: D.JOHNSON/W.TOMPSON

MIN-EN LABS — ICP REPORT

705 WEST 15TH ST., NORTH VANCOUVER, B.C. V7M 1T2
(604)980-5814 OR (604)988-4524

FILE NO: 0S-0136-SJ2
DATE: 90/07/18
* WOOD ASH * (ACT:F31)

SAMPLE NUMBER	AG PPM	AL PPM	AS PPM	B PPM	BA PPM	BE PPM	BI PPM	CA PPM	CD PPM	CO PPM	CU PPM	FE PPM	K PPM	LI PPM	MG PPM	MN PPM	MO PPM	NA PPM	NI PPM	P PPM	PB PPM	SB PPM	SR PPM	TH PPM	U PPM	V PPM	ZN PPM	GA PPM	SN PPM	W PPM	CR PPM
11-7-06	.1	12870	1	12	62	.1	1	12610	.1	25	114	289740	1340	3	4630	126	1	570	1	980	2	1	42	1	1	66.4	1	1	1	1	1

MIN
• EN
LABORATORIES
(DIVISION OF ASSAYERS CORP.)

SPECIALISTS IN MINERAL ENVIRONMENTS
CHEMISTS • ASSAYERS • ANALYSTS • GEOCHEMISTS

VANCOUVER OFFICE:
705 WEST 15TH STREET
NORTH VANCOUVER, B.C. CANADA V7M 1T2
TELEPHONE (604) 980-5814 OR (604) 988-4524
FAX (604) 980-9621

THUNDER BAY LAB.:
TELEPHONE (807) 622-8958
FAX (807) 623-5931

SMITHERS LAB.:
TELEPHONE/FAX (604) 847-3004

QUANTITATIVE WATER ANALYSIS CERTIFICATE

COMPANY: CORONA CORP.
PROJECT:
ATTENTION: D. JOHNSON/W. THOMPSON

DATE: JUL-19-90
FILE: OS-136WG1

WE HEREBY CERTIFY THE FOLLOWING RESULTS OF QUANTITATIVE WATER ANALYSIS MADE ON 6 SAMPLES SUBMITTED.

SAMPLE NUMBER			1	2	3	4	5	6
DISSOLVED CATIONS								
SILVER	(Ag)	mg/l	<.001	<.001	<.001	<.001	<.001	.136
ALUMINUM	(Al)	mg/l	3.31	1.43	3.43	5.73	.17	.08
ARSENIC	(As)	mg/l	<.001	<.001	<.001	<.001	<.001	<.001
BORON	(B)	mg/l	.75	.42	.43	.36	.75	.24
BARIUM	(Ba)	mg/l	<.01	<.01	<.01	<.01	<.01	<.01
CALCIUM	(Ca)	mg/l	37.96	32.08	13.19	57.61	127.96	3.42
CADMIUM	(Cd)	mg/l	.01	.01	<.01	.01	.01	<.01
COBALT	(Co)	mg/l	<.01	<.01	<.01	.03	<.01	<.01
CHROMIUM	(Cr)	mg/l	<.01	<.01	<.01	<.01	<.01	<.01
COPPER	(Cu)	mg/l	.08	.05	.10	.05	.08	.03
IRON	(Fe)	mg/l	.60	.01	.89	34.53	.14	<.01
MERCURY	(Hg)	mg/l						
POTASSIUM	(K)	mg/l	<.01	<.01	<.01	<.01	<.01	<.01
MAGNESIUM	(Mg)	mg/l	2.80	1.83	1.99	5.06	1.92	.05
MANGANESE	(Mn)	mg/l	.16	.11	.07	.22	.10	<.01
MOLYBDENUM	(Mo)	mg/l	<.001	<.001	<.001	<.001	<.001	<.001
SODIUM	(Na)	mg/l	2.78	1.67	1.12	2.09	3.89	.62
NICKEL	(Ni)	mg/l	<.01	.01	.02	<.01	<.01	<.01
PHOSPHORUS	(P)	mg/l	<.01	.04	<.01	<.01	<.01	<.01
LEAD	(Pb)	mg/l	<.01	.01	<.01	<.01	<.01	.02
ANTIMONY	(Sb)	mg/l	<.001	<.001	<.001	<.001	<.001	<.001
SELLENIUM	(Se)	mg/l	.01	.01	<.01	.11	.23	<.01
SILICA	(SiO2)	mg/l	21.56	16.03	10.21	18.72	15.14	5.05
STRONTIUM	(Sr)	mg/l	.21	.17	.06	.42	1.55	<.01
URANIUM	(U)	mg/l	<.01	<.01	<.01	<.01	<.01	<.01
VANADIUM	(V)	mg/l	<.01	<.01	<.01	<.01	<.01	<.01
ZINC	(Zn)	mg/l	.15	.12	.12	.14	.10	.11

SAMPLE DESCRIPTION
1 - 11-7-1
2 - 11-7-2
3 - 11-7-3
4 - 11-7-7
5 - 11-7-8
6 - 11-7-9

CERTIFIED BY
MIN-EN LABORATORIES

COMP: CORONA CORP.
PROJ: 1040 P.O. 90-0083
ATTN: D.JOHNSON/W.TOMPSON

MIN-EN LABS — ICP REPORT

705 WEST 15TH ST., NORTH VANCOUVER, B.C. V7M 1T2
(604)980-5814 OR (604)988-4524

FILE NO: 0S-0136-RJ1
DATE: 90/07/17
* ROCK * (ACT:F31)

SAMPLE NUMBER	AG PPM	AL PPM	AS PPM	B PPM	BA PPM	BE PPM	BI PPM	CA PPM	CD PPM	CO PPM	CU PPM	FE PPM	K PPM	LI PPM	MG PPM	MN PPM	MO PPM	NA PPM	NI PPM	P PPM	PB PPM	SB PPM	SR PPM	TH PPM	U PPM	V PPM	ZN PPM	GA PPM	SN PPM	W PPM	CR PPM	AU PPB
11-7-4	.1	600	1	8	1	.1	1	270	.1	19	17	326580	110	1	10	1	1	60	1	150	16	1	1	1	1	.1	1	1	1	1	1	5
11-7-10	.1	5110	1	1	9	.1	1	440	2.3	1	17	13350	540	1	60	8	1	1080	1	120	16	1	20	1	1	18.8	28	1	1	6	50	5
11-7-11	.1	4420	1	1	30	.1	1	90	.1	4	30	23630	490	1	10	1	1	900	1	90	18	1	18	1	1	18.1	3	1	1	1	24	10
11-7-12	.1	16370	1	1	45	.2	2	100	.1	4	80	53980	810	2	5150	126	1	410	1	370	26	1	13	1	1	61.0	35	3	1	1	24	10
11-7-13	.1	53300	1	1	23	.3	5	570	.1	31	31	59330	390	10	42050	1328	1	150	65	440	23	1	14	1	1	157.6	161	1	2	6	158	5
11-7-14	.1	5450	35	1	74	.2	1	300	.1	2	33	16780	1180	1	630	20	3	400	1	410	17	1	38	1	1	19.9	4	1	1	1	55	5
11-7-15	.1	2120	23	1	38	.1	4	90	.1	5	96	41090	230	1	270	3	7	60	1	380	20	1	8	1	1	20.7	3	1	1	3	113	5
10-7-4	1.1	5590	12	1	51	.2	4	5030	.1	9	1626	18720	850	3	4960	103	10	550	2	680	28	1	15	1	1	36.3	12	5	1	2	66	25
10-7-5	1.3	7820	33	21	34	.3	7	6020	.1	11	149	24420	920	6	6920	172	2247	530	1	1080	40	1	18	1	1	49.5	21	12	3	3	84	210
10-7-6	.9	6830	17	1	25	.3	5	7370	.1	9	318	18300	580	6	7500	187	56	350	1	940	29	1	18	1	1	41.6	17	6	1	2	53	5
11509	.1	1020	1	1	13	.1	1	1170	.1	1	22	6470	50	1	160	6	5	40	1	630	17	1	9	1	1	4.4	2	1	1	1	37	5
11510	.1	4630	138	1	57	.1	2	300	.1	3	103	36420	380	1	80	1	14	730	1	860	21	1	96	1	1	30.1	1	1	1	1	53	5

COMP: CORONA CORP.
PROJ: 1040 P.O. 90-0083
ATTN: D.JOHNSON/W.TOMPSON

MIN-EN LABS — ICP REPORT

705 WEST 15TH ST., NORTH VANCOUVER, B.C. V7M 1T2
(604)980-5814 OR (604)988-4524

FILE NO: 0S-0136-SJ2
DATE: 90/07/18
* WOOD ASH * (ACT:F31)

SAMPLE NUMBER	AG PPM	AL PPM	AS PPM	B PPM	BA PPM	BE PPM	BI PPM	CA PPM	CD PPM	CO PPM	CU PPM	FE PPM	K PPM	LI PPM	MG PPM	MN PPM	MO PPM	NA PPM	NI PPM	P PPM	PB PPM	SB PPM	SR PPM	TH PPM	U PPM	V PPM	ZN PPM	GA PPM	SN PPM	W PPM	CR PPM
11-7-06	.1	12870	1	12	62	.1	1	12610	.1	25	114	289740	1340	3	4630	126	1	570	1	980	2	1	42	1	1	66.4	1	1	1	1	1

Reconnaissance Sampling by Del Myers August 20, 1990

NORANDA EXPLORATION COMPANY, LIMITED

N.T.S. 93 L/12W

AREA / PROPERTY Bear claim, Many Bear and Limonite Creeks Collection DATE 20 August 1990

GCI # **SAMPLE REPORT** Lab Code: PROJECT: 240

SAMPLE NO.	LOCATION & DESCRIPTION outcrop / float	% SULPHIDES	TYPE material	WIDTH m	ppb Au	ppm Ag	ppm Cu	Pb		% Fe		SAMPLED BY
125526	dike cutting across Many Bear Creek	—	rock	grab								DEMOF
	3m thick, diorite, f.g., gry											
	greeny. propyllitic alteration, some											
	epidote clots, neg. $, o/c											
125527	along creek bed above dike, o/c	with?	rock	grab	6							"
	rusty green andesite fsp xtal											
	tuff, also quartz, propyllitic alt.											
125528	gossan beside creek below dike	—	rock	grab	1					40.7		"
	hematite/limonite deposit											
125529	215m downstream from 125528	—	silt	—	16		256			8.4		"
	inactive silt (from spring high water)											
125530	gray green white feldspar crystal	~~nil~~ tr	rock	grab	1	1.6	153	92				"
	tuff (andesite), propyllitic alt.,											
	o/c, sl. rusty weathering											
125531	talus in gully above 125530	2	rock	grab	3							"
	1-2m on, fsp-quartz-chl after											
	biotite? granodiorite (?) with											
	2% dissem pyrite											
125532	outcrop ~~above up~~ above gully	nil	rock	grab	3							"
	Moderately rusty, granodiorite,											
	chlorite after mafics											

report by dm 21 Aug 90

NORANDA EXPLORATION COMPANY, LIMITED

N.T.S. 93 L/12W

AREA / PROPERTY Bear claim, Mary Bear and Limonite Creeks Collection DATE 20 August 1990

GCI # SAMPLE REPORT Lab Code: PROJECT 240

SAMPLE NO.	LOCATION & DESCRIPTION outcrop / float	% SULPHIDES	TYPE material	WIDTH m	ppb Au	ppm Ag	ppm Cu			% Fe	ppm Mo	SAMPLED BY
125533	o/c in gully above 125531	with	rock	grab	4							DEMTA
	quartz-sericite schist at											
	volc. - intrusive contact, rusty with											
125534	5m further up gully from 125533	3	rock	grab	2		152					"
	rusty altered andesite or granodiorite											
	fsp-qtz-chl-pyrite											
125535	propyllitically altered, vf gn	nil	rock	grab	2							"
	feldspar-phyric andesite, gray											
	green											
125536	float, hematite-limonite	nil	rock	grab	2		430			17.0	32	"
	cemented, quartz grains to 1cm											
	in diameter - at pickup location											

report by dm 21 Aug. 90

ACME ANALYTICAL LABORATORIES LTD. 852 E. HASTINGS ST. VANCOUVER B.C. V6A 1R6 PHONE(604)253-3158 FAX(604)253-1716

GEOCHEMICAL ANALYSIS CERTIFICATE Bear cl. (DH)

Noranda Exploration Co. Ltd. PROJECT 9008-099-2406 File # 90-3843

P.O. Box 2380, 1050 Davie, Vancouver BC V6B 3T5

SAMPLE#	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Au* ppb
125527	1	83	5	127	.3	36	21	1483	5.98	9	5	ND	3	225	.2	2	2	176	.30	.099	3	26	3.80	57	.12	3	4.60	.07	.03	1	6
125530	1	153	92	110	1.6	23	14	764	3.22	18	5	ND	3	71	.4	5	2	98	.85	.077	6	23	1.79	61	.26	2	2.15	.07	.11	1	1
125531	4	18	19	38	.5	6	4	289	2.00	9	5	ND	9	29	.2	9	2	21	.29	.047	4	5	.57	64	.12	2	.88	.08	.12	1	3
125532	3	80	18	29	.6	10	8	264	2.10	8	5	ND	8	10	.2	3	2	15	.14	.038	4	17	.42	57	.02	2	1.04	.08	.14	1	3
125533	3	19	10	1	.6	2	1	4	1.22	6	7	ND	4	27	.2	2	2	7	.01	.017	7	3	.01	25	.01	2	.43	.07	.13	2	4
125534	4	152	6	17	.3	36	13	98	4.99	9	5	ND	3	72	.2	2	2	75	.23	.040	2	28	.10	74	.03	2	1.20	.07	.18	1	2
125535	1	18	5	75	.3	14	11	711	2.41	6	5	ND	3	90	.2	4	2	67	.90	.083	7	5	.97	81	.30	2	1.74	.07	.09	1	2
125536	32	430	2	7	.2	3	2	23	17.01	9	8	ND	3	2	.2	4	2	5	.01	.082	2	10	.01	9	.02	2	.25	.01	.04	1	2
STANDARD C	19	61	40	131	7.1	73	31	1045	3.96	40	19	7	40	52	18.9	15	18	58	.51	.097	39	60	.89	182	.09	35	1.89	.06	.14	11	-

ICP - .500 GRAM SAMPLE IS DIGESTED WITH 3ML 3-1-2 HCL-HNO3-H2O AT 95 DEG. C FOR ONE HOUR AND IS DILUTED TO 10 ML WITH WATER.
THIS LEACH IS PARTIAL FOR MN FE SR CA P LA CR MG BA TI B W AND LIMITED FOR NA K AND AL. AU DETECTION LIMIT BY ICP IS 3 PPM.
- SAMPLE TYPE: ROCK AU* ANALYSIS BY ACID LEACH/AA FROM 10 GM SAMPLE.

DATE RECEIVED: AUG 24 1990 DATE REPORT MAILED: Aug 30/90. SIGNED BY..... C. Leong .D.TOYE, C.LEONG, J.WANG; CERTIFIED B.C. ASSAYERS

Rock

Bear claim

93 L /12 W

copy to Carl Thompson, Smithers

RECEIVED SEP - 6 1990 GEOLOGICAL BRANCH

Copy to Del

ACME ANALYTICAL LABORATORIES LTD. 852 E. HASTINGS ST. VANCOUVER B.C. V6A 1R6 PHONE(604)253-3158 FAX(604)253-1716

GEOCHEMICAL ANALYSIS CERTIFICATE Bear Cl. (DM)

Noranda Exploration Co. Ltd. PROJECT 9009-003-240 File # 90-3896

P.O. Box 2380, 1050 Davie, Vancouver BC V6B 3T5

SAMPLE#	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Au* ppb
125528	1	74	2	14	.1	1	2	8	40.73	2	5	ND	5	3	.5	2	2	94	.02	.082	2	1	.01	5	.01	2	.18	.01	.03	1	1
125529	7	256	7	91	.1	27	29	750	8.45	13	5	ND	3	54	.5	2	2	130	.57	.157	8	32	1.38	134	.14	2	1.90	.02	.08	1	16

ICP - .500 GRAM SAMPLE IS DIGESTED WITH 3ML 3-1-2 HCL-HNO3-H2O AT 95 DEG. C FOR ONE HOUR AND IS DILUTED TO 10 ML WITH WATER.
THIS LEACH IS PARTIAL FOR MN FE SR CA P LA CR MG BA TI B W AND LIMITED FOR NA K AND AL. AU DETECTION LIMIT BY ICP IS 3 PPM.
- SAMPLE TYPE: SILT AU* ANALYSIS BY ACID LEACH/AA FROM 10 GM SAMPLE.

DATE RECEIVED: AUG 27 1990 DATE REPORT MAILED: Aug 31/90. SIGNED BY ..... D.TOYE, C.LEONG, J.WANG; CERTIFIED B.C. ASSAYERS

125528 was sample of gossan
wanted it treated as a rock sample
not as silt/soil ! (see RST)

Bear claim
93 L/12W

copy to Wil Tompson, Smithers

Copy to Del

RECEIVED
SEP - 6 1990

Reconnaissance Sampling by Gwen Ditson and Gerald Grey, August 26, 1990.

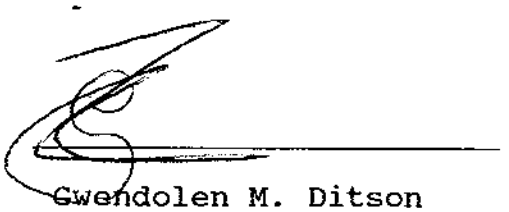
PLACER DOME INC.
1600-1055 DUNSMUIR ST.
VANCOUVER, B.C.
(604) 682 7082
TELEX 04-55181
FAX (604) 682-7092
MAILING ADDRESS
P.O. BOX 49330
BENTALL POSTAL STATION
VANCOUVER, B.C
CANADA
V7X 1P1

Statement of Expenditures

The following is an accounting of the expenses incurred by Placer Dome Inc. for the purpose of evaluation of the Bear Claim, Omineca Mining Division, on August 26, 1989:

Personnel	
2 geologists x 1 man day each	$ 650.00
Room & Board	150.00
Helicopter	
August 26 0.8 hrs	522.40
Analyses	
4 rock samples (ICP)	22.00
4 rock samples (Au geochem)	33.00
TOTAL EXPENDITURES	**$ 1,377.40**

Prepared by:



Gwendolen M. Ditson
Geologist

PDI GEOCHEM SYSTEM: Data From: SMITHERS 1R MANY BEAR Ck

GRID	SAMPLE	PROJECT	Au1 PPB
93L12	A7712	0585	20
93L12	A7713	0585	<5
93L12	A7714	0585	<5
93L12	A7715	0585	10
93L12	A7715*	0585	<5

END OF LISTING - 5 RECORDS PRINTED

Sample Descriptions

A7712 grabs of limonite deposit under power line

A7713 float of heavily pyritized, sericitized intrusive rock

A7714 grabs of limonite deposit below old drill hole

A7715 limonite on Many Bear Creek; elevation 3800 ft.

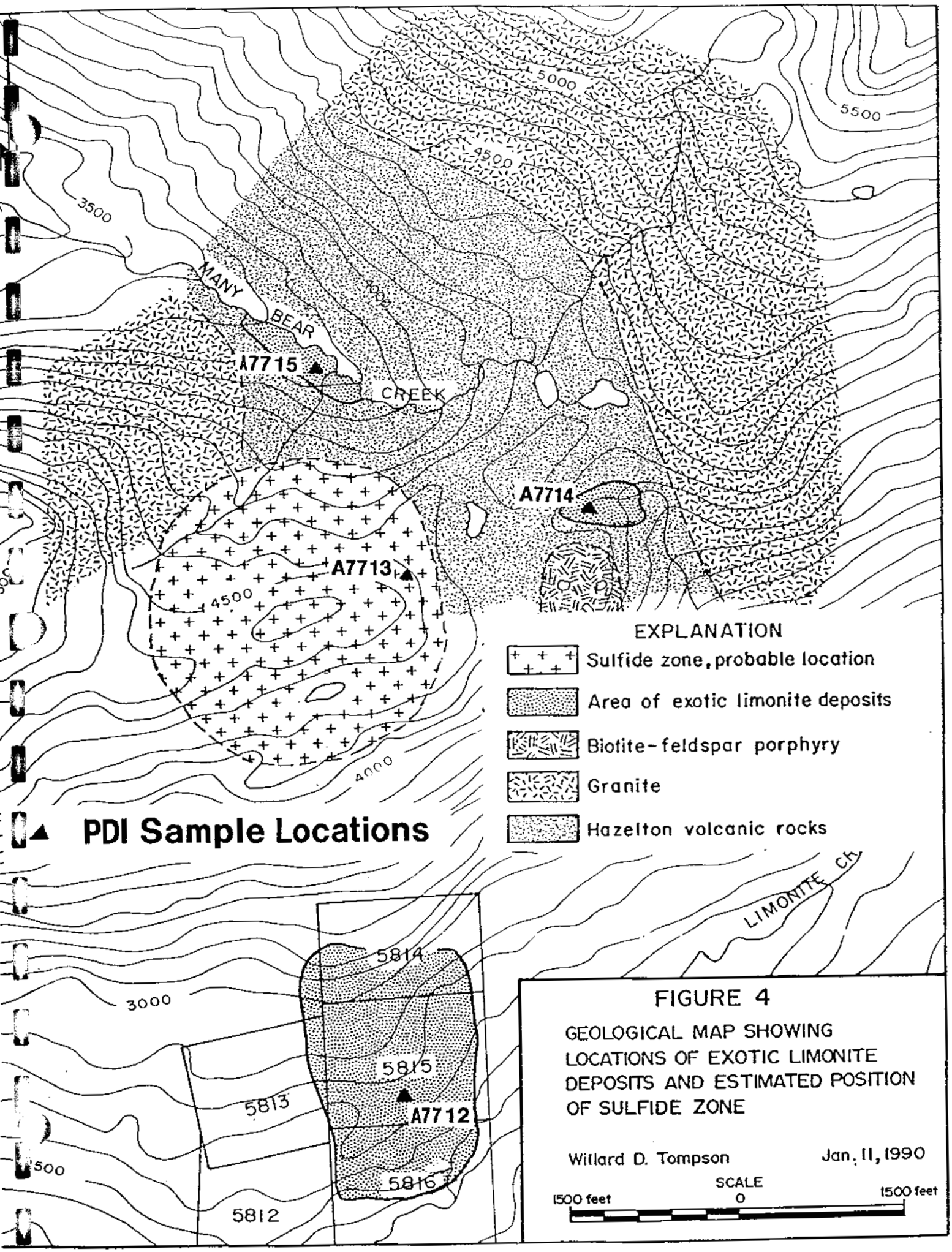


FIGURE 4

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

Bear Claim

Report: 9000902 R Placer Dome Research Centre Project: PO 585 Page 1 of 1 Section 1 of 2

Sample Name	Type	Ag ppm	Al %	As ppm	Ba ppm	Bi ppm	Ca %	Cd ppm	Co ppm	Cr ppm	Cu ppm	Fe %	Hg ppm	K %	La ppm	Mg %	Mn ppm
A 7712	Rock Pulp	<0.1	0.48	48	<2	6	0.02	0.2	6	11	15	>5.00	4	<0.01	<2	<0.01	<1
A 7713	Rock Pulp	<0.1	0.13	11	6	<2	<0.01	0.1	11	32	24	3.41	<3	0.02	<2	<0.01	3
A 7714	Rock Pulp	<0.1	0.21	48	<2	7	0.01	0.2	6	1	66	>5.00	5	<0.01	<2	<0.01	<1
A 7715	Rock Pulp	0.1	0.06	47	<2	6	0.01	0.2	6	1	<1	>5.00	<3	<0.01	<2	<0.01	<1
Minimum Detection		0.1	0.01	5	2	2	0.01	0.1	1	1	1	0.01	3	0.01	2	0.01	1
Maximum Detection		100.0	5.00	10000	10000	10000	10.00	10000.0	10000	10000	20000	5.00	10000	10.00	10000	10.00	10000
Method		ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP

-- = Not Analysed unr = Not Requested ins = Insufficient Sample

Report: 9000902 R Placer Dome Research Centre Project: PO 585 Page 1 of 1 Section 2 of 2

Sample Name	Mo ppm	Na %	Ni ppm	P %	Pb ppm	Sb ppm	Sc ppm	Sr ppm	Th ppm	Ti %	V ppm	W ppm	Zn ppm	Zr ppm
A 7712	4	<0.01	17	0.01	<2	27	<1	1	87	<0.01	37	<5	20	2
A 7713	2	0.01	10	<0.01	<2	<5	<1	9	<10	<0.01	7	<5	<1	<1
A 7714	4	<0.01	15	0.01	<2	21	<1	1	97	<0.01	45	<5	8	2
A 7715	3	<0.01	15	<0.01	<2	21	<1	1	94	<0.01	33	<5	2	2
Minimum Detection	1	0.01	1	0.01	2	5	1	1	10	0.01	5	5	1	1
Maximum Detection	1000	5.00	10000	5.00	20000	1000	10000	10000	1000	1.00	10000	1000	20000	10000
Method	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP

-- = Not Analysed unr = Not Requested ins = Insufficient Sample

Reconnaissance Sampling by Bob Hewton, August 29, 1990

Report: 9000821 R Western Canadian Mining Corp. Project: Property Exam Page 1 of 1 Section 2 of 2

Sample Name	Mg %	Mn ppm	Mo ppm	Na %	Ni ppm	P %	Pb ppm	Sb ppm	Sc ppm	Sr ppm	Th ppm	Ti %	V ppm	W ppm	Zn ppm	Zr ppm
TP 1	<0.01	<1	4	<0.01	15	0.01	<2	22	<1	1	145	<0.01	46	<5	38	3
TP 2	<0.01	<1	2	<0.01	14	0.01	<2	20	<1	1	136	<0.01	46	<5	35	3
TP-S 1	0.01	12	5	<0.01	9	0.10	10	<5	<1	9	20	0.01	29	<5	47	<1
TP-S 2	0.03	60	2	<0.01	7	0.07	3	<5	<1	22	14	<0.01	10	<5	68	<1
TP-S 3	<0.01	10	5	<0.01	9	0.13	<2	<5	<1	6	37	0.01	75	<5	24	<1
TP-S 4	0.01	50	1	<0.01	10	0.06	<2	<5	2	36	24	<0.01	18	<5	54	1
TP-S 5	<0.01	<1	4	<0.01	13	0.01	<2	21	<1	<1	140	<0.01	41	<5	15	2
TP-S 6	0.46	606	5	<0.01	10	0.10	5	<5	4	16	<10	0.09	119	<5	85	1
TP-S 7	0.48	206	2	<0.01	10	0.07	5	<5	4	20	<10	0.11	116	<5	52	2
TP-S 8	0.97	364	2	<0.01	18	0.08	4	<5	7	22	<10	0.13	114	<5	71	9
TP-S 9	0.67	280	2	<0.01	13	0.06	5	<5	4	22	<10	0.15	138	<5	61	2
Minimum Detection	0.01	1	1	0.01	1	0.01	2	5	1	1	10	0.01	5	5	1	1
Maximum Detection	10.00	10000	1000	5.00	10000	5.00	20000	1000	10000	10000	1000	1.00	10000	1000	20000	10000
Method	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP

-- = Not Analysed unr = Not Requested ins = Insufficient Sample

INTERNATIONAL PLASMA LABORATORY LTD.
2036 Columbia Street
Vancouver, B.C.
Canada V5Y 3E1
Phone (604) 879-7878
Fax (604) 879-7898

MANY BEAR CREEK

DDH 70-1
#500 ft.

DDH 63-1
123 ft.

DDH 70-2
726 ft.

Camp site, 1969 and 1970

Trench

Helipad

B.C. HYDRO POWER TRANSMISSION LINE

GAS PIPELINE

LIMONITE CREEK

EXPLANATION

Qta	Covered areas; talus, glacial till.
Lim	Exotic limonite deposits; at least 80 percent covered by forest growth, swamps and brush. Deposits are in the growth process.
Kg	Granodiorite. Upper Cretaceous to Lower Tertiary.
Jt	Volcaniclastic rocks of the Early to Middle Jurassic Telkwa Formation (Hazelton Group). Rocks are largely dacitic lapilli tuff.
DDH 70-2 ◎ 726 ft.	Diamond drill hole location, year drilled, sequence and depth in feet.
	Fault, interpreted from aerial photograph.

GEOLOGICAL BRANCH
ASSESSMENT REPORT

20,370

PLATE I

General Geological Map
of the

Limonite Creek - Many Bear Creek Prospect Area

Telkwa Pass, British Columbia

Willard D. Tompson — October 4, 1990

Scale

0 100 200 300 400 500 600 m.