MAP NO.: 106C 13

ASSESSMENT REPORT
PROSPECTUS
CONFIDENTIAL X
OPEN FILE

DOCUMENT NO: 093117
MINING DISTRICT: MAYO
TYPE OF WORK: GEOCHEMICAL

REPORT FILED UNDER: EQUITY ENGINEERING LTD

DATE PERFORMED: OCTOBER, 1992

DATE FILED: JUNE 11, 1993

LOCATION: **LAT.:** 64°53'N

AREA: BONNET PLUME RIVER

LONG.: 133°48'W

VALUE $: 1,000

CLAIM NAME & NO.:
MMM 1-4 (YB28964-967)

WORK DONE BY: DAVID A CAULFIELD

WORK DONE FOR: WESTMIN RESOURCES LTD.

DATE TO GOOD STANDING:

REMARKS: BRECCIAS BEING EVALUATED FOR OLYMPIC DAM TYPE CU U, AU, AG MINERALIZATION.

Indian and Northern Affairs Canada | Affaires indiennes et du Nord Canada

M.R. file no.

R.M.M.R. file no.

Date forwarded JUN 15 1993

TRANSMITTAL FORM

OFFICE OF THE REGIONAL MANAGER MINERAL RIGHTS JUN 21 1993 WHITEHORSE YUKON TERRITORY

From ▶ Mining Recorder at: MAYO, YUKON

To ▶ Regional Manager, Mineral Rights at Whitehorse, Y.T.

For action are:

- ☐ NEW APPLICATION FOR PLACER LEASE TO PROSPECT — Name
- ☐ RENEWAL APPLICATION PLACER LEASE TO PROSPECT — Name — Lease no.
- ☐ AFFIDAVIT OF EXPENDITURE ON PLACER LEASE — Name — Lease no.
- ☐ SECURITY DEPOSIT
- ☐ FINANCIAL ABILITY
- ☐ ASSIGNMENT OF PLACER LEASE NO. — From — To
- ☐ GROUPING APPLICATION UNDER SEC. 52(2) PLACER MINING ACT. — Owner
- ☐ DIAMOND DRILL LOGS — Claims — Claim sheet no.
- ☑ QUARTZ ASSESSMENT REPORT — Claims: MMM 1-4 — Claim sheet no.: 106-C-13

093117

Type of report: Geochemical

Submitted by: Equity Engineering Ltd/David Caulfield

Cls. work performed on

$ req. for ren. application: 1000.00

Please return one numbered copy and index card for our files

Signature

Date returned

REPLY ACTION

Signature

802-6027-26 (6-86)

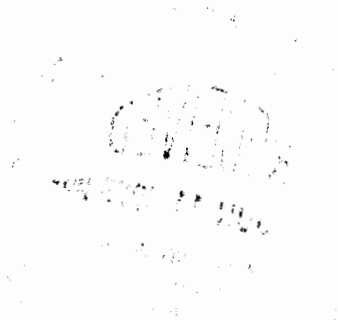
1992 GEOCHEMICAL REPORT ON THE MMM 1-4 CLAIMS

Located in the Wernecke Mountains
Mayo Mining District
NTS 106C/13
64° 53′ North Latitude
133° 48′ West Longitude

-prepared for-
WESTMIN RESOURCES LIMITED

-prepared by-
David A. Caulfield, P.Geo.

DATE WORK PERFORMED: October, 1992
DATE OF REPORT: December, 1992



This report has been examined by the Geological Evaluation Unit under Section 53 (4) Yukon Quartz Mining Act and is allowed as representation work in the amount of $ 4000.

Dennis J Ouellette

for Regional Manager, Exploration and Geological Services for Commissioner of Yukon Territory.

1992 GEOCHEMICAL REPORT ON THE MMM 1-4 CLAIMS

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1.0 INTRODUCTION

The MMM 1-4 claims are located in the Wernecke Mountains, approximately 175 kilometres northeast of Mayo in east central Yukon (Figure 1). The Wernecke Mountains are cored by at least 14,000 metres of generally fine-grained terrigenous and carbonate rocks of Helikian age that have been penetrated by mineralized breccias and cut by mafic sill and dykes. Exploration to date in the Wernecke Mountains was directed sporadically at copper from the early 1900's until the discovery of uranium mineralization associated with hematite breccias in 1974. Occurrences of copper and breccia-related copper-gold-cobalt mineralization have been noted in the basin, but were largely bypassed in the search for uranium and lead-zinc deposits between 1974 and 1980. The geological setting of the Wernecke Mountains is excellent for hosting Olympic Dam copper-uranium-gold-silver breccia type deposits and the MMM property was acquired on this basis.

Geological mapping, prospecting and lithogeochemical sampling were carried out over the MMM property during September 1992. This work program was conducted jointly by Pamicon Developments Ltd. and Equity Engineering Ltd. for Westmin Resources Limited. The same companies have been retained to report on the fieldwork.

2.0 LIST OF CLAIMS

The MMM property comprises 4 contiguous quartz mineral claims, located in the Mayo Mining District (Figure 2). Government records indicate that the following claims are owned by M. Stammers of North Vancouver, British Columbia. Separate documents indicate that they are held under option by Westmin Resources Limited.

TABLE 2.0.1
CLAIM DATA

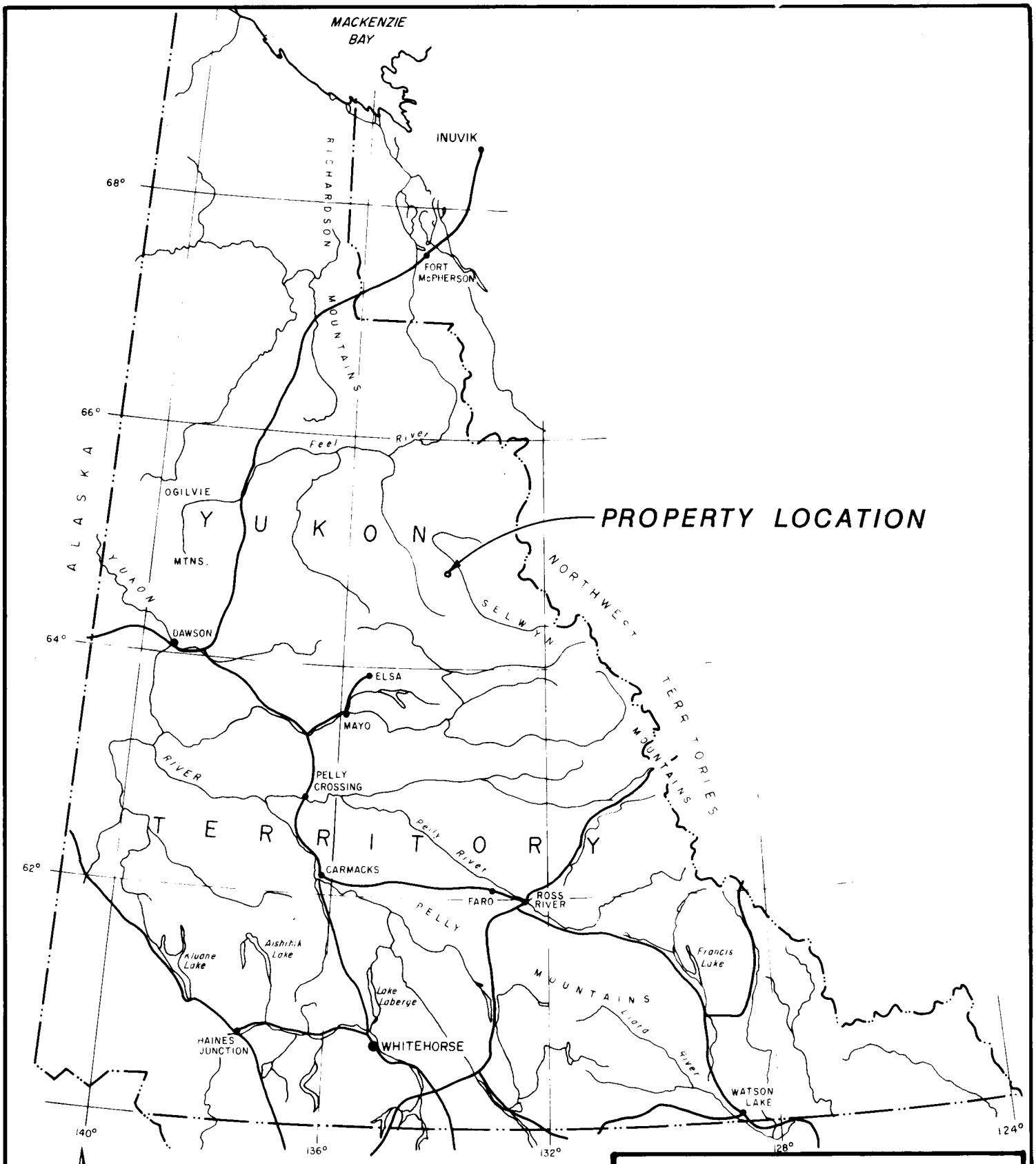
Claim Name	Record Numbers	Record Date	Expiry Date
MMM 1-4	YB28964-967	Sept. 14, 1992	Dec. 31, 1995*

* Subject to approval of assessment work covered by this report.

3.0 LOCATION, ACCESS AND PHYSIOGRAPHY

The MMM property is located in the Wernecke Mountains of east central Yukon, approximately 175 kilometres northeast of Mayo (Figure 1). The property is located eight kilometres southwest of Fairchild Lake on the west side of the Bonnet Plume River. The claims are situated in the Mayo Mining District, centered at 64° 53' north latitude and 133° 48' west longitude.

The Wernecke Mountains may be accessed from Mayo by float



WESTMIN RESOURCES LIMITED

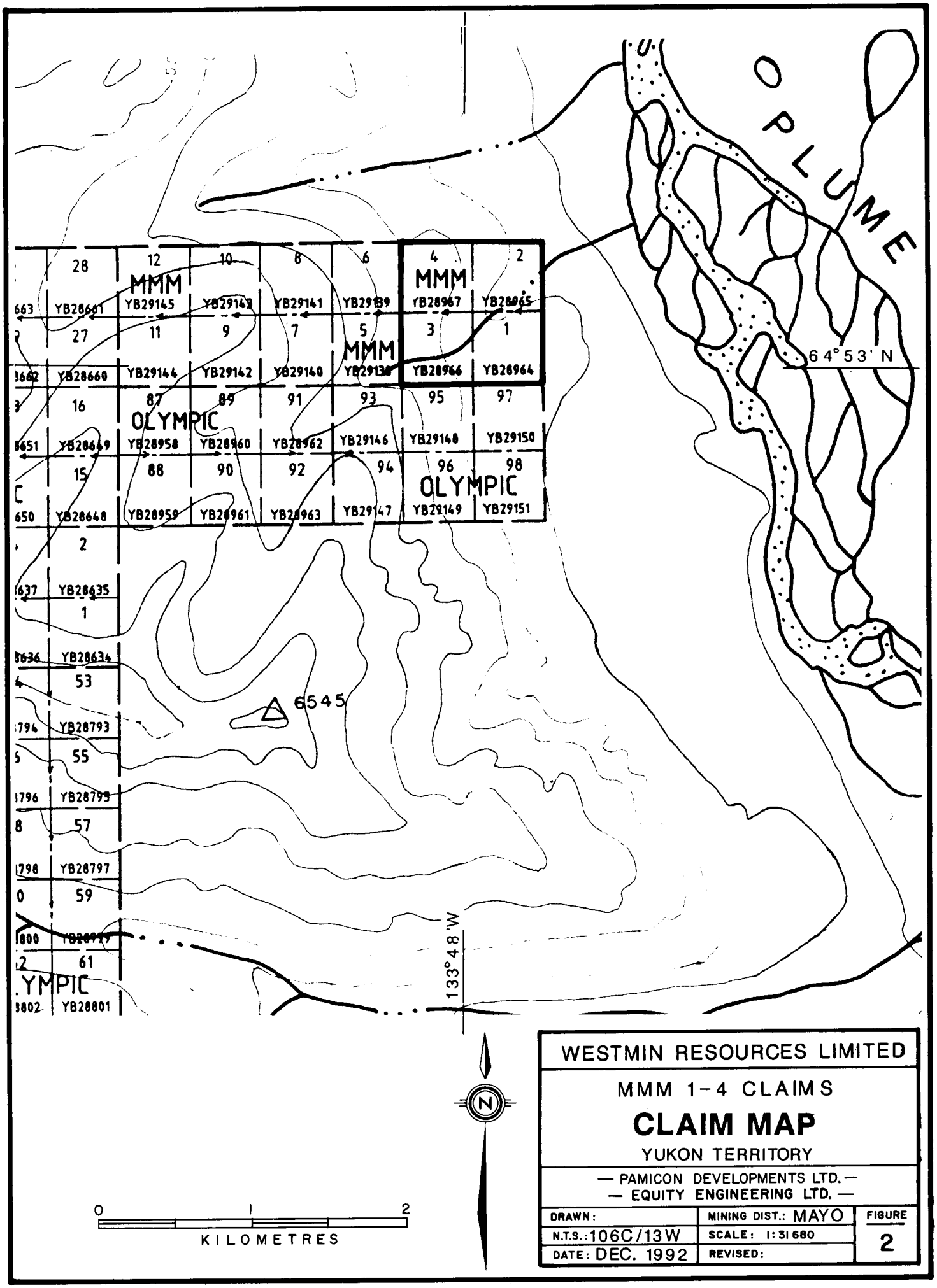
MMM 1-4 CLAIMS

LOCATION MAP

YUKON TERRITORY

— PAMICON DEVELOPMENTS LTD. —
— EQUITY ENGINEERING LTD. —

DRAWN:	MINING DIST.: MAYO	FIGURE
N.T.S.: 106C/13W	SCALE: 1:5000000	1
DATE: DEC. 1992	REVISED:	



WESTMIN RESOURCES LIMITED		
MMM 1-4 CLAIMS		
CLAIM MAP		
YUKON TERRITORY		
— PAMICON DEVELOPMENTS LTD. — — EQUITY ENGINEERING LTD. —		
DRAWN:	MINING DIST.: MAYO	FIGURE
N.T.S.: 106C/13W	SCALE: 1:31 680	2
DATE: DEC. 1992	REVISED:	

plane to a number of well distributed lakes and by wheeled aircraft to the 800 metre long gravel airstrip at Bear River, some 23 kilometres southwest of the MMM property. Mayo has scheduled air service from Whitehorse. The Wind River winter tote road was built through the project area during the late 1950's and was re-activated during the coal and uranium exploration boom in the late 1970's. During the 1992 field program, access was by helicopter from a camp on a tributary of Breccia Creek located 7.5 kilometres northeast of the Bear River airstrip.

The area lies on the northern flanks of the Wernecke Mountains and includes the Rackla, Bonnet Plume and Knorr Ranges. The Bonnet Plume and Wind Rivers transect the area in a northwesterly direction. The topography is mountainous and typical of alpine glaciated terranes, with deep valleys and serrated ridges. Elevations on the MMM property range from 730 metres in the creek valley to over 1150 metres along the western claim boundary. The property straddles tree line. Thick stands of spruce are found only in the major river valleys. Above tree line, vegetation consists of alpine grasses and moss with local concentrations of dwarf birch and alder.

This part of the Yukon did not receive continental Pleistocene glaciation, but was subjected to significant alpine glaciation to form the wide U-shaped valleys of the Bonnet Plume and Wind Rivers. A few receding alpine glaciers are present on north facing slopes.

4.0 REGIONAL AND AREA MINING HISTORY

4.1 Previous Work

The first copper occurrences were noted by trappers working in the region at the turn of the century. In 1935, the McCluskey Lake copper occurrences were staked and the Bonnet Plume and Wind River area received sporadic exploration for copper over the next 20 years. Exploration activity was stimulated in the late 1950's when Crest Exploration Limited built a winter road from Elsa into their banded iron deposit in the Snake River area. Work on the Snake River Iron deposit outlined 18.6 billion tonnes averaging 47% iron in the Hadrynian Rapitan Group (Yeo, 1986).

In the early 1960's, the first copper showing was found at Dolores Creek by L. Brown. Bonnet Plume River Mines Ltd. conducted exploration from 1967 to 1969, at which time limited diamond drilling was completed (Laznicka and Edwards, 1979).

In 1971, the discovery of zinc-lead showings in the Mackenzie Mountains to the east brought exploration activity to the southeastern portion of the Wernecke Mountains. Continued lead-zinc exploration in the Proterozoic basin led to the discovery of uranium mineralization in 1974 by Archer, Cathro and Associates

Ltd. In the period 1975 to 1980, a number of major companies (i.e. Urangesellschaft, Noranda) and joint ventures (i.e. Wernecke Joint Venture, Mountaineer Mines - Pan Ocean Oil Ltd.) were involved in exploration of breccia-related uranium mineralization. At this time, Pan Ocean drilled coal reserves on their leases to outline in excess of 500 million tonnes of low sulphur, high volatile bituminous coal in Cretaceous strata in the Bonnet Plume Basin north of the Wernecke Mountain Range.

The 1980's saw very limited exploration throughout the project area. Archer Cathro embarked on a limited exploration campaign to test the gold potential of some of the known uranium occurrences. The lack of recent exploration activity has allowed most of the staked areas to come open.

No work has been filed for the area now covered by the MMM claims.

4.2 1992 Exploration Program

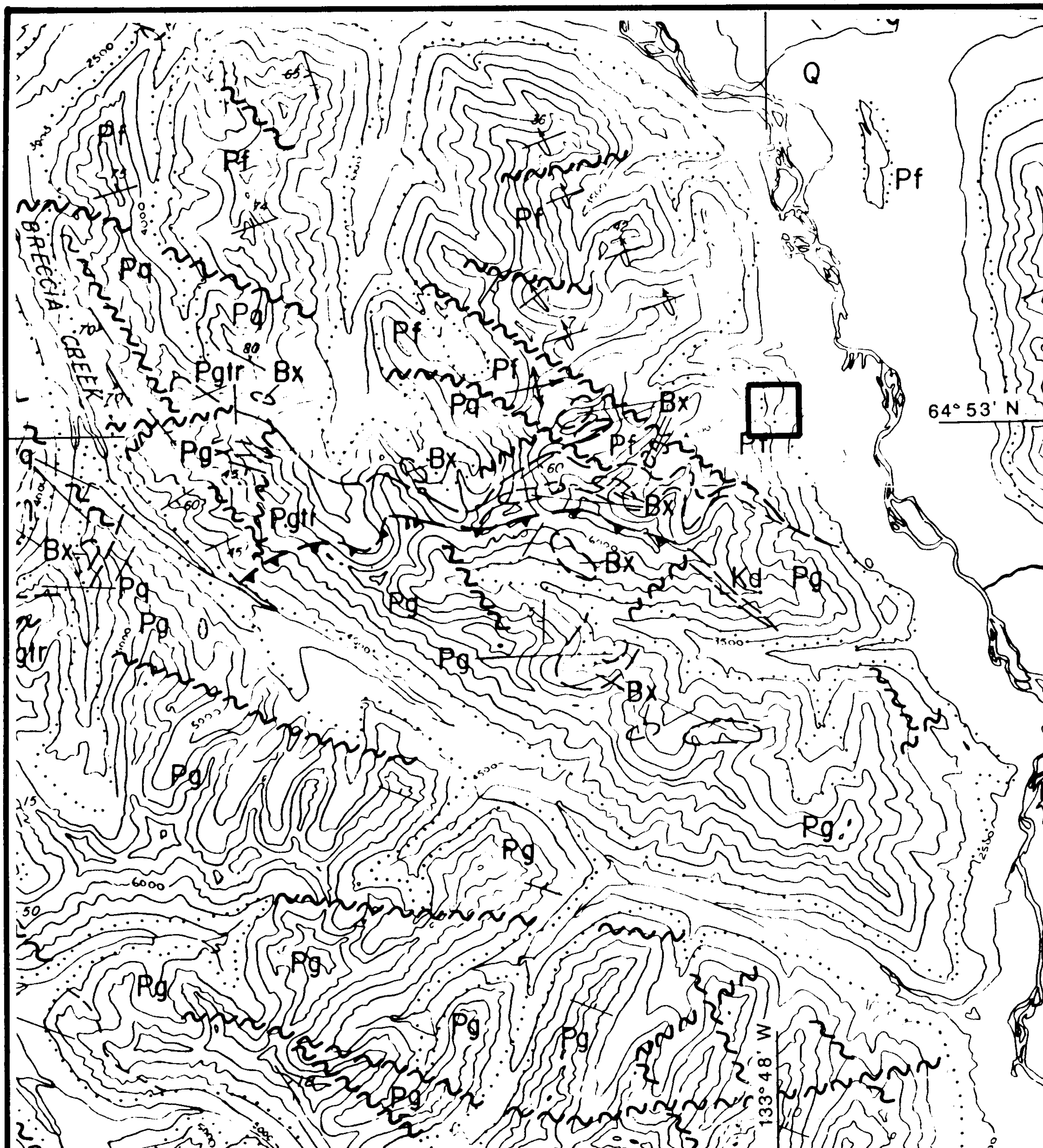
During September of 1992, Westmin Resources Limited carried out exploration on the MMM property, consisting of prospecting, control sampling and limited geological mapping of the main showing. The program was designed to determine the potential for an Olympic Dam copper-uranium-gold-silver breccia type deposit. A total of 3 grab samples and 12 chip samples were taken. All rock samples are described in Appendix D, and analytical certificates are attached in Appendix E. Rock samples were analyzed geochemically for gold, lanthanum, uranium and 24-elements by ICP. Samples exceeding 10,000 ppm copper were assayed. In the field, sample locations were marked by a metal tag and a combination of pink and blue flagging.

Geological mapping was limited to the main showing area and was carried out on a scale of 1:1,000 (Figure 4).

5.0 REGIONAL GEOLOGY

The Wernecke Mountains are cored by at least 14,000 metres of generally fine-grained terrigenous and carbonate rocks of Helikian age that have been penetrated by mineralized breccias and cut by mafic sill and dykes. The entire succession has been named the Wernecke Supergroup and has been divided into three groups (oldest to youngest): Fairchild Lake Group, Quartet Group and Gillespie Lake Group. To the east and south, the Hadrynian Pinguicula Group unconformably overlies the Wernecke Supergroup. Paleozoic strata bound the western margin and Cretaceous and Tertiary sediments fill the area to the north in the Bonnet Plume Basin.

The first recorded geological mapping in the area was by C. Camsell of the Geological Survey of Canada in 1905, who completed



Geology by: Pamicon Developments Ltd., Delaney (1985)

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0 2 4 6

KILOMETRES

WESTMIN RESOURCES LIMITED

MMM 1-4 CLAIMS

REGIONAL GEOLOGY

YUKON TERRITORY

— PAMICON DEVELOPMENTS LTD. —
— EQUITY ENGINEERING LTD. —

DRAWN:	MINING DIST.: MAYO	FIGURE
N.T.S.: 106C/13W	SCALE: 1:100 000	3
DATE: DEC. 1992	REVISED:	

LEGEND

(to accompany Figure 3)

LITHOLOGIES

QUATERNARY

Q Unconsolidated glacial and alluvial deposits.

PALEOZOIC

P Carbonate and siliciclastic sediments, undivided.

PROTEROZOIC

Pp *Pinguicula Group:* Carbonate and siliciclastic sedimentary rocks and lesser volcanics.

Kd Diabase

Kdi Diorite

Gb Gabbro

Bx *Hematite breccia*

WERNECKE SUPERGROUP

Pg *Gillespie Lake Group:* Buff-, orange-, grey-, and locally maroon-weathering dolomite, dolomite terrigenous admixtures, limestone, claystone, mudstone, siltstone and fine sandstone.

Pgtr Transitional Zone: Interbedded dolomite and dark siltstone/shale with characteristic striped appearance.

Pq *Quartet Group:* Dark grey- and grey-weathering siltstone, mudstone, claystone and fine sandstone (wavy bedded); locally quartzites.

Pq_1 Black shale with sandstone and shale interbeds, quartzite.

Pq_2 Pyritic quartzite.

Pf *Fairchild Lake Group:* Light grey-, greenish grey-, and locally dark grey-weathering shale, siltstone (80%), fine sandstone and limestone (20%); locally phyllites, schists and slates.

Pftr Transitional Zone: Shale and brown-weathering dolomite with limestone marker unit, pyritic black shale.

SYMBOLS

Geological contact (approximate)

Thrust fault (approximate)

Fault (approximate)

Bedding attitude

Bedding (overturned)

Anticlinal axis (arrow indicates plunge)

Synclinal axis (arrow indicates plunge)

Limit of unconsolidated glacial and alluvial deposits

a topographic and geological survey between the Stewart River and Fort McPherson. In 1961, "Operation Ogilvie" was launched and the Nash Creek (106D), Larsen Creek (116A) and Dawson (116B&C) map areas were mapped under the direction of J.A. Roddick and L.H. Green (1972). Mapping of the Nadaleen River map sheet (106C) was started in 1971 by S. Blusson and released in 1974 (Open File 205). The geology of the Wind River (106E) and Snake River (106F) map areas was mapped by D.K. Norris (Open File 279) in 1975. Since 1976, the Geological Survey of Canada, led by R.T. Bell, G.D. Delaney and W.D. Goodfellow have been mapping the Proterozoic basin and studying the uraniferous breccia complexes. Delaney (1985) provides the most updated discussion of the Proterozoic stratigraphy whereas Bell (1977, 1978, 1982, 1986, 1987) focused on the mineralogy, morphology and genesis of the breccia complexes. In addition to this published work, many stratigraphic sections were measured by Pamicon Developments Ltd. during their work programs. The following lithological discussion combines the detailed Pamicon work and that of Delaney. Where applicable, the **Fairchild**, **Quartet** and **Gillespie** subgroups of Delaney (1985) have been bracketed after the Pamicon description.

The Fairchild Lake Group outcrops along the western edge of the Bonnet Plume River at Bond Creek and near the headwaters of the Little Wind River. The thickness is greater than 4,000 metres and the base of this sequence has not been observed. The lowest members of the Fairchild Lake Group consist of light to dark green, fractured, chloritic siltstone grading upwards into light grey, massively bedded, siliceous siltstone (**F-1**). The remainder of the section consists of alternating repetition of the grey siltstone described above and an interbedded unit of narrow limestone (20%) and siltstone (80%) beds (**F-2**). The interbedded unit is recognized by its "ribbed" weathering. Overlying these units is a sequence of massively bedded, green calcareous siltstone, brown weathering dolomite and a coarser, light green sandstone or quartzite with local magnetite (**F-3, F-4**). The top of this section is marked by a 12.0 metre massively bedded, calcareous white quartzite overlain by thin bedded, green calcareous siltstone and minor limestone. The transitional (**F-Tr**) upper part of the Fairchild Lake Group is measured from the appearance of a well developed phyllite. Overlying the phyllite is a bed of black, soft silty shale, followed by 170 metres of thick, massively interbedded section of brown weathering dolomite with black shale and topped by 120 metres of pyritic, rusty weathering, black shale. Near the top of the dolomite sequence is a distinctive 12 metre thick marker horizon of white, recrystallized limestone. This sequence is typical of a thick miogeoclinal succession.

The Quartet Group consists of greater than 5,000 metres of monotonous dark-grey weathering, fine-grained siliciclastic sediments. Immediately above the red brown weathering shale of the Fairchild Lake Group is a 330 metre thick section of dark grey to black weathering, laminated shales and silty shales (**Q-1**). The

balance of the section is comprised of dark grey weathering siltstone and sandstone with interbeds of shale and quartzite (**Q-2**). Primary structures include cross and graded bedding, ripple marks and load casts. Massively bedded quartzites increase in frequency towards the top of the group. The base of Q-2 is marked by a 180 metre thick, rusty weathering, pyritic quartzite unit. The base of the Quartet Group is interpreted by Delaney (1985) to have accumulated in a sediment starved basin with the thicker bedded siliciclastic sediments of Q-2 being typical of shallow marine sediments.

The Gillespie Lake dolomitic rocks exhibit a gradational contact with the underlying Quartet Group. The thickness of the transition zone varies from 25 metres to as much as 700 metres (Delaney, 1981) and consists of massively interbedded, brown to orange weathering dolomite and dark grey to black, calcareous siltstone or shale giving a striped appearance to this unit (**G-TR**). Delaney (1981) has subdivided the remainder of the group into **G-2** through **G-7,** although none of these subgroups can be followed along strike due to dramatic facies changes. Above the transition zone, the Gillespie Lake Group is dominated by bright orange-weathering, grey dolomite with minor black shale, maroon shale and lesser quartzite. Stromatolites, oolites and molar tooth structures occur near the top of the section. The Gillespie Lake Group is a 4,000 metre thick section of terrigenous siliciclastic sediments and shallow marine platformal dolomites.

The overlying Pinguicula Group of Hadrynian age consists of a basal andesitic flow overlain by coarse unsorted conglomerate, alternating red and green siltstones/sandstones, and, finally by stromatolitic dolomite. Its lower contact and upper contact, which is marked by glacial deposits of the Rapitan Group (Ekwi Supergroup), are both erosional unconformities.

Strata of the Wernecke Supergroup are cut by numerous hematitic breccia complexes that are enriched in iron, uranium, barium, fluorine, copper, cobalt, rare earths and gold. At least 86 breccias have been identified, which represents about 2% of the surface exposure in the region (Archer and Schmidt, 1978). No breccias cut the younger Pinguicula Group rocks.

The Wernecke Supergroup is cut by diorite dykes/sills, one body of peridotite (Delaney, 1981) and by more felsic intrusive bodies along the east side of the Bonnet Plume River. Several lamprophyre dykes approximately 1.0 metre wide, with books of fresh biotite up to 4.0 centimetres in diameter are found northwest of Fairchild Lake (Archer and Schmidt, 1978). K-Ar dating of biotite points to a Late Proterozoic or Early Cambrian age for these dykes (Delaney, 1981). Gabbroic dykes (**Gb**), tentatively assigned a Helikian age, occur in the southern half of the basin.

The main structural components of the Wernecke terrane are

the southeast trending fault splays (Deslauriers, Knorr and Snake River Faults) of the Richardson Fault Array. These faults are interpreted to be deep-seated, long-lived, vertical structures which have undergone considerable right lateral and vertical movement. These faults separate the Wernecke Supergroup from younger Proterozoic rocks to the east. In the western part of the area, Lower Paleozoic rocks unconformably overlie the Wernecke Supergroup, forming spectacular angular unconformities. On a regional scale, sediments dip away from the Bonnet Plume valley causing the Proterozoic rock units to be exposed in a northwest trending anticlinal structure.

The Bonnet Plume valley is considered to be an expression of a major fault splay from the Knorr Fault and the Wind River from the Deslauriers Fault. A secondary northerly set of faults likely controls the topographic linears such as the Slats Creek pass and Fairchild Lake valley.

6.0 PROPERTY GEOLOGY AND MINERALIZATION

6.1 Property Geology

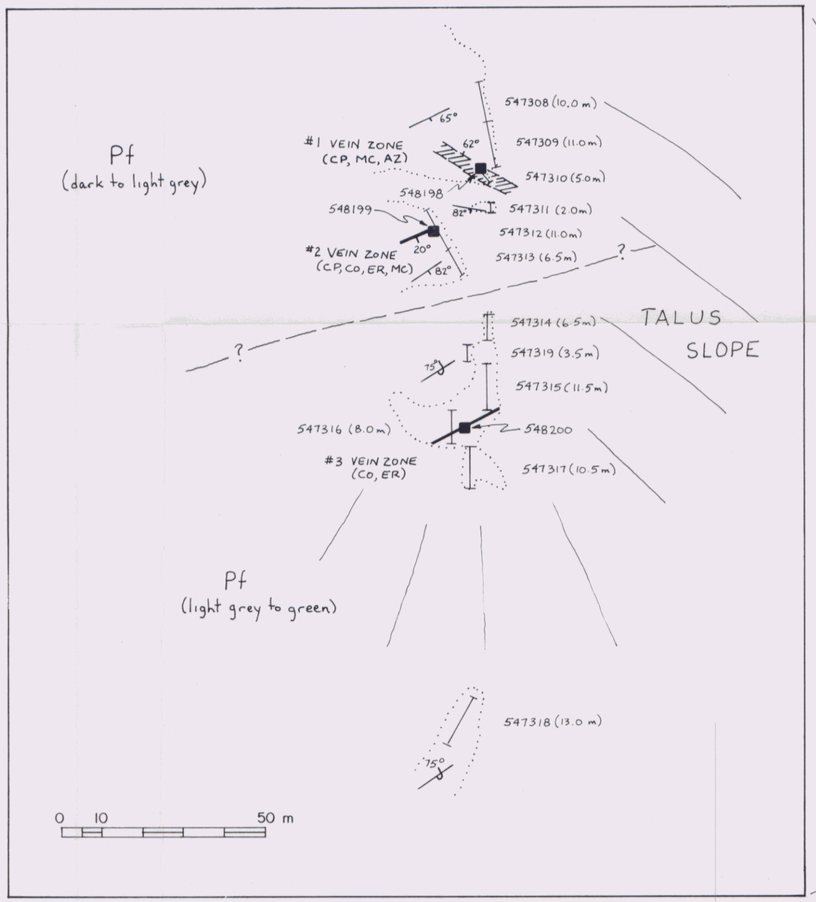
The MMM showing area is underlain by lower Fairchild Lake Group sedimentary units (**Unit Pf**). Outcrop exposures on the north half of the showing area consist of dark and to a lesser extent, light grey laminated siltstone (Figure 4). Lighter grey to green, laminated siltstone is exposed in the southern part. No hematite breccia units were identified in the immediate showing area.

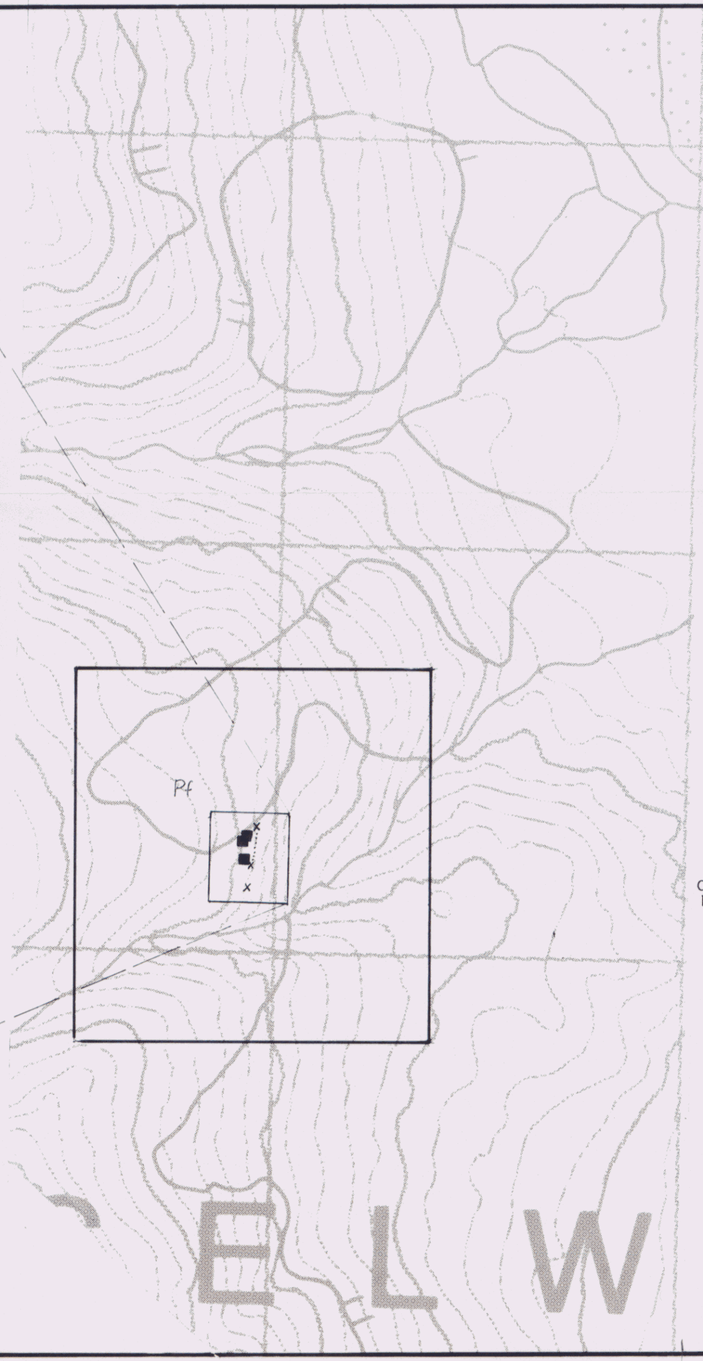
Structurally, bedding strikes in a northeasterly direction with steep southeasterly dips at the northern end of the exposure and steep northwesterly dips to the south where truncated crossbeds indicate the beds are overturned. The change in dip direction is also marked by a distinct colour variation in the underlying siltstone units; there may be a fault offset at this location. Minor folds, thought to be related to soft sediment deformation, were noted along one bedding plane.

6.2 Mineralization

The MMM showing, located on the north side of the main creek crossing the property, is marked by two northerly trending bluffs with prominent copper, iron and to a minor extent, cobalt staining. The two exposures are located approximately 50 metres apart; only the more easterly exposure was examined and sampled. Goethite, jarosite and malachite staining occurs over 100 metres with erythrite or cobalt bloom restricted to two localized areas.

The mineralization consists of three quartz-chlorite-sericite vein zones carrying variable chalcopyrite and cobaltite with weaker mineralization along fractures and in quartz veinlets within





1992 ROCK GEOCHEMICAL ANALYSES

Sample	Au(ppb)	Ag(ppm)	Co(ppm)	Cu(ppm)	La(ppm)	U(ppm)
547308	15	<0.2	35	142	40	<10
547309	10	<0.2	49	853	30	<10
547310	40	<0.2	448	4659	<10	<10
547311	155	0.6	88	2546	30	<10
547312	75	0.4	1461	2348	20	<10
547313	10	<0.2	25	107	50	<10
547314	5	<0.2	35	130	40	<10
547315	5	<0.2	23	109	40	<10
547316	15	<0.2	264	422	10	<10
547317	10	<0.2	117	1322	30	<10
547318	5	<0.2	19	68	10	<10
547319	10	0.4	111	989	10	<10
548198	15	<0.2	165	7230	10	10
548199	20	<0.2	896	1280	<10	40
548200	3770	2.4	>10000	209	10	<10

LEGEND

LITHOLOGIES

PROTEROZOIC

WERNECKE SUPERGROUP

Pf ***Fairchild Lake Group:*** Light grey-, greenish grey-, and locally dark grey-weathering shale, siltstone (80%), fine sandstone and limestone (20%); locally phyllites, schists and slates.

SYMBOLS

- Outcrop
- Geological contact (approximate)
- Bedding attitude
- Bedding attitude (overturned)
- Grab sample from mineralization (float, outcrop)
- Chip sample (width in metres)
- Vein

MINERALS

AZ	azurite	CO	cobaltite
CP	chalcopyrite	ER	erythrite
MC	malachite		

DWG 172

0 100 500 1000 1500
METRES

093117

WESTMIN RESOURCES LIMITED

MMM 1-4 CLAIMS
ROCK GEOCHEMISTRY
YUKON TERRITORY

PAMICON DEVELOPMENTS LTD.
EQUITY ENGINEERING LTD.

Drawn:	Mining Dist.: MAYO	FIGURE 4
N.T.S.: 106 C/13W	Scale: 1 : 10,000	
Date: DEC., 1992	Revised:	

adjacent wallrock (Figure 4). The upper or #1 vein is the largest zone swelling to 3.0 metres where sampled whereas the #2 and #3 vein zones are narrower at 30 to 50 centimetres. The entire mineralized system is at least 80 metres wide and appears to be trending in a northeast-southwest direction. The host siltstone unit is weakly to moderately altered by sericite and biotite.

The sampling was directed at testing the metal values within each of the individual quartz veins as well as determining the bulk grade of the entire mineralized zone including the higher grade veins. The metal values in the three vein samples confirm the observed variability of the copper and cobalt mineralization. Table 6.2.1 below lists metal values from the three vein samples. In addition to the high gold, cobalt, copper and nickel values in the #3 vein, sample 548200 contains elevated bismuth (112 ppm) and tungsten (400 ppm) in comparison to the other vein zones. The high nickel values indicate a nickel mineral is also present. Skutterudite, a cobalt-nickel arsenide, has previously been identified in a similar cobalt-bearing vein on the west side of Fairchild Lake located eight kilometres to the northeast.

TABLE 6.2.1
VEIN SAMPLE ROCK GEOCHEMISTRY

Sample	Width (cm)	Gold (ppb)	Silver (ppm)	Cobalt (ppm)	Copper (ppm)	Lead (ppm)	Zinc (ppm)	Nickel (ppm)
548198(#1)	25	15	<0.2	165	7230	<2	88	43
548199(#2)	30	20	<0.2	896	1280	<2	42	127
548200(#3)	50	3770	2.4	>10000	209	14	110	5110

Twelve chip samples were taken across the entire mineralized exposure with sample widths varying from 2.0 to 13.0 metres. The highest copper (2348-4659 ppm) and cobalt (88-1461 ppm) values were contained in the interval from 547310 to 547312 which spans the #1 and #2 vein zones. Away from the vein zones, copper and cobalt values are generally low with <1000 ppm and <50 ppm, respectively.

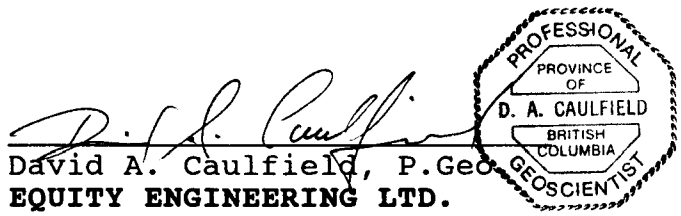
7.0 CONCLUSIONS AND RECOMMENDATIONS

The MMM claims were staked to cover prominent copper, iron and cobalt stained bluffs on the north side of a northeasterly draining tributary of the Bonnet Plume River some 8 kilometres southwest of Fairchild Lake. The MMM showing consists of three high grade chalcopyrite-cobaltite quartz-chlorite veins within Fairchild Lake Group siltstones. The surrounding wallrock is weakly to moderately altered by sericite and biotite and contains lower grade copper and cobalt mineralization along fractures and in quartz veinlets. The control sampling away from the veining indicates that the visual copper oxide staining may be more impressive than warranted by the primary sulphide mineralization present. However, individual grab samples from the veins returned

very significant copper, cobalt, nickel and gold values. The program duration was too short and focused to speculate on the genesis of the mineralizing system, but the mineralization is structurally controlled and no hematite breccias were identified.

The preliminary work conducted to date indicates an extensive mineralizing system exists on the MMM property and further work is warranted. The next work program would envisage completing property geological mapping and prospecting. More detailed mapping and sampling should be conducted on the MMM showing and extensions thereof. This detailed work would be accomplished by utilizing a control grid and soil sampling should be carried out on areas with soil cover.

Respectfully submitted,



David A. Caulfield, P.Geo.
EQUITY ENGINEERING LTD.

Vancouver, British Columbia
December, 1992

APPENDIX A

BIBLIOGRAPHY

BIBLIOGRAPHY

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Archer, A.R. and Schmidt, U. (1978): Mineralized Breccias of Early Proterozoic Age, Bonnet Plume River District, Yukon Territory; CIM Bulletin, vol. 71, p. 53-58.

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APPENDIX B

LIST OF PERSONNEL

LIST OF PERSONNEL

David Caulfield (Sr. Geologist)
207, 675 West Hastings Street
Vancouver, B.C. V6B 1N2

Tom Bell (Sr. Prospector)
207, 675 West Hastings Street
Vancouver, B.C. V6B 1N2

K. Parsons (Cook)
c/o TNTA
Carmacks, Yukon

APPENDIX C

STATEMENT OF EXPENDITURES

STATEMENT OF EXPENDITURES
MMM 1-4 CLAIMS

CANADA) In the matter of an evaluation program on the MMM
) 1-4 Mineral Claims

I, Mike Stammers for Equity Engineering Ltd., 207, 675 West Hastings Street, Vancouver, B.C. do solemnly declare that a program consisting of lithogeochemical sampling, geological mapping, and prospecting was carried out on the MMM 1-4 Mineral Claims on September 5, 1992.

The following expenses were incurred during the course of this work and in the compilation and reporting of the results:

ASSAYS:	
15 rocks (@ $14.95)	$ 224.25
REPORT	711.84
Management Fee	140.41
SUBTOTAL:	$ 1,076.50
GST:	
7% on subtotal	75.36
TOTAL:	$ 1,151.86

NOTE: Fieldwork carried out prior to staking the MMM 1-4 claims has not been included in this Statement of Expenditures.

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 Vancouver in the Province of British Columbia this 21st day of January, 1993)

A Commissioner for Oaths for, or
Notary Public for the Yukon Territory

APPENDIX D

ROCK SAMPLE DESCRIPTIONS

MINERALS AND ALTERATION TYPES

AB	albite	AD	adularia
AK	ankerite	AS	arsenopyrite
AZ	azurite	BA	barite
BI	biotite	BO	bornite
BR	brannerite	CA	calcite
CB	Fe-carbonate	CC	chalcocite
CL	chlorite	CO	cobaltite
CP	chalcopyrite	CY	clay
DI	diopside	DO	dolomite
EP	epidote	ER	erythrite
GA	garnet	GE	goethite
GL	galena	GR	graphite
HE	earthy hematite	HS	specularite
JA	jarosite	KF	potassium feldspar
MC	malachite	MG	magnetite
MN	Mn-oxides	MR	mariposite
MS	muscovite/sericite	NE	neotocite
PO	pyrrhotite	PY	pyrite
QZ	quartz	SI	silica
SP	sphalerite	TT	tetrahedrite

ALTERATION INTENSITIES

m	medium	s	strong	tr	trace
vs	very strong	vw	very weak	w	weak

Property : MMM NTS : 106C/13 Date : 12/08/92

Sample No.	Location	Type	Alteration	Au (ppb)	Ag (ppm)	Co (ppm)	Cu (ppm)	La (ppm)	U (ppm)
	7196 300 N 556 940 E	Chip Strike Length Exp. : 5.0 m	None Sulphides : None						
547308	Elevation: 1015 m Orientation: 065 / 65 SE	Sample Width : 10 m True Width : 8-9 m	Oxides : None Host : Laminated light grey siltstone	15.	<0.2	35.	142.	40.	<10

Comments : Bedding is contorted and folded on a minor scale. Sample mostly out of iron stained, altered sediments. Beds are overturned?

Sample No.	Location	Type	Alteration	Au (ppb)	Ag (ppm)	Co (ppm)	Cu (ppm)	La (ppm)	U (ppm)
	7196 290 N 559 940 E	Chip Strike Length Exp. : 30 m	None Sulphides : None						
547309	Elevation: 1015 m Orientation: 068 / 65 SE	Sample Width : 11.0 m True Width : 9.0 m	Oxides : GE, JA Host : Laminated light to dark grey siltsone	10.	<0.2	49.	853.	30.	<10

Comments : Minor folds along one bedding plane - soft sediment deformation.

Sample No.	Location	Type	Alteration	Au (ppb)	Ag (ppm)	Co (ppm)	Cu (ppm)	La (ppm)	U (ppm)
	7196 280 N 556 940 E	Chip Strike Length Exp. : 10 m	CB, sQZ Sulphides : 1-2%CP, trCO						
547310	Elevation: 1015 m Orientation: 065 / 56 SE	Sample Width : 5.0 m True Width : 3.0 m	Oxides : sAZ, sGE, sMC, ER Host : Laminated light to dark grey siltstone	40.	<0.2	448.	4659.	0.	<10

Comments : One quartz vein cuts along sample line - 130/90o. Other quartz veins cut outcrop at different orientations.

Sample No.	Location	Type	Alteration	Au (ppb)	Ag (ppm)	Co (ppm)	Cu (ppm)	La (ppm)	U (ppm)
	7196 270 N 556 940 E	Chip Strike Length Exp. : 7.0 m	wQZ Sulphides : <1%CP						
547311	Elevation: 1015 m Orientation: 098 / 82 SE	Sample Width : 2.0 m True Width : 2.0 m	Oxides : sGE, JA, trMC Host : Laminated grey siltstone	155.	0.6	88.	2546.	30.	<10

Comments : Graded bedding and load casts indicate tops up.

Sample No.	Location	Type	Alteration	Au (ppb)	Ag (ppm)	Co (ppm)	Cu (ppm)	La (ppm)	U (ppm)
	7196 260 N 556 940 E	Chip Strike Length Exp. : 5.0 m	mCB, sCL, QZ vein Sulphides : 1%CP, <1%CO						
547312	Elevation: 1020 m Orientation: 066 / 70 SE	Sample Width : 11.0 m True Width : 8.0 m	Oxides : sGE, JA, MC, ER Host : Dark grey siltstone	75.	0.4	1461.	2348.	20.	<10

Comments : This sample interval contains upper cobalt vein. Outcrop has strong iron stained appearance; minor malachite adjacent to vein.

Sample No.	Location	Type	Alteration	Au (ppb)	Ag (ppm)	Co (ppm)	Cu (ppm)	La (ppm)	U (ppm)
	7196 250 N 556 940 E	Chip Strike Length Exp. : 10.0 m	None Sulphides : trCP						
547313	Elevation: 1017 m Orientation: 055 / 82 SE	Sample Width : 6.5 m True Width : 5.0 m	Oxides : sGE, JA, trMC Host : Dark grey siltstone	10.	<0.2	25.	107.	50.	<10

Comments :

Property : MMM NTS : 106C/13 Date : 12/08/92

Sample No.	Location	Type	Alteration	Au (ppb)	Ag (ppm)	Co (ppm)	Cu (ppm)	La (ppm)	U (ppm)
547314	7196 240 N / 556 940 E	Chip	BI?, MS?	5.	<0.2	35.	130.	40.	<10
	Elevation: 1015 m	Strike Length Exp. : 5.0 m	Sulphides : trCP, trPY						
	Orientation: 060 / 75 NW	Sample Width : 6.5 m	Oxides : sGE						
		True Width : 5.0 m	Host : Laminated grey siltstone						

Comments :

Sample No.	Location	Type	Alteration	Au (ppb)	Ag (ppm)	Co (ppm)	Cu (ppm)	La (ppm)	U (ppm)
547315	7196 230 N / 556 940 E	Chip	BI?, mMS	5.	<0.2	23.	109.	40.	<10
	Elevation: 1020 m	Strike Length Exp. : 20 m	Sulphides : trCP, trPY						
	Orientation: 060 / 75 NW	Sample Width : 11.5 m	Oxides : GE, trMC						
		True Width : 10 m	Host : Laminated grey to grey siltstone						

Comments :

Sample No.	Location	Type	Alteration	Au (ppb)	Ag (ppm)	Co (ppm)	Cu (ppm)	La (ppm)	U (ppm)
547316	7196 200 N / 556 930 E	Chip	BI?, CL, MS, QZ, SI	15.	<0.2	264.	422.	10.	<10
	Elevation: 1015 m	Strike Length Exp. : 10 m	Sulphides : <1%CP, <1%PY, trCO						
	Orientation: 060 / 59 NW	Sample Width : 8.0 m	Oxides : GE, MC, ER						
		True Width : 8.0 m	Host : Laminated grey siltstone						

Comments : This grab interval contains cobaltite-chalcopyrite quartz vein with strong muscovite (sericite) and chlorite alteration.

Sample No.	Location	Type	Alteration	Au (ppb)	Ag (ppm)	Co (ppm)	Cu (ppm)	La (ppm)	U (ppm)
547317	7196 190 N / 556 920 E	Chip	BI?, mMS	10.	<0.2	117.	1322.	30.	<10
	Elevation: 1013 m	Strike Length Exp. : 10 m	Sulphides : trCP, trPY						
	Orientation: 045 / 25 NW	Sample Width : 10.5 m	Oxides : GE, trMC						
		True Width : 10.0 m	Host : Laminated grey-white siltstone						

Comments : Chalcopyrite in narrow quartz veinlets source of malachite stain.

Sample No.	Location	Type	Alteration	Au (ppb)	Ag (ppm)	Co (ppm)	Cu (ppm)	La (ppm)	U (ppm)
547318	7196 170 N / 556 920 E	Chip	wCB, mCL, MS?, wQZ, SI?	5.	<0.2	19.	68.	10.	<10
	Elevation: 970 m	Strike Length Exp. : 10 m	Sulphides : trCP, trPY						
	Orientation: 055 / 70 NW	Sample Width : 13.0 m	Oxides : GE						
		True Width : 13.0 m	Host : Laminated light green siltstones with silicified beds						

Comments : Crossbeds (truncated) indicate beds are overturned. This sample interval contains white siliceous beds and quartz vein zones (although weakly mineralized).

Sample No.	Location	Type	Alteration	Au (ppb)	Ag (ppm)	Co (ppm)	Cu (ppm)	La (ppm)	U (ppm)
547319	7196 220 N / 556 940 E	Chip	BI?, wMS, WQZ	10.	0.4	111.	989.	10.	<10
	Elevation: 1020 m	Strike Length Exp. : 5 m	Sulphides : <1%CP, <1%PY						
	Orientation: 060 / 75 NW	Sample Width : 3.5 m	Oxides : GE, MC						
		True Width : 3.0 m	Host : Laminated grey to light green siltstone						

Comments :

Property : MMM NTS : 106C/13 Date : 12/08/92

Sample No.						Au	Ag	Co	Cu	La	U
	Location :	7196 230 N	Type : Grab	Alteration :	sCL, sMS, mHE	(ppb)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
		556 930 E	Strike Length Exp. : 15 m	Sulphides :	5%CP						
548198	Elevation:	3425 ft	Sample Width : 25 cm	Oxides :	mAZ, mJA, sMC	15.	<0.2	165.	7230.	10.	10.
	Orientation:	150 / 62 NE	True Width : 25 cm	Host :	Banded sediments						

Comments : 3m showing west side of 547310 chip of D. Caulfield.

Sample No.						Au	Ag	Co	Cu	La	U
	Location :	7196 210 N	Type : Grab	Alteration :	sCL, mMS, QZ	(ppb)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
		556 930 E	Strike Length Exp. : 4 m	Sulphides :	3-5%CP, 1-2%CO						
548199	Elevation:	3425 ft	Sample Width : 30 cm	Oxides :	wJA, sMC, mER	20.	<0.2	896.	1280.	0.	40.
	Orientation:	70 / 20 SE	True Width : 30 cm	Host :	Sediments						

Comments : Vein in 547312 chip sample of D. Caulfield.

Sample No.						Au	Ag	Co	Cu	La	U
	Location :	7196 200 N	Type : Grab	Alteration :	sCL, sMS	(ppb)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
		556 920 E	Strike Length Exp. : .5 m	Sulphides :	30-50%CO						
548200	Elevation:	3425 ft	Sample Width : 50 cm	Oxides :	sER	3770.	2.4	>10000	209.	10.	<10
	Orientation:	/	True Width : m	Host :	Sediments						

Comments : East 2m from D. Caulfield's chip 547316.

APPENDIX E

CERTIFICATES OF ANALYSIS

Chemex Labs Ltd.

Analytical Chemists *Geochemists* *Registered Assayers*

212 Brooksbank Ave.
North Vancouver, B.C.
Canada V7J 2C1

Phone: (604) 984-0221
Telex: 04-352597
Fax: (604) 984-0218

24-Element Geochemistry Package (24-ICP)

Inductively-Coupled Plasma Atomic Emission Spectroscopy (ICP-AES)

The 24 element rock geochemistry package provides quantitative analysis of all major elements (except silicon) as well as most important trace elements.

A prepared sample (0.50g) is digested with perchloric, nitric and hydrofluoric acids to dryness. The residue is taken up in a volume of 25ml of 10% hydrochloric acid and the resulting solution is analyzed by inductively-coupled plasma atomic emission spectroscopy. Results are corrected for spectral interelement interferences.
For this project only uranium and lanthanum were also analyzed.

Chemex Code	Element	Detection Limit	Upper Limit
573	Aluminum	0.01 %	15 %
565	Barium	10 ppm	1 %
575	Beryllium	0.5 ppm	0.01 %
561	Bismuth	2 ppm	1 %
576	Calcium	0.01 %	25 %
562	Cadmium	0.5 ppm	0.05 %
569	Chromium	1 ppm	1 %
563	Cobalt	1 ppm	1 %
577	Copper	1 ppm	1 %
566	Iron	0.01 %	15 %
560	Lead	2 ppm	1 %
570	Magnesium	0.01 %	15 %
568	Manganese	5 ppm	1 %
554	Molybdenum	1 ppm	1 %
564	Nickel	1 ppm	1 %
559	Phosphorus	10 ppm	1 %
584	Potassium	0.01 %	10 %
578	Silver	0.5 ppm	0.02 %
583	Sodium	0.01 %	10 %
582	Strontium	1 ppm	1 %
579	Titanium	0.01 %	10 %
556	Tungsten	10 ppm	1 %
572	Vanadium	1 ppm	1 %
558	Zinc	2 ppm	1 %
	Uranium	10 ppm	1 %
	Lanthanum	10 ppm	1 %

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212 Brooksbank Ave.
North Vancouver, B.C.
Canada V7J 2C1

Phone: (604) 984-0221
Telex: 04-352597
Fax: (604) 984-0218

Gold

Fire Assay Collection/ Atomic Absorption Spectroscopy (FA-AA)

Chemex Code: 100

A 10g sample is fused with a neutral lead oxide flux inquarted with 6mg of gold-free silver and then cupelled to yield a precious metal bead.

These beads are digested for 30 mins in 0.5ml concentrated nitric acid, then 1.5ml of concentrated hydrochloric acid are added and the mixture is digested for 1 hr. The samples are cooled, diluted to a final volume of 5ml, homogenized and analyzed by atomic absorption spectroscopy.

Detection limit: 5 ppb

Upper Limit: 10,000 ppb

Chemex Labs Ltd.

Analytical Chemists * Geochemists * Registered Assayers
212 Brooksbank Ave., North Vancouver
British Columbia, Canada V7J 2C1
PHONE: 604-984-0221

To: PAMICON DEVELOPMENTS LIMITED

711 - 675 W. HASTINGS ST.
VANCOUVER, BC
V6B 1N4

Project : FAIRCHILD LAKE MMM
Comments: CC: MURRAY JONES CC: DAVID CAULFIELD

Certificate Date: 29-SEP-92
Invoice No. :
P.O. Number :
Account :BM

	Au ppb	Ag ppm	Al %	Ba ppm	Be ppm	Bi ppm	Ca %	Cd ppm	Co ppm	Cr ppm	Cu ppm	Fe %	K %	Mg %
547308	15	<0.2	9.80	570	1.5	<2	0.22	<0.5	35	133	142	3.47	2.96	1.04
547309	10	<0.2	8.37	330	0.5	<2	0.22	<0.5	49	120	853	5.03	1.82	0.82
547310	40	<0.2	6.29	50	0.5	2	0.45	0.5	448	69	4659	1.72	0.26	0.20
547311	155	0.6	7.99	280	0.5	8	0.79	0.5	88	108	2546	3.83	1.62	0.84
547312	75	0.4	7.59	180	2.0	10	1.49	<0.5	1461	87	2348	3.55	1.12	1.15
547313	10	<0.2	9.21	490	0.5	8	0.21	0.5	25	117	107	4.09	2.40	1.07
547314	5	<0.2	9.84	540	1.5	8	0.20	0.5	35	90	130	3.77	2.48	1.21
547315	5	<0.2	9.39	550	1.5	4	0.22	1.0	23	106	109	3.33	2.49	1.03
547316	15	<0.2	8.89	350	0.5	6	0.23	0.5	264	129	422	3.36	1.69	1.06
547317	10	<0.2	8.81	470	1.0	2	0.50	0.5	117	104	1322	2.92	2.02	1.03
547318	5	<0.2	7.86	350	<0.5	<2	0.21	<0.5	19	78	68	2.10	1.45	0.48
547319	10	0.4	7.25	170	1.5	2	0.36	0.5	111	93	989	2.32	0.91	0.66
548198	15	<0.2	9.55	110	<0.5	6	0.61	0.5	165	44	7230	7.56	0.73	1.96
548199	20	<0.2	7.21	120	4.0	14	7.91	<0.5	896	13	1280	6.63	1.47	3.61
548200	3770	2.4	7.88	60	<0.5	112	0.15	<0.5	>10000	13	209	10.14	0.71	2.86

CERTIFICATION: B. Caufield

Chemex Labs Ltd.

Analytical Chemists * Geochemists * Registered Assayers

212 Brooksbank Ave., North Vancouver
British Columbia, Canada V7J 2C1
PHONE: 604-984-0221

To: PAMICON DEVELOPMENTS LIMITED

711 - 675 W. HASTINGS ST.
VANCOUVER, BC
V6B 1N4

Project : FAIRCHILD LAKE MMM
Comments: CC: MURRAY JONES CC: DAVID CAULFIELD

Certificate Date: 29-SEP-92
Invoice No. :
P.O. Number :
Account :BM

	Mn ppm	Mo ppm	Na %	Ni ppm	P ppm	Pb ppm	Sr ppm	Ti %	V ppm	W ppm	Zn ppm	La ppm	U ppm
547308	245	2	1.54	26	700	8	71	0.20	81	<10	40	40	<10
547309	1020	2	2.82	21	530	6	62	0.11	52	<10	42	30	<10
547310	360	2	6.47	88	650	2	54	0.08	9	<10	34	<10	<10
547311	610	<1	3.24	33	390	4	57	0.11	48	<10	32	30	<10
547312	1010	1	3.61	84	410	4	65	0.08	32	<10	34	20	<10
547313	165	<1	1.96	12	790	8	60	0.20	69	<10	32	50	<10
547314	175	<1	1.82	30	500	6	69	0.14	60	<10	32	40	<10
547315	185	<1	1.83	22	390	8	71	0.21	62	<10	40	40	<10
547316	245	1	3.12	70	440	6	61	0.11	72	<10	38	10	<10
547317	385	<1	2.63	40	410	8	69	0.13	60	<10	38	30	<10
547318	290	1	3.78	20	370	2	39	0.14	48	<10	10	10	<10
547319	290	<1	4.20	36	380	<2	49	0.13	33	<10	24	10	<10
548198	1025	<1	3.74	43	260	<2	45	0.02	3	70	88	10	10
548199	5275	<1	2.16	127	190	<2	50	<0.01	7	60	42	<10	40
548200	525	1	1.17	5110	140	14	18	<0.01	6	400	110	10	<10

CERTIFICATION: B. Campbell

APPENDIX F

GEOLOGIST'S CERTIFICATE

GEOLOGIST'S CERTIFICATE

I, DAVID A. CAULFIELD, of 3142 Gambier Street, Coquitlam, in the Province of British Columbia, DO HEREBY CERTIFY:

1. THAT I am a Consulting Geologist with offices at Suite 207, 675 West Hastings Street, Vancouver, British Columbia.

2. THAT I am a graduate of the University of British Columbia with a Bachelor of Science degree in Geology.

3. THAT I am a Professional Geoscientist registered in good standing with the Association of Professional Engineers and Geoscientists of the Province of British Columbia.

4. THAT this report is based on fieldwork carried out under my direction in October 1992, government publications and assessment reports filed with the Yukon. I have examined the property in the field.

DATED at Vancouver, British Columbia, this 14th day of December, 1992.

David A. Caulfield, P.Geo.

PROFESSIONAL ENGINEERS AND GEOSCIENTISTS PROVINCE OF BRITISH COLUMBIA D. A. CAULFIELD GEOSCIENTIST