

1220 RD.

ASSESSMENT REPORT
ON
GEOLOGICAL AND METALLURGICAL WORK
ON THE FOLLOWING CLAIM

QUARRY

REC. NO. 3009(9)

LOCATED
NEAR EAST SIDE OF KENNEDY LAKE
VANCOUVER ISLAND, B.C.

ALBERNI M.D.

lat.: 49°03'N
long.: 120°05'W
125 16

FILED

N.T.S. 92F / 3W

FIELD PROJECT PERIOD: SEPT. 7, 1988

METALLURGICAL TESTWORK: NOVEMBER 11-13, 1988

ON BEHALF OF
V. MEYER, FMC # 287072 MEYEVG
7621 MORRISON CRESCENT
LANGLEY, B.C. V3A 6Y3

REPORT BY

W.D. GROVES, Ph.D., P.Eng.
506 - 675 WEST HASTINGS STREET
VANCOUVER, B.C.

DEC 13 1988

AND

R. ROBSON, MINING TECHNOLOGIST
NEW WESTMINSTER, B.C.

REPORT DATE: DEC. 9, 1988

**GEOLOGICAL BRANCH
ASSESSMENT REPORT**

WDG

18,150

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1. INTRODUCTION

A. Property, Location, Access, and Physiography

The Quarry Claim is situated 2 Kilometres East of the South end of Kennedy Lake, Vancouver Island, B.C., Alberni Mining Division, approximately 15 kilometers northwest of Ucluelet, B.C.. Claim elevation varies from 100 metres to about 300 metres on the top-land.

Present access is by 2wd vehicle, 3 kilometres off of Highway 4 (Alberni - Ucluelet main road) along the logging main to Toquart Bay.

The Lower Kennedy Lake area and Redford Creek-Draw Creek area exhibits low but rugged glacially rounded topography. The Redford Creek - Draw Creek drainages head in low glaciated bowls and feed creeks tributary to Draw Creek. The old Brynnor magnetite mine, now a 35 acre flooded area, lies just west of Draw Creek, on the central portion of the claim, in a logged off area. Physiography is glacially rounded, mainly bedrock benches and gravel bottomed creeks reworking glacial moraine. Vegetation in the area is comprised mainly of small second growth fir, regrowing logging slash and alder. The watersheds of Draw and Redford Creeks are spawning streams for various species of salmon and trout.

B. Status of Property

Relevant Claim information is summarized below:

<u>Name</u>	<u>Record No.</u>	<u>No. of Units</u>	<u>Record Date</u>
Quarry	3009(9)	4	Sept. 17, 1986

The claim is shown on Figure 2. The Claim was recorded by V. Meyer on Sept. 17, 1986.

C. History

The Brynnor Magnetite Mine area has been open pitted to produce 4.5 million tons of magnetite iron concentrate, shipped to Japan in the 1950's. Something like another 10 million tons of drilled reserves remain in the East (downdip) direction from the Brynnor pit on the Quarry Claim.

The present claim owner anticipates possible renewal of the magnetite iron export market as higher energy prices emphasize ore grades rather than size. Possible presence of alloying elements (Cr, V, Ti etc.) often found in such deposits, could enhance the value of the iron product, particularly in present market demand increase for H.S.L.A. (High Strength, Low Alloy) steels. Literature research indicates V associates with magnetite deposits, so a bulk sample of veinlet magnetite from the margins of the deposit was collected on Sept. 7, 1988 by the author and given metallurgical testing and assayed for V and other alloying elements.

D. References

1. Eastwood G.E.P. (1968) B.C. Dept. of Mines bulletin # 55 - detailed plan and section maps of Brynnor Magnetite deposit Geology of the Kennedy Lake Area, Vancouver Island, B.C.
2. Vanadium, An Imported Mineral Commodity, MR 188. Dec. 1980, Canada EMR Bulletin

E. Summary of Work Done

Two small (30 lb) bulk samples were grab-selected from the waste rock pile of the Brynnor Iron pit, from a point 200m SW of the SW edge of the pit, near the south boundary of the claim. The pile consisted of veinlet and massive magnetite ore, plus enclosing greenish garnet skarn, associated actinolite, "Magnetic andesite" and limestone. Sample 1 (Magnetite VM) was from magnetite and magnetite veinlets. Sample 2 (Actinolite VM) was green skarn and actinolite contact zone rock. The samples were taken to Chapko Labs in Port Moody, B.C., where Mr. Rob Robson, B.C.I.T. Mining Technologist, carried out the crushing, grinding and flotation of the samples.

Representative samples of test products were taken to Quanta Trace Labs in Burnaby, B.C. for analysis for Fe, V, Cr, Ti and other elements. R. Robson's report is included in Appendix I. Results are as follows (Table 1, excerpted from Robson's report).

ICP ANALYSIS OF SAMPLES

Sample	Fe % (as Fe ₂ O ₃)	Cr (-----ppm-----)	Ni	V	Cu	Co
Actinolite	17.8	42	8	31	17	11
Magnetite	50.0	17	1	9	40	24

ICP analysis done by Quanta Trace Labs, w/o 10486.

Technical Data and Interpretation

A. Regional Geology

A fault-broken north trending anticline remnant of Vancouver group rocks (the Draw Lake Anticline) is intruded by high-level late Cretaceous leuco-granite and earlier intrusives, including a large magnetite lens. The magnetite deposit lies just east of the east edge of Kennedy Lake, in the valley of Draw Creek. The magnetite body coincides with local intense block faulting of the Vancouver Group Rocks.

B. Property Geology, Samples

The claim covers an area of highly faulted Mesozoic Vancouver Group rocks, hosting a large lens of massive magnetite replacing the Quaternary lime and overlying carbonaceous shale unit. The lens dips gently to the east and is slightly cross-faulted. Contact of the

lime is skarned, and an envelope of actinolite rock called "magnetic andesite" co-intrudes with the magnetite. There is a good possibility that slagging of a massive sulfide deposit with a Sicker Group limestone at depth, in a vented fault system, reduced mafic content of the reaction mixture to magnetite, and the latter was then deposited by CO₂ venting and chilling reaction with the upper (Quatsino) lime.

The deposit is roughly tabular or tongue-like, and dips under the east wall of the pit. Economics and flooding terminated the mining operation, with ample drilled reserves remaining just east of the pit.

Samples for the metallurgical study were cobbled from waste pit margin material stacked some 200m SE of the SE corner of the pit. One sample was selected for magnetite, both massive and veinlet, the other for green garnet skarn, "magnetic andesite" and actinolite contact rock.

C. Analytical Methods

At Quanta Trace Labs the samples were first subjected to Lithium Tetraborate fusion to make a clear water soluble glass. The glass was then dissolved in Aqua Regia (HNO₃-HCl-H₂O) and analysed on an ICAP (Induction coupled argon plasma emission) Spectrometer. Results are tabled on Quanta Trace Labs report W/O # 10486 attached.

Fire assays for five precious metals were carried out on a separate sub-sample and results are expressed in oz./ton on the same report.

D. Conclusions

1. The Brynnor magnetite lens has a negligible associated alloying element content, but also has a low interfering element content which makes it suitable for steel making.
2. The remaining drilled reserves on the claims give the property a potential for this if the price of energy remains high enough to warrant re-looking at electric furnace direct smelting magnetite steel operations.

Respectfully submitted,

William P. Gross
P.h.D. P.Eng.

APPENDIX 1 WORK COST STATEMENT

Field Personnel:		
W.D. Groves, Ph.D., P.Eng.	Sept. 6, 1988	\$400
Travel Expenses:		
Vancouver - Kennedy Lake - Vancouver		94
Metallurgical Work:		
1/2 day @ \$250/day, plus report		125
ICAP, FA, Quanta Trace		
Fe, V, Cr, Cb, Ti etc		200
Report Costs:		
Preparation of Report -W.D. Groves		
Ph.D., P.Eng.		
1/2 days @ \$400/day		200
Word Processing - 4hrs. @ \$25/hr.		100
Copies, report etc.		20
		\$ 1,139.00

W.D.G.

APPENDIX II (a) CERTIFICATE WDG.

I, William D. Groves, do hereby certify that:

1. I am a consulting engineer with an office at 506 - 675 West Hastings Street, Vancouver, B.C., V6B 1N2
2. I am a graduate of the University of British Columbia with a B.A.Sc. in Geological Engineering (1960) and a Ph.D. in Chemical Engineering (1971). I am also a graduate of the University of Alberta with a B.Sc. in Chemical Engineering.
3. I am a registered Professional Engineer in the Province of British, #8082.
4. I supervised and carried out field and metallurgical work on the mineral claim forming the subject of this report.
5. This report was prepared solely to satisfy assesment requirements as stipulated by the Government of British Columbia.

Dated this 9th day of December, 1988

William D. Groves.
P.h.D. P.Eng.

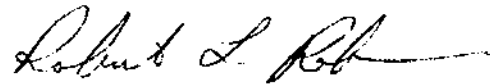
APPENDIX II (b) CERTIFICATE RR

CERTIFICATE

I, Robert Lewis Robson, hereby state:

1. I am a Mining Technologist, graduating from British Columbia Institute of Technology (B.C.I.T.) in 1982.
2. I am an Oil and Gas Technologist, graduating from B.C.I.T. in 1983.
3. I have practised extractive metallurgy since 1983, specialising in ore benefaction, leaching and gravity separation.
4. I have worked on samples from Mr. V. Meyers' Kennedy Lake property during the period of November 11 to 13, 1988.
5. All of my work on the Kennedy Lake project was done under the guidance and supervision of Mr. W.D. Groves, Phd. P eng.
6. I have no interest in the Kennedy Lake property nor do I expect to receive any in the future.

Respectfully submitted



Robert L. Robson
December 9, 1988

quanta trace laboratories inc.
#401-3700 Gilmore Way. Burnaby, B.C.. Canada V5G 4M1 Tel:(604)438-5226

ANALYSIS OF GEOLOGICAL SAMPLES

To: Robson Contracting Ltd.
12270 - 102nd Avenue
Surrey, B.C.
V3V 3C8

Workorder: 10486
Received : 21-Nov-88
Completed: 06-Dec-88

Attn: Mr. R. Robson

Re: Chemical Analysis of Crusher Rejects from Kennedy Lake Project

/2...

quanta trace laboratories inc.

#401-3700 Gilmore Way, Burnaby, B.C., Canada V5G 4M1

Tel: (604) 438-5226

to: Robson Contracting Ltd.

W/O: 10486 Page 2

Sample type	Rock	Rock
Identification	Actinolite	Magnetite
Lab Reference #	10486-001	10486-002

Analyzed by Plasma Emission Spectroscopy (ICAP)

Method used	Total	Total
Trace Elements		
Antimony Sb	< 10	< 10
Arsenic As	< 30	< 30
Beryllium Be	< 0.1	< 0.1
Bismuth Bi	< 20	< 20
Boron B	5.	16.
Cadmium Cd	1.2	1.2
Chromium Cr	42.	17.
Cobalt Co	11.	24.
Copper Cu	17.	40.
Lead Pb	19.	11.
Mercury Hg	< 10.	40.
Molybdenum Mo	4.	< 3.
Nickel Ni	8.	1.
Selenium Se	< 10.	< 10.
Thorium Th	< 5.	< 5.
Uranium U	< 30.	< 30.
Vanadium V	31.	9.
Zinc Zn	106.	236.
Results in	ppm	ppm

Precious Metals by Fire Assay		
Gold Au	0.00031	0.002
Palladium Pd	< 0.00041	< 0.00041
Platinum Pt	< 0.00041	0.00071
Rhodium Rh	< 0.001	< 0.001
Silver Ag	< 0.1	< 0.1
Results in	oz/T	oz/T

Major Oxides		
Silicon % SiO ₂	49.0	20.2
Aluminum % Al ₂ O ₃	3.63	0.82
Iron % Fe ₂ O ₃	17.8	50.0
Calcium % CaO	16.4	12.2
Magnesium % MgO	10.2	10.0
Sodium % Na ₂ O	0.28	< 0.01
Potassium % K ₂ O	0.15	< 0.06
Barium % BaO	0.003	< 0.001
Manganese % MnO	0.71	0.28
Phosphorus % P ₂ O ₅	< 0.05	< 0.05
Strontium % SrO	0.075	0.060
Titanium % TiO ₂	0.14	0.027
Zirconium % ZrO ₂	< 0.001	< 0.001
Loss on Ignition	1.76	6.17
Total Oxides %	100.	100.
Total Carbon %C		
Total Sulfur %S		

WAG

Analyst: *SKL*

APPENDIX IV

Metallurgical Lab Report

Samples:

No. 1 Magnetite VM

And

No. 2 Actinolite VM

By

R. Robson, Mining Technologist

Dec. 9, 1988

Accompanies

Quanta Trace Lab Report

Dec. 7, 1988

Observation of Samples

No. 1 Magnetite VM - 15 Kilos

Cobbed bluish black crystalline massive magnetite chunks and stringers in skarn wall rock. Some of the magnetite samples contained calcite filled fractures bearing pyrite, bornite and chalcopyrite. The sample was crushed to $\frac{1}{4}$ " , a representative sample was riffle-split from the above of 500 gms., the remainder of the sample was retained for future reference. This was then wet-rod milled in a small laboratory to 60% minus 250 mesh. The sample was subjected to froth flotation in a small lab bottle flotation machine, using standard Denver reagents collector : amyl xanthate promotor Aero-float 208 and copper sulphate and a Dow froth 250 frother. Froth was very lean, containing little or no sulphides.

Binocular microscope examination of the froth showed only a few grains of pyrite and no chalcopyrite or other sulphides.

Dry weight of concentrate was less than 1/2 gram, cons were discarded. Conclusion was that finer grinding would be required to obtain liberation of the hair line fracture mounted sulphides.

Float tails were then tested with a magnet and gave an extremely high magnetic response, characteristic of magnetite. No attempt was made to segregate fractures in this material. A sample of the material was then sent in for assay @ Quanta Trace Labs for 31 element ICP plus LiBO_2 fusion for Fe and V.

No. 2 Actinolite VM 15 Kilogram sample

This sample was also crushed to 1/4" minus and crush was observed under a binocular microscope. Material contained pale green granular grossular garnet, massive coarse grained dark green felted actinolite (finer grain phase of which is locally called magnetic andesite) and some magnetite stringers.

No fracture mounted sulphides could be observed. A sample of the material was sent to Quanta Trace Labs for 31 Element ICP and LiBO_2 fusion for Fe and V.

Discussion of Quanta Trace Labs Report No. 10486 on No. 1 Magnetite VM and No. 2 Actinolite VM. Findings are summarized in table RR# 1 below.

ICP ANALYSIS OF SAMPLES

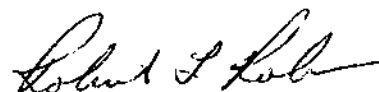
SAMPLE	Fe % (as Fe_2O_3)	Cr (-----)	Ni (-----)	V ppm	Cu (-----)	Co (-----)
Actinolite	17.8	42	8	31	17	11
Magnetite	50.0	17	1	9	40	24

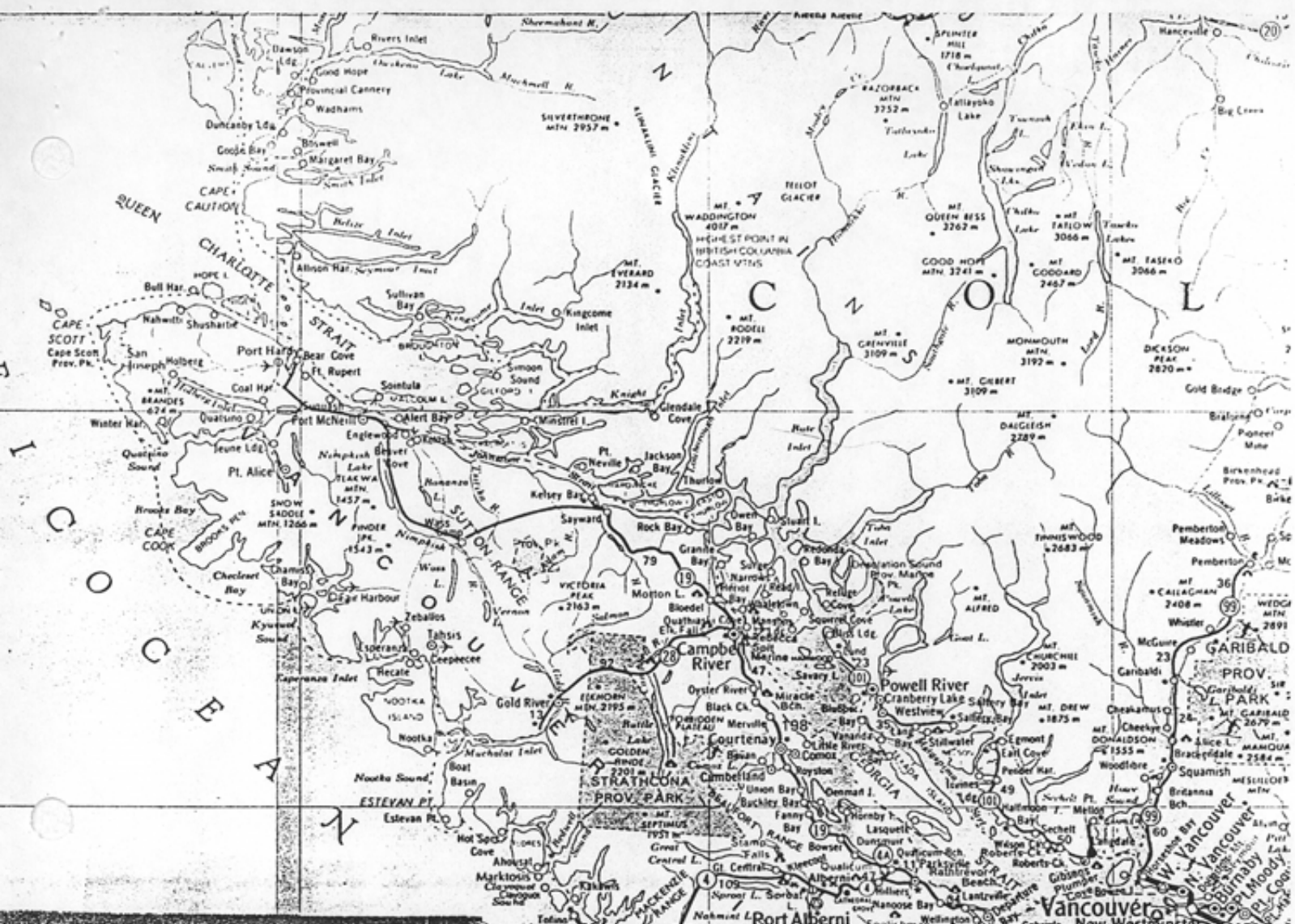
ICP analysis done by Quanta Trace Labs, w/o 10486 attached.

Conclusions

Magnetite sample has associated elements in very low amounts.

Respectfully submitted,

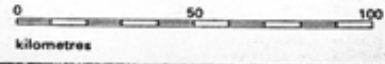




Allmaps Canada Limited

British Columbia

Fig. 1.
Location Map



© Copyright Rand McNally & Co. Published by Allmaps Canada Ltd. 1987 Edition

Expressway — limited access		Hard surface road	
Toll expressway — limited access		Gravel surface road	
Multiple lane highway — divided, undivided		Detailed kilometric distance	* 10 *
Trans Canada highway		Accumulated kilometric distance	* * *
Provincial/State Highway		Government camp site	
Interstate highway		Government picnic site	
Hard surface highway		Ski area	
Gravel surface highway		Airport / Ferry	
Under construction		Toll Bridge	

APPROXIMATE POPULATION

* Capital	⊙ 25,000-50,000	⊙ 2,500-5,000
⊙ 100,000 plus	⊙ 10,000-25,000	⊙ 1,000-2,500
⊙ 50,000-100,000	⊙ 5,000-10,000	⊙ 0-1,000

QUARRY PROPERTY

WDG

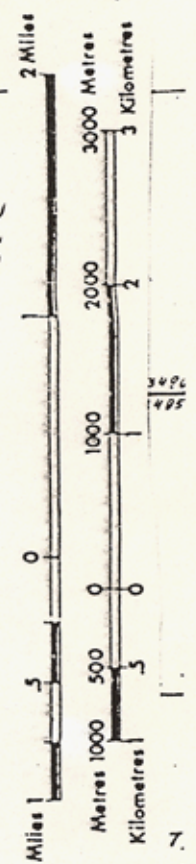
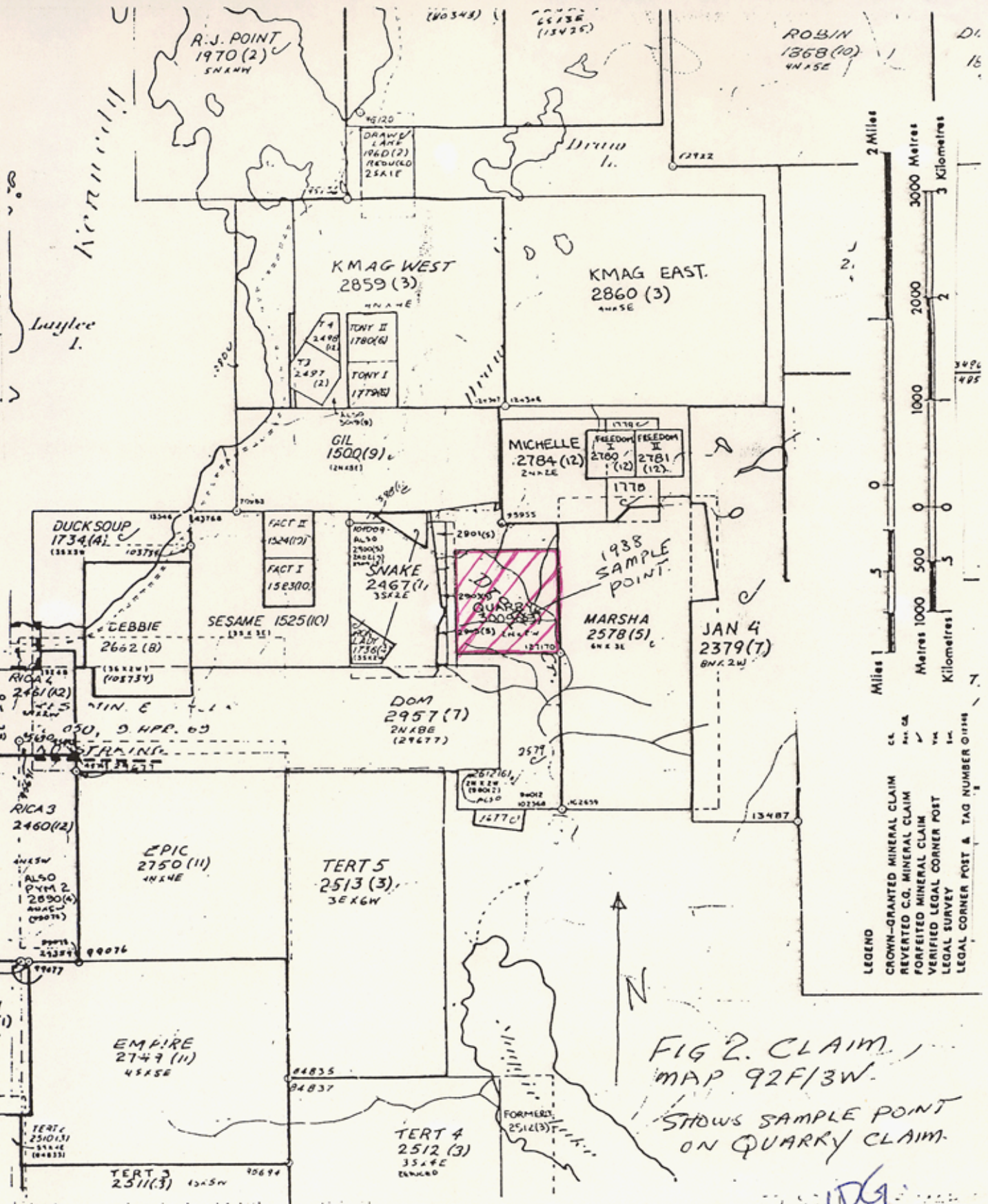
M92F/3W

Baylee 1.

2

1

CC



- LEGEND**
- CROWN-GRANTED MINERAL CLAIM
 - REVERTED C.O. MINERAL CLAIM
 - FORFEITED MINERAL CLAIM
 - VERIFIED LEGAL CORNER POST
 - LEGAL SURVEY
 - LEGAL CORNER POST & TAG NUMBER QUIN

FIG 2. CLAIM MAP 92F/3W.
SHOWS SAMPLE POINT ON QUARRY CLAIM.

WDG

... to be recorded in the ...
... in any other copy to
the Mining Recorder for the
Mining Division concerned