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REPORT OF GEOLOGICAL MAPPING & MAGNETOMETER SURVEY

MAX PROSPECT, UNUK RIVER AREA,

SKEENA MINING DIVISION, B.C.

56° 25' North Latitude, 130° 32' West Longitude

104B/7E

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Ed Kruchkowski

for: Granduc Mines, Limited (N.P.L.)
2009 - 1177 West Hastings Street,
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E. Kruchkowski

CONTENTS

1. Introduction

The Max iron-copper prospect of Granduc Mines, Limited is located at Barclay Gulch on McQuillan Ridge, east of Unuk River, nine miles (14km.) northeast of the U.S.A.-Canada boundary (figure 1). The prospect was first located in 1960 as a result of airborne magnetometer surveys carried out by Newmont Mining Corporation of Canada Limited on behalf of Granduc Mines, Limited. During the period 1960 through 1962 the prospect was explored by geological and geophysical surveys and by 17904 feet of diamond drilling. A skarn-type deposit containing approximately 11 million long tons of iron-copper material was indicated. No work was done from 1963 through 1974.

Between May 12 and June 12, 1975 line-cutting and geological and magnetometer surveys were completed on the Max prospect. A helicopter landing site was rebuilt and old foot-trails were improved. In the interests of complying with current field standards, remnants of a former drill camp were tidied up. This report was prepared in the period June 13 through June 24, 1975.

This report summarizes the technical work done and results obtained. Expenditures incurred are being applied as assessment work. One affidavit on application to record work was filed at Prince Rupert, B. C. on June 3, 1975 and applied $7920.00 of expenditures to that date (Appendix 2(1)). A second affidavit, filed on June 30, 1975, applied $3,511.50 of expenditures incurred after June 3, 1975 (Appendix 2(2)).

2. Claims

The Max prospect currently consists of 57 mineral claims, all of which are held by location. Figure 2 illustrates the location of the 1975 grid lines with respect to some of the mineral claims. The Max claims are owned by Granduc Mines Limited and that company paid for the 1975 work.

3. Logistics and Personnel

In order to do work on the Max property, a four-man field crew with field gear, was mobilized from Vancouver to Stewart, B. C., the nearest town. Further supplies were obtained in Stewart and the personnel and crew were then moved to the Max property via helicopter.

Work was done in the period May 12 through June 12, 1975 by E.A.Ostensoe, geologist Ed Kruchkowski, geologist, Jim Mackie, P.Eng., geologist, and Clarke Cherniwchan, helper. The camp was located on the east side of Barclay Gulch at elevation 1250 feet. When work commenced about four feet of snow was present at the camp site but most of the forested slopes were bare or nearly bare.

At the end of the work program personnel were returned to Vancouver; equipment to Stewart, B. C.

FIGURE 1

Location Map - Max Property, Unuk River Area, Skeena M. D., British Columbia

Scale: 1" = 4 miles (approx.)

To accompany report by E. Ostensoe, J. Mackie, E. Kruchkowski, June, 1975, for Granduc Mines, Limited.

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MAP 1

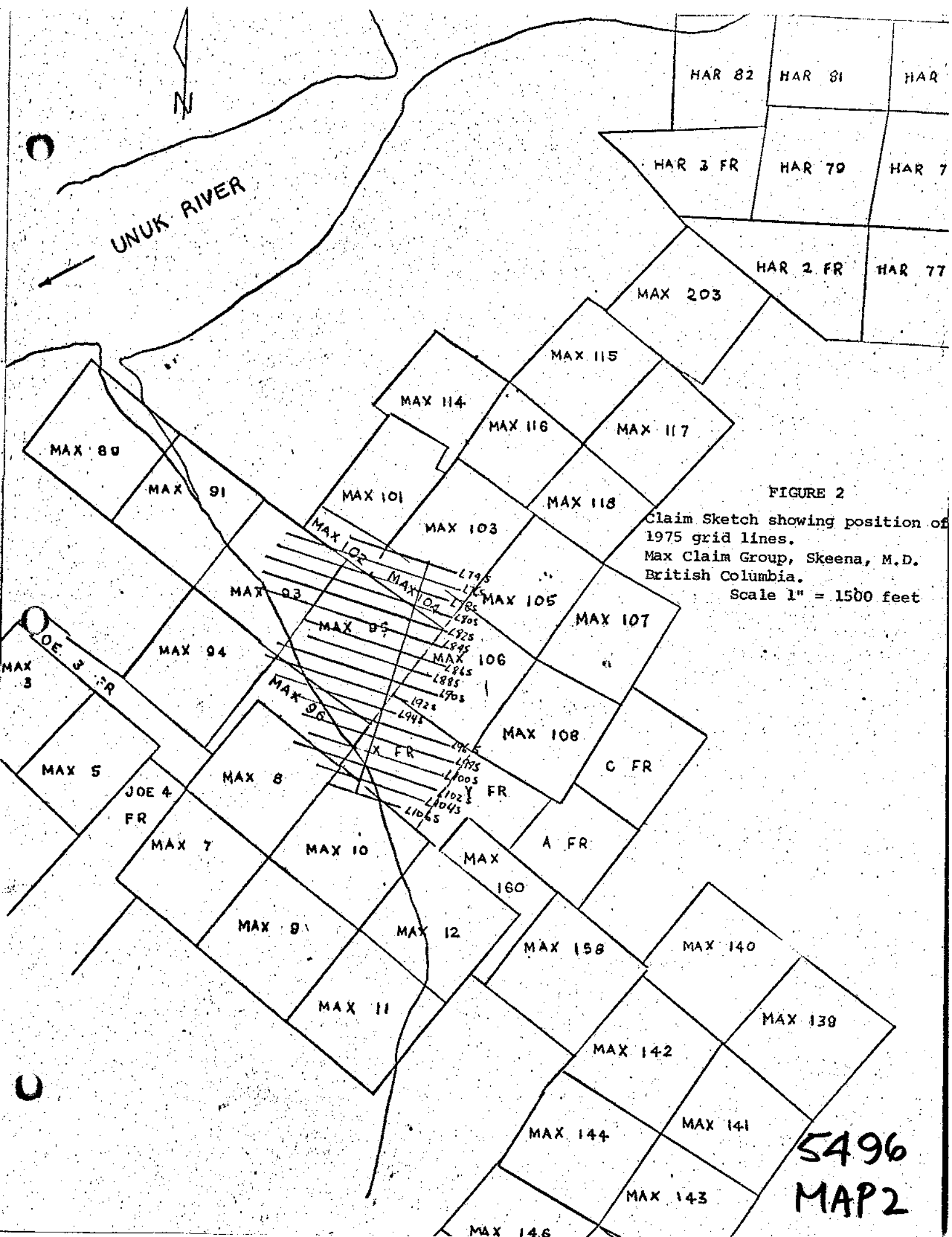

FIGURE 2

Claim Sketch showing position of 1975 grid lines.
Max Claim Group, Skeena, M.D. British Columbia.
Scale 1" = 1500 feet

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MAP 2

4. Work Program

The main objectives of the 1975 field program on the Max prospect were:

(1) To re-map the geology of the mineralized area and to expand geological mapping to adjacent parts of the area.

(2) To carry out magnetic surveys using a fluxgate-type instrument and thus up-date the data obtained in 1960 using a less-sophisticated Askania torsion balance instrument.

Prior to commencing technical work, 3200 feet of base line and 34,300 feet of grid lines were cut, flagged and picketed. Lines were cleared and blazed using axes except in an area of windfalls where it was necessary to use a powersaw. The baseline, bearing S17°W, was picketed at 100 foot intervals from 74S to 106S; stations were numbered to conform to the 1960 grid. Cross lines at 200 foot spacing and bearing S73E and N73°W extended both east and west of the baseline and stations were located at 100 foot intervals. In the vicinity of massive magnetite outcroppings close to the baseline, particularly between stations 76S and 82S, compass bearings were somewhat erratic and consequently it is likely that these lines deviated slightly from the intended bearings. It is believed that no significant distortion of either geology or magnetic patterns occurred.

5. Regional Geology

Recent field studies in the Unuk River area include those of G.W.H. Norman, et al. for Granduc Mines Limited in 1960 and 1961 and of E. W. Grove and J. T. Fyles for the B. C. Department of Mines and Petroleum Resources in 1967. No useful outline of the regional geology has yet been published.

The Unuk River area lies between the Bowser Basin to the east and the main crystalline core of the Coast Mountains to the west. Rocks are almost entirely of Triassic and Jurassic age, with small areas of Cenozoic basaltic extrusions and unconsolidated fluvio-glacial deposits in stream valleys.

Crystalline rocks, apparently partially predating Coast Intrusions, range in composition from gabbro through diorite and syenite. Bedded rocks are predominantly immature clastic types including sandstone, arkose, greywacke and wacke with lesser quantities of shale and siltstone. Limestone appears to be restricted in its stratigraphic occurrence but being a distinctive unit, its distribution is quite well documented. Dykes are abundant and vary widely in composition. Most are narrow - few exceed 10 feet in width.

As a result of its location between the tectonically active Bowser Basin and the Coast Intrusions, the Unuk River area has undoubtedly undergone extensive disruption. Structures, however, have to date been poorly defined. In the past, prominent linear topographic features were almost automatically elevated to fault status by field geologists and elaborate fault patterns could then be synthesized by air photo interpretation. Due in part to the lack of useful marker horizons and in part to the lack of outcroppings in critical areas, such as in the linears, geological data was seldom adequate to confirm the patterns.

The 1975 work at the Max property was confined to a very small portion of the Unuk River area and was carried out without reference to the broader regional geological concepts.

6. Property Geology

i) Introduction

The Max magnetite-chalcopyrite deposit occurs at a diorite intrusive-sedimentary sequence contact. Typical contact metamorphic alteration is evident within the sediments, which consist of sandstone, argillite and limestone.

Geological mapping was done along and adjacent to all 1975 cut lines. Figure 3 shows all outcrop mapped, at a scale of 1 inch equals 100 feet.

ii) Rock Types

Sedimentary rocks, consisting of impure sandstone limestone and argillite, are dominant within the map area. Inter bedding is evident in large, continuous outcroppings.

Sandstone is the most widely exposed rock. It is commonly a grey coloured, fine to medium grained, massive rock. In hand specimens it looks somewhat tuffaceous. A highly chloritized fine grained rock situate in the northwest of the map area has been tentatively called a metavolcanic, but it is possibly an altered sandstone.

Limestone has been observed along Barclay Creek and in the middle of the map area. It varies from a light grey relatively pure limestone to a black graphitic and argillaceous limestone. Bedding attitude is outlined by thin argillite bands.

Argillite is a fine grained black sediment. At the diorite contact, the argillite has been silicified to a black massive rock. In places it has been converted to a chert-like rock.

Adjacent to the mineral deposit, sedimentary rocks have been altered to skarn. The skarn is a fine to medium grained rock comprised of actinolite, diopside, epidote and garnet. Outcrops of skarn were noted in the northeast map area.

Two types of intrusive rocks were noted during the survey. The most easily identified was a uniform, fine grained diorite, which is in east-west contact with the sediments in the extreme north map area. Less readily identified is a series of feldspar porphyry dikes lying in the east of the map area. These rocks contain 20 to 40% medium feldspar phenocrysts in a medium to dark grey coloured matrix. At times, these dikes are difficult to distinguish from medium grained sandstone. A fairly distinctive hornblende feldspar porphyry dike occurs in the cliff faces west of Barclay Creek.

iii) Structure

Barclay Creek is the dominant structural feature of the area. It's location has been controlled by faulting. Dr. G. W. H. Norman has suggested that right handed, strike slip movement of 1000 to 2000 feet has occurred along Barclay Creek. This movement direction is supported by diorite offsets further north. He also suggests the southwest side has been shifted upwards.

The sedimentary rocks have different strike directions on each side of Barclay Creek. They strike northeast-southwest on the west and north-south on the east. Dips are dominantly steeply eastward to vertical on both sides of the creek. This attitude difference may be caused by dragging or rotation along the Barclay Creek Fault.

iv) Mineralization

Mineralized outcrops are very scarce. Massive magnetite accompanied by lesser pyrrhotite and chalcopyrite are exposed in 2 trenches west of the baseline on Line 78 South. Earlier drilling has indicated an iron-copper deposit containing approximately 11 million tons of mineralized rock. No previously undetected mineralized outcrops were located in the map area.

Disseminated pyrite and/or pyrrhotite is common in the rocks adjacent to the Barclay Creek Fault.

7. Magnetic Survey

i) Introduction

A total of 7.1 line miles were surveyed (fig.4) using a Scintrex model MF-1 fluxgate magnetometer rented from Montgomery, Wolfe and Associates. A McPhar model M700 fluxgate magnetometer was present as a back-up instrument. The survey was carried out by E. Kruchkowski, assisted by C. Chernwichan.

ii) Field Procedure

A base station was established near the camp and readings were taken for several days prior to the magnetometer survey. The average of the readings obtained was used as the base station reading. To ensure some control of the daily fluctuations of the vertical component of the earths magnetic field, readings were taken at the base station prior to and after each days traverse. In addition, closed loops were run by the re-reading of stations along the baseline, the middle of each line on the east slope of Barclay Gulch and along Barclay Creek. The instrument was read to the nearest 10 gammas, at picketed stations every 100 feet on the baseline and grid lines spaced 200 feet apart. Field notes consisted of the magnetometer reading, the location of reading and time of reading. Where necessary, an adjustment was made to all field readings to compensate for diurnal variations indicated by the base station and closed loop readings.

iii)Discussion of Magnetic Survey

The adjusted magnetic readings at each station with superimposed 1000 gamma intervals are shown in figure 4. The contours are biased by the orientation of the grid lines and gamma interval. A highly anomalous magnetic trend measuring approximately 600 feet in width by 1800 feet long trends NE-SW across the northern part of the grid. This anomaly correlates well with the trend of the drill indicated Max iron ore deposit. Determination of the background for the area is difficult due to the extremely high readings over outcropping magnetite and corresponding low dipoles. Also it is difficult to ascertain the effect on the readings of the steep terrain above and below the deposit.

The 1000 gamma interval between line 76S and 74S and 4 to 10W corresponds with a diorite - chert contact. A small local high is present at 9W on line 78S in an area of no geological information. Several local high readings were outlined at the end of line 90S, above steep cliffs.

8. Conclusions

The 1975 program of work on Max xlaims resulted in an improved and expanded geological map. Rocks that were formerly identified as volcanics were reclassified as clastic sedimentary rocks. No previously unknown mineralized zones were located.

The area of the 1975 magnetometer survey was larger and coverage was more detailed than that of the previous torsion balance magnetometer surveys. The portion of the grid wouth of the magnetite skarn occurrence was magnetically featureless. Small areas with apparently anomalous magnetic susceptibilities in the northwestern part of the grid are thought to be of little significance with respect to mineral exploration possibilities. The magnetic expression of the skarn occurrence was similar to that recorded by 1960 surveys.

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APPENDIX I - Statement of Qualifications

The professional qualifications of technical personnel engaged in the work reported on herein, are detailed below:

1. Ed Kruchkowski, B.Sc., Geologist - completed B.Sc. course at University of Alberta (Edmonton) in May 1972; in summers of 1969, 1971 and 1972 employed by Hecla Operating Company in Schaft Creek area as coresplitter, soil sampler and geologist respectively. In 1970 employed by consultant and assigned to projects in southeastern British Columbia. Employed by Hecla Operating Company as geologist from May, 1973 to June, 1974 and assigned to projects at Mess Creek, B. C. and Bute Inlet, B. C. under the direction of Erik Ostensoe and P. I. Conley, P.Eng. Employed by Granduc Mines, Limited (N.P.L.) from July, 1974 to present as geologist in charge of work on Sulphurets Creek property.

2. E. A. Ostensoe, B.Sc. (Hons.), Member: CIMM, Association of Exploration Geochemists; Geologist - completed B.Sc. Honours course at University of British Columbia in 1960 and course requirements of M.Sc. at Queen's University in 1966; employed by Newmont Mining Corporation of Canada Ltd., under direction of Dr. G. W. H. Norman, P. Eng., from May 1960 through August 1964 as field geologist in Granduc Mine area, B. C., by Mount Billings Venture in south-eastern Yukon in summer 1965, by Scud Venture (Asarco) in Iskut River area, B. C. in summer 1966 and by Granduc Mines, Limited (NPL) and Hecla Mining Company of Canada Ltd. from October 1966 to present as Chief Geologist and Exploration Supervisor under the direction of P. I. Conley, P.Eng.

3. J.A.C.Mackie, B.A.Sc., P.Eng., geologist, employed in mineral exploration for more than ten years, in Quebec, British Columbia, Yukon, Wales and Australia. Since 1971 employed by Hecla Operating Company at Schaft Creek and Mt. Horetzky projects, northern B. C. On "loan" to Granduc Mines, Limited in period May 26 through June 24, 1975.

4. Clarke Cherniwchan, helper, student at University of Calgary (pre-veterinary medicine program), employed in 1974 by Gulf Oil Canada Ltd. in geological core library.

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Appendix 2(1) Statutory Declaration on Expenditures to June 3, 1975

DOMINION OF CANADA:
PROVINCE OF BRITISH COLUMBIA.
TO WIT:

In the Matter of Form B (Section 51) Mineral Act Affidavit on Application to Record Work on Max Group of Mineral Claims, Unuk River Area, Skeena M. D. British Columbia,

I, Erik A. Ostensoe

of 4306 West 3rd Avenue, Vancouver, B. C. Free Miner's Certificate No. 128948, issued December 9, 1974

in the Province of British Columbia, do solemnly declare that The following expenditures were incurred on behalf of Granduc Mines Limited in carrying out field work on the Max Group of Mineral Claims in the period May 1 through June 3, 1975:

A. Wages and Salaries (basis of 22-day month)	
Ed Kruchkowski, geologist - May 12 - June 3, 1975 22days - [illegible]	993.00
J.A.C. Mackie, P. Eng., geologist - May 26 - June 3, 1975 - 9 days	663.00
Erik Ostensoe, geologist - May 12 - June 3, 1975 - 22 days -	1794.00
Clarke Cherniwchan, helper - May 12 - June 3, 1975 - 22 days -	650.00
Employee payroll costs, WCB, UIC, CPP, et al. estimated @ $6/man day	450.00
B. Transportation	
Air fares and expenses, 4 men Vancouver to Stewart, B.C.	550.00
Helicopter - 11.5 hours @ $160/hour	1840.00
C. Magnetometer rental - 21 days @ $10/day	210.00
D. Camp operations and supplies	770.27
Total expenditures	$7920.27

And I make this solemn declaration conscientiously believing it to be true, and knowing that it is of the same force and effect as if made under oath and by virtue of the "Canada Evidence Act."

Declared before me at the city of Vancouver, in the Province of British Columbia, this 30th day of June 1975, A.D.

Erik A. Ostensoe

Erik A. Ostensoe

A Commissioner for taking Affidavits within British Columbia or
A Notary Public in and for the Province of British Columbia

Sub-Mining Recorder

#5496

Appendix 2 (2) Statutory Declaration on Expenditures June 4 to June 24, 1975

DOMINION OF CANADA:
PROVINCE OF BRITISH COLUMBIA.
To Wit:

In the Matter of Form B (Section 51) Mineral Act
Affidavit on Application to Record Work on Max Group of Mineral Claims, Unuk River Area, Skeena M.D. British Columbia,

I, Erik A. Ostensoe

of 4306 West 3rd Avenue, Vancouver

in the Province of British Columbia, do solemnly declare that the following expenditures were incurred on behalf of Granduc Mines Limited in carrying out field work and in preparation of an engineering report pertaining to the Max Group of mineral claims during the period June 4 through June 24, 1975

A.	Wages and Salaries - 22 day month	
	1. Reclamation - C. Cherniwchan, helper, and E. Kruchkowski, geologist June 4 and June 5, 1975	
	E.Kruchkowski 2 days @ $993/month	$ 90.00
	C.Cherniwchan 2 days @ $650/month	60.00
	2. Magnetometer Survey - June 6 through June 12, 1975	
	E.Kruchkowski - geologist 7 days @ $993/mo.	316.00
	C.Cherniwchan - helper 7 days @ $650/mo.	206.00
	3. Geological Mapping June 4 through June 12, 1975	
	J.Mackie, P.Eng.,geologist - 9 days @ $1328/mo	543.00
B.	Transportation	
	Helicopter - June 10 - 3.9 hrs. @ $170/hr	663.00
	truck - Stewart - Terrace approx. 120 miles @.10/mile	12.00
	air fares - 3 men Terrace - Vancouver @ $52.50 each	157.50
C.	Camp Operations and Supplies	
	27 man days @ $11/man day	297.00
	Magnetometer rental 9 days @ $10/day	90.00
D.	Report Preparation - Vancouver Office June 12-24, 1975	
	Wages and salaries -	
	J. Mackie - 5 days	302.00
	E. Kruchkowski - 5 days	225.00
	E. Ostensoe - 4 days	326.00
	C. Cherniwchan - 4 days	118.00
	D. L. Cory - draftsman - 8 hours @ $5.50/hr.	44.00
	P. Gessie - Secretary - 4 hours @ $3.00/hr.	12.00
	Printing and copying costs -	$ 50.00
		$3,511.50

And I make this solemn declaration conscientiously believing it to be true, and knowing that it is of the same force and effect as if made under oath and by virtue of the "Canada Evidence Act."

Declared before me at the City of Vancouver, in the Province of British Columbia, this 30th day of June 1975, A.D.

Erik A Ostensoe

A Commissioner for taking Affidavits for British Columbia or A Notary Public in and for the Province of British Columbia.

Sub-Mining Recorder

N

BASELINE
Bearing — N 17° E

L 74 S 4E
L 76 S 5E
78 S 5E
L 80 S 5E
L 82 S 3E
L 84 S 3E
L 86 S 6E
L 88 S 5E
L 90 S 6+80E
L 92 S 3E
L 94 S 1+60E
L 96 S 10E
L 98 S 11E
L 100 S 10E
L 102 S 10E
L 104 S 9E
L 106 S 6E

Float
Silicified Arg. ?
Trench Magnetite Formation Pyrite ?
Silicified Arg.
Silicified Arg.
Lst Float
Sk Cu
Argillic Lst
Cliffs
Cliffs
Campsite ELEVATION 1250'
Barclay Creek
F.P. (tree grained)

LEGEND

D	DIORITE
F.P.	FELDSPAR PORPHYRY
A	ARGILLITE
Lst	LIMESTONE
C	CHERT
MV	META VOLCANIC
Sk	SKARN
S	SANDSTONE
60	JOINT, VERTICAL, ANGLE
78	BEDDING, VERTICAL, ANGLE
	FAULTING
12	ROCK SAMPLE SITE

Department of Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 5496 MAP 3

Figure 3 GEOLOGY

100' 0 100' 200 FEET
30.5 0 25 50 62.5 METRES

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MAP3

GRANDUC MINES LTD.
Scale 1 Inch = 100 Feet

TITLE MAX PROPERTY
DATE JUNE 1975
DRWN. BY C. L. C.
No

1

N

BASELINE
Bearing = N17°E

L 74 S
L 76 S
L 78 S
L 80 S
L 82 S
L 84 S
L 86 S
L 88 S
L 90 S
L 92 S
L 94 S
L 96 S
L 98 S
L 100 S
L 102 S
L 104 S
L 106 S

Barclay Creek

Composite
ELEVATION
1250

Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 5496 MAP 4

J. A. C. MACKIE
BRITISH COLUMBIA
ENGINEER

Figure 4 MAGNETOMETER SURVEY

CONTOUR INTERVAL — 1000 gammas

100' 0 100' 200 FEET
30.5 0 25 50 62.5 METRES

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MAP 4

GRANDUC MINES LTD.	TITLE	MAX PROPERTY	
Scale 1 inch = 100 Feet	DATE	JUNE 1975	DRWN. BY C. L. C.
			No.

(2)