82-#843-#10924

9

GEOLOGICAL REPORT

ON

THE MES I AND II GROUPS OF CLAIMS

OMINECA MINING DIVISION
N.T.S. 94C/5W
56°25'N 125°58'W

OWNER:

Getty Canadian Metals, Ltd.

OPERATOR:

Getty Canadian Metals, Ltd.

AUTHOR:

B.K. Bowen, P. Eng.
Getty Canadian Metals, Ltd.

DATE:

December 16, 1982

B. K. Bowen
Dec. 16, 1982

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SUMMARY

The MES I and II Groups of claims are located on the northeast flank of the Omineca Mountains, about 340 kilometres northwest of Prince George.

In August of 1982, Getty Canadian Metals, Ltd. conducted a program of geological mapping and prospecting in the immediate vicinity of a prominent gossan located on the claims. Purpose of the work was to determine if there were present any significant areas of near surface economic potential. The area had previously been investigated by Rio Tinto (1964) who had obtained anomalous Cu and Mo silt values in 3 streams which drain the gossan.

Geological mapping revealed that the gossan is derived from pyrite mineralization in a series of sub-parallel shear zones in andesitic volcanic rocks which are intruded by numerous pyritized felsite and quartz porphyry dikes.

Prospecting located numerous occurrences of patchy malachite in the quartz porphyry dikes, in pyritized shear and fault zones, and in scattered quartz-pyrite veinlets which crosscut the volcanic rocks. Only one occurrence of molybdenite was located in a felsite dike.

CONCLUSIONS

Work on the MES claims failed to outline any significant areas of near surface economic potential.

It is probable that the sparse malachite mineralization is sufficient to explain the anomalous copper silt values obtained by Rio, but the single MoS_2 occurrence found is not sufficient to explain anomalous molybdenum values in 3 creeks. It is likely, with more rigorous prospecting, that additional minor occurrences of molybdenite could be located.

INTRODUCTION

ACCESS AND LOCATION

The MES prospect is located on the northeast flank of the Omineca Mountains, about 340 kilometres northwest of Prince George (see Figures 1 & 2). Access is by road from Fort St. James to Aiken Lake, a distance of about 400 kilometres, and then by helicopter to the property, an additional 10 kilometres. Alternately, wheeled aircraft can land at Johanson Lake, which is about 25 kilometres by helicopter, northwest of the property.

CLAIMS

The MES I and II Groups consist of the following claims:

Name of Claim	No. of Units	Record No.	Month of Record	Owner
MES I Group				
BEAR II	20	4,046	September	Getty Canadian Metals, Limited
BEAR V	20	4,049	September	" "
BEAR VI	20	4,050	September	" "
MES II	20	4,052	September	" "
MES III	20	4,053	September	" "
MES II Group				
BEAR I	6	4,045	September	" "
BEAR III	20	4,047	September	" "
BEAR IV	20	4,048	September	" "
MES I	20	4,051	September	" "

PORPHYRY CREEK JOINT VENTURE

MES CLAIMS

KEY MAP

DRAWN BY: G.B.J.	DATE: DEC. 1982
CHECK'D. BY: G.N.	DRAW'G. No.: 1
N.T.S.: 94C, 94D	SCALE: 1:12,000,000

BEMA DRAFTING/G.B.J.

Together these claims cover an area of 4,150 hectares or about 10,200 acres (see Figure 3).

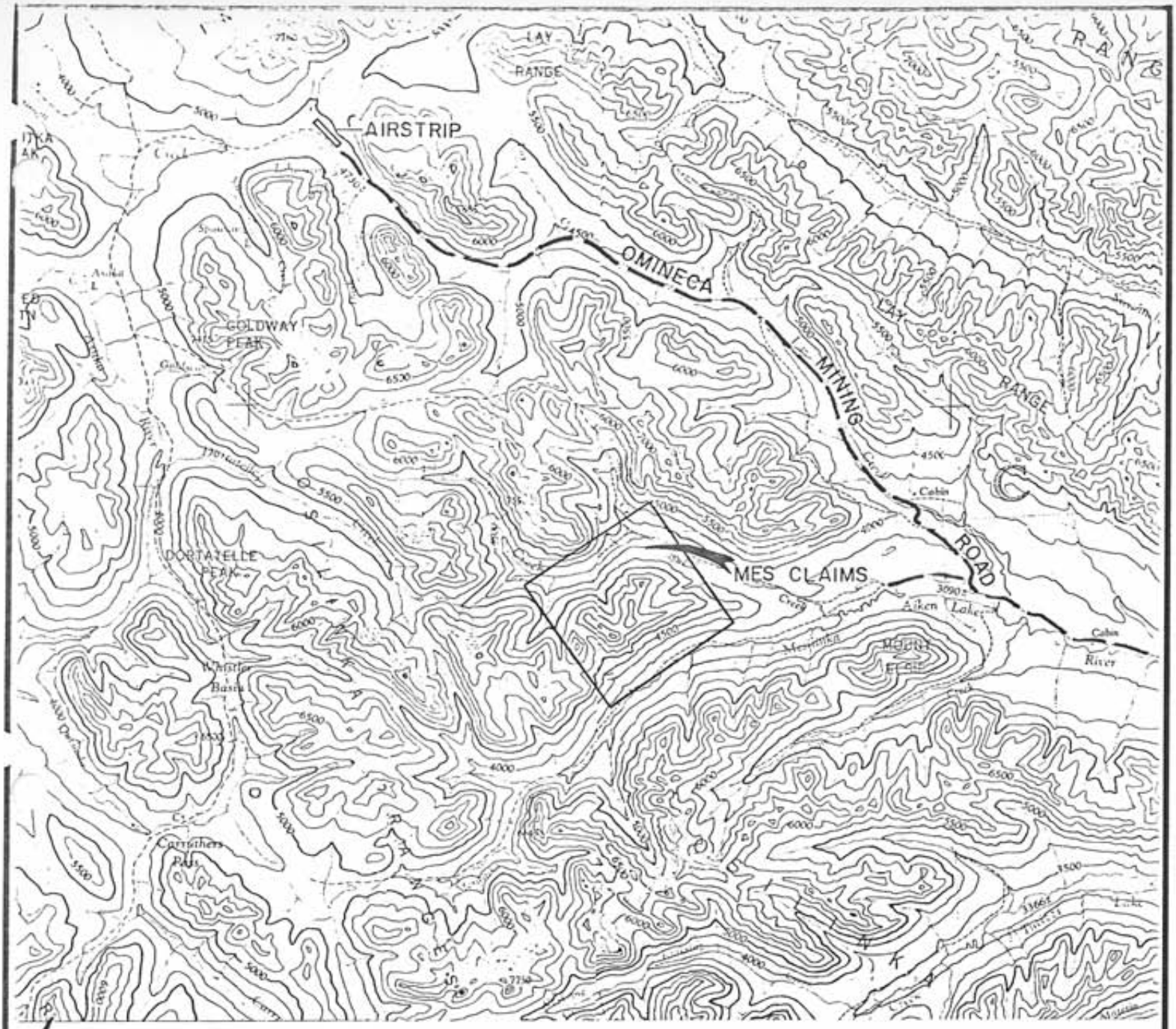
PHYSIOGRAPHY AND CLIMATE

The area is typified by mountainous, well-glaciated, fairly rugged terrain. Cirques are well developed and some contain small alpine or rock glaciers.

The claims straddle the mountain massif lying between Kliyul Creek and Mesilinka River. Elevations range from 1,100 metres in Kliyul Creek valley to greater than 2,000 metres along some of the ridge tops. Climate is typical of the northern interior with long winters and short, cold summers. Below-freezing temperatures are the rule by mid-October. By November, access via the Omineca road is tentative. Annual precipitation, falling mostly as snow, is in the 100 to 125 centimetre range.

HISTORY AND DEVELOPMENT

The MES prospect was discovered and staked by Rio Tinto in 1964 during the course of a geological and geochemical reconnaissance program. Rio obtained anomalous Cu and Mo silt values in 3 streams draining a prominent northwesterly trending gossan on the mountain massif lying between Kliyul Creek and Mesilinka River. Preliminary mapping by Rio indicated that the gossan was derived from pyrite mineralization in a series of sub-parallel shear zones in andesitic volcanics. Surface examination of outcrops yielded little of



Scale 1 : 250,000

1 Inch to 4 Miles Approximately

Miles 5 0 5 10 15 20 Miles

Kilometres 5 0 5 10 15 20 25 30 Kilometres

PORPHYRY CREEK JOINT VENTURE

LOCATION MAP – MES CLAIMS

DRAWN BY: D. KLEINHOLZ	DATE: DECEMBER, 1982
CHECK'D BY: G.N.	DRAW'G No: 2
N.T.S.: 94C, 94D	SCALE: 1:250000

Getty Canadian Metals, Ltd.

economic interest and the claims were eventually allowed to lapse.

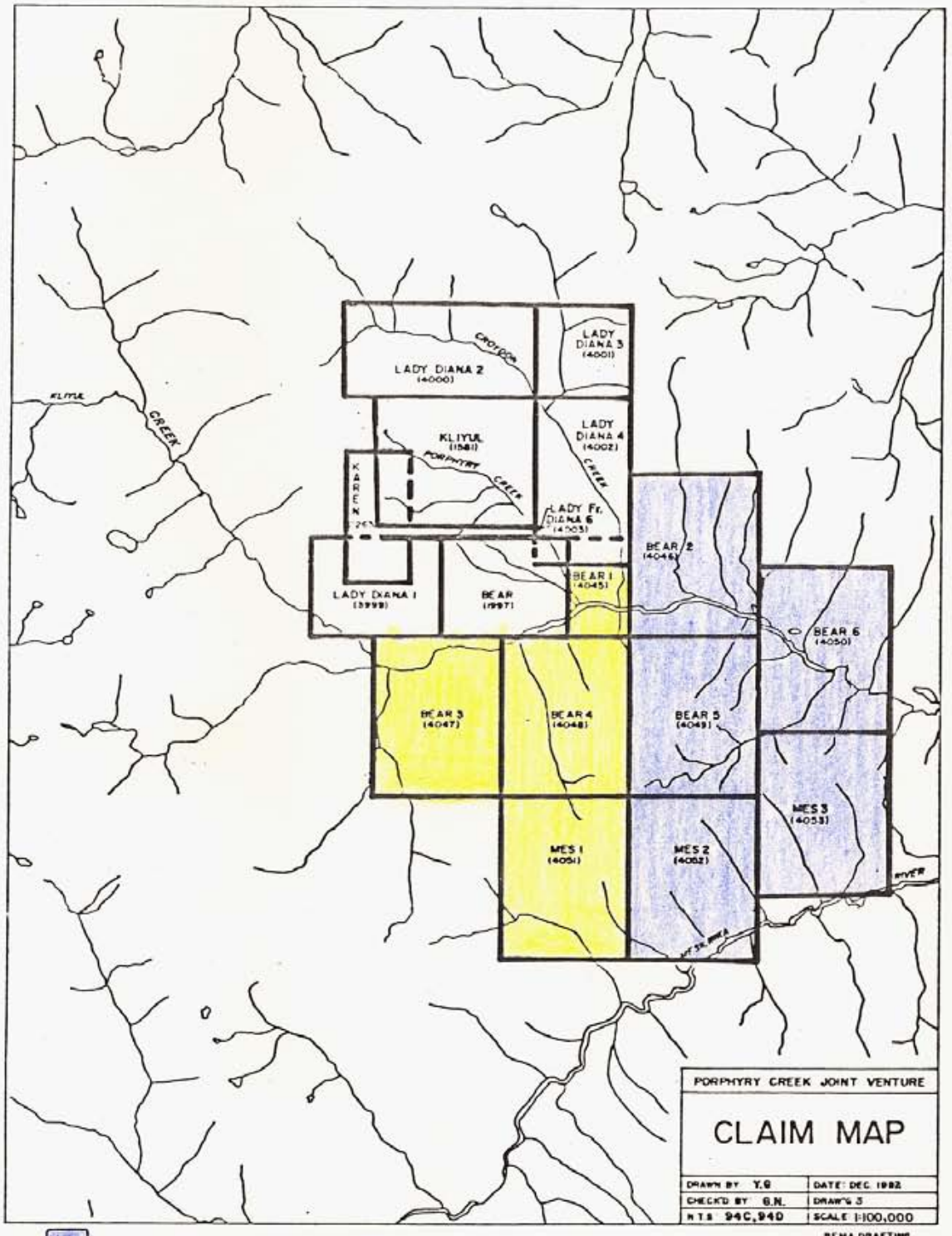
In September of 1981, Getty Canadian Metals, Ltd., in joint venture with Teck Corporation, staked the prospect. In 1982, Getty, as operator, conducted a limited program of detailed mapping and prospecting.

SUMMARY OF 1982 WORK

Getty, as operator, conducted a program of detailed mapping and prospecting on the MES prospect during the period August 3 to 28, 1982. The work was carried out by B. Bowen, Getty staff geologist, and assistants D. Harris, contract hire provided by Bema Industries Ltd., and T. Kraft, temporary Getty hire.

Mapping and prospecting was conducted over an area of approximately 5 square kilometres, using a 1:5,000 scale pencil manuscript for control. The claims upon which work was actually done include the BEAR IV and V and the MES I and II claims.

A portion of the work was done by foot traverse out of a fly camp situated between two small lakes in Cairn Creek cirque. Additional helicopter supported traverses were done out of a Getty base camp located 5 kilometres to the northwest. The helicopter used was a Jet Ranger, on casual charter out of the Northern Mountain base at Johanson Lake airstrip.


LADY DIANA 2
(4000)
LADY DIANA 3
(4001)
LADY DIANA 4
(4002)
KLIYUL
(1581)
KLIYUL CREEK
PORPHYRY CREEK
KAREN
LADY Fr. DIANA 6
(4003)
LADY DIANA 1
(3998)
BEAR
(1997)
BEAR 1
(4045)
BEAR 2
(4046)
BEAR 3
(4047)
BEAR 4
(4048)
BEAR 5
(4049)
BEAR 6
(4050)
MES 1
(4051)
MES 2
(4052)
MES 3
(4053)
PORPHYRY CREEK JOINT VENTURE
CLAIM MAP
DRAWN BY Y.G
DATE: DEC. 1982
CHECK'D BY G.N.
DRAW'G 3
N.T.S. 94C,94D
SCALE 1:100,000
BEMA DRAFTING
MES 1 GROUP
MES 2 GROUP

REGIONAL GEOLOGY

The MES I and II Groups of claims are centrally located between the Aiken Lake (94C) and McConnell Creek (94D) map areas. The geology of the Aiken Lake area is the subject of G.S.C. Memoir 274, "Geology and Mineral Deposits of the Aiken Lake Map Area, B.C.", by E.F. Roots, published in 1954. The general geology of the McConnell Creek map area is discussed by C.S. Lord in G.S.C. Memoir 251, "McConnell Creek Map Area, Cassiar District, B.C.", published in 1948.

Oldest rocks in the immediate vicinity of the claims area are Triassic and Jurassic Takla volcanics consisting of greenish lavas and pyroclastics and minor sediments which occupy a northwest trending belt 22 kilometres in width.

Intruding the Takla volcanic rocks are numerous Mesozoic intrusive bodies which range in composition from peridotite to granite. Dikes, sills and other bodies of peridotite, pyroxenite and dunite occur in several localities and were probably emplaced in Upper Triassic or earlier time.

The northern extremities of the Cretaceous Omineca batholith outcrop near the southeastern boundary of the claims area. The intrusion plunges to the northwest at this point, and related intrusions have been traced more than 400 kilometres to the northwest. The batholith extends at least 85 kilometres to the southeast. The Omineca

intrusions include a wide variety of compositions ranging from basic to very acidic, but more commonly, granodiorite and quartz diorite compositions predominate.

Quartz porphyry and felsite dikes are exposed on the MES claims and a small stock of porphyritic granodiorite outcrops about 5 kilometres to the northwest. These bodies may be related to either the Cretaceous Omineca intrusions, or the Kastberg intrusions of Tertiary age which are confined to the McConnell Creek map area.

Faults are the outstanding structural feature in the area. Most faults strike northwest; others strike west, west-northwest, north and northeast. A period of major folding was probably related to the emplacement of the Omineca intrusions. Most of the strata have been folded along northwest trending axes and many resultant structures plunge northwest.

DETAILED GEOLOGY

LITHOLOGY

The MES prospect is located close to the northwest plunging nose of the Omineca Batholith. The claims are underlain by Takla Group rocks which have been intruded by a variety of intrusive types including pyroxenite, porphyritic granodiorite and numerous dikes acid to intermediate in composition (see Figure 4 in map pocket).

Takla Group rocks within the MES claims area consist of fine-grained and porphyritic andesitic lavas, minor banded tuffaceous sediments and minor limestone. Andesites are typically fine grained, green in colour and massive to poorly bedded. Tuffaceous sediments and limestone are limited to narrow (less than 5 metres) beds which outcrop at several localities within the map area.

A small body of pyroxenite outcrops on the southwest cirque wall of Logjam Creek at elevation 2,100 metres. The pyroxenite body is terminated to the northeast by a porphyritic granodiorite stock. The rock is dark green in colour and consists of a granular intergrowth of blocky pyroxene crystals 2 to 4 mm in size. Disseminated magnetite is present in amounts up to 5 percent.

A porphyritic granodiorite stock, satellitic to the main Omenica batholith, intrudes Takla volcanic rocks in the southwestern portion of the map area. The stock extends at least 2 kilometres in a southeasterly direction and is about one kilometre wide. The rock is light grey in colour and consists of 10-15 percent 3-5 mm rounded quartz eyes, 20 percent 2-4 mm blocky feldspar phenocrysts and 15 percent 1-2 mm biotite flakes set in a fine (less than .5 mm) granular groundmass of quartz and feldspar.

Numerous dikes acid to intermediate in composition cut Talka volcanic rocks in the central portion of the map area. The dikes are associated with a prominent gossan which extends approximately 2,000

metres in a southeasterly direction and varies in width from 200 to 600 metres.

A quartz porphyry dike outcropping near the headwaters of Cairn Creek has been traced northwesterly over a strike length of about 700 metres. The dike varies in width from a few metres to about 70 metres and may be terminated to the southeast by a major east southeast trending fault. The rock is light grey to white in colour and consists of 5 to locally 10-15 percent rounded 1 mm quartz eyes and 10-20 percent blocky to irregular 1-2 mm feldspar phenocrysts set in an aphanitic matrix. A similar dike, 1-2 metres wide, outcrops at 11,800E and 6,280N.

Numerous felsite dikes occur throughout the gossan zone. The frequency of felsite diking decreases somewhat near the northwestern and southeastern limits of the gossan. Dike widths vary from 2-50 metres, averaging about 10 metres. The dominant attitude of diking is 140° azimuth, dipping steeply to the northeast or southwest. Other attitudes observed are 080° azimuth, dipping steeply to the southeast and 105° azimuth, dipping steeply north or south.

Felsite dikes are generally light grey to white in colour and contain 30-40 percent irregular to blocky 1-3 mm feldspar phenocrysts set in an aphanitic matrix. Quartz phenocrysts are rare. Sericite patches in the matrix may represent altered mafics.

Barren or very weakly pyritized andesitic to dioritic feldspar porphyry dikes cut pyritized felsite dikes and Takla volcanic rocks at several locations. Larger dikes are of the dioritic variety and contain 40% blocky 2-3 mm feldspar phenocrysts and 20-25 percent 2 mm hornblende lathes set in a very fine grained to aphanitic groundmass of feldspar and mafics. Andesitic dikes are similar in composition, but finer grained in texture.

STRUCTURE

Within the map area, faults are the dominant structural feature. The two main fault components are a major east-southeast trending fault zone which cuts at an acute angle across the southeasterly trending gossan zone; and a zone of sub-parallel shears and faults coincident with the gossan.

The major east-southeast trending fault zone (hereby named the MES Fault) is well-exposed on the north and south walls of Cairn Creek cirque and on the southeast slope of Logjam Creek Valley. It is poorly exposed on the floor of Cairn Creek cirque. The fault zone is 10-30 metres wide and has an average attitude of 110° azimuth and dips steeply to the north and south. Although portions of the fault are altered and mineralized, there appears to be a considerable offset of the zone of diking and pyritization across the fault. Relative movement is left lateral, with the south block probably down-dropped. A related subsiduary set of numerous faults and shears has an average attitude of 106° azimuth, dipping 64° north.

The northwesterly set of sub-parallel faults and shears is the second main fault component in the area. Although none of the faults or shears individually are as strong as the MES Fault, they are more numerous than the MES Fault and its related subsiduaries. The largest fault in the northwest set is 5 to 6 metres wide. Average width is 1-2 metres. Average attitude is 134° azimuth, dipping steeply to the northeast.

A subordinate fault and shear direction is 054° dipping 65° north and includes a strong 10 metre wide fault zone at 11,850E and 6,500N which strikes 063° and dips 50° north.

All the above sets of faults and shears strongly controlled the direction of emplacement of dikes, evidenced by the fact that diking attitudes and their frequency correlate directly with attitudes of the above structural sets.

Within the zone of diking and faulting, most outcrops are moderately to strongly fractured. The best fracture development is in quartz porphyry exposures which exhibit a strong quartz-pyrite stockworks. Outward from the gossan zone, fracturing is generally weak.

No bedding attitudes were observed in the massive fine-grained to porphyritic andesitic lavas. The average attitude of narrow limestone and tuff beds is 034° azimuth, dipping 40° northeast.

ALTERATION

A. Thermal Metamorphism:

Strongest thermal effects are in Takla volcanic rocks immediately adjacent to the granodiorite stock. Within a few ten's of metres from the stock contact, andesite is recrystallized to a coarse grained hornblendite. There is no noticeable recrystallization of the Takla rocks within and adjacent to the dike swarm.

B. Skarn Development:

Within about 100 metres of the granodiorite stock contact, narrow limestone beds have been completely or partially replaced by epidote. About 200 metres west of the dike swarm at 12,150E and 5,950N, a 5 metre wide limestone band has been almost completely replaced by epidote, quartz and minor garnet.

C. Hyrdothermal Alteration:

(i) Structurally controlled features:

All faults and shears are moderately to strongly chloritized and frequently contain white barren quartz veins commonly about a metre in width. The largest vein, contained in the MES Fault on the north ridge of Cairn Creek cirque, is 2-4 metres wide and is exposed for about 30 metres strike length.

Clay (kaolinite?) alteration in shears was noted in the northwestern and southeastern portions of the gossan zone and also on the gossan's southwestern fringe. Strong

sericitic alteration within shears was noted at two locations in the central portion of the gossan.

(ii) Pervasive alteration:

Pervasive alteration of Takla wall rocks and intruding quartz porphyry and felsite dikes is common in the central portion of the gossan zone over a southeasterly distance of about 1,000 metres. In zones of heavy diking, Takla rocks exhibit moderate to strong bleaching (clay-chlorite-minor sericite alteration) up to about 40 metres from the contacts of larger dikes. In the felsite dikes, all feldspar phenocrysts are altered to clay, and sericite patches may represent altered mafics. The main quartz porphyry dike locally exhibits pervasive sericitization of both feldspar phenocrysts and the groundmass.

Pervasive silicification over widths of 3-4 metres is associated with strong pyrite mineralization (locally up to 20 percent) at two localities witin the MES Fault.

(iii) Quartz veining:

The barren white quartz veins associated with faulting and shearing have been described above. Scattered quartz-pyrite veinlets cutting Takla rocks occur at several localities near the margin of the gossan zone. At the gossan's northeast limit, near Cairn and Goat Creeks,

irregular veinlets of quartz-chlorite-carbonate and minor pyrite cut andesite.

Quartz veining in felsite is generally weak to absent, except at one locality (11,800E and 6,280N) where a 15 metre wide dike contains moderate to strong quartz stockworks development. The main quartz porphyry body contains moderate to strong quartz-minor pyrite stockworks at several localities. A small quartz porphyry dike near 11,800E and 6,280N contains a moderate quartz-minor pyrite stockworks.

MINERALIZATION

Pyrite is the most abundant and widespread sulphide. Within the gossan zone, pyrite is ubiquitous, and is most concentrated (in amounts up to 20 percent) in the sub-parallel shear zones at or near the contacts with the acid dikes and in the acid dikes themselves, where pyrite is present as disseminations and fracture fillings in amounts up to 10 percent. The andesitic to dioritic feldspar porphyry dikes are generally barren, or very weakly pyritic. Pyrite content in the intervening volcanic rocks within the gossan zone is commonly 1 to 3 percent. Beyond the limits of the gossan, minor pyrite occurs as fracture fillings and disseminations in amounts up to 1 percent locally.

At 12,210E and 6,590N, a 0.6 metre wide massive pyrite bed outcrops within a sequence of layered tuffaceous sediments. The massive

pyrite may have replaced a more calcareous bed within the sediments.

Near the granodiorite contact, minor pyrite is present as disseminations, in shears and on joint surfaces in hornfelsed volcanic rocks and as disseminations in epidote layers replacing limestone. The granodiorite stock contains no sulphides.

Prospecting located numerous occurrences of patchy malachite in the quartz porphyry dikes, in pyritized shear and fault zones, and in scattered quartz-pyrite veinlets which crosscut the volcanic rocks. Minor malachite also occurs in massive white quartz vein material at one locality within the MES Fault, at a few localities within bleached (clay-chlorite altered) volcanic rocks at the contact with felsite dikes, in felsite dikes, and in a shear with minor pyrite near the southwestern contact of the granodiorite stock. Traces of chalcopyrite were noted in quartz porphyry float at one locality near Cairn Creek at elevation 1,700 metres. Only one occurrence of molybdenum was located in a felsite dike. Pyrrhotite with chlorite in a fracture veinlet was noted in one outcrop.

Other minerals present include azurite, tenorite, limonite, ferrimolybdite (?) and pyrolusite.

B. K. Baer
Dec. 16, 1982

REFERENCES

G.E. Norman — Summary Report - Porphyry Creek Joint Venture, Getty Canadian Metals, Ltd., December, 1981.

J.M. Newell — Summary Report - Croydon Option, Rio Tinto Canadian Exploration Ltd., October, 1964.

E.F. Roots — Geology and Mineral Deposits of Aiken Lake Map-Area, British Columbia, G.S.C. Memoir 274, 1954.

C.S. Lord — McConnell Creek Map Area, Cassiar District, British Columbia, G.S.C. Memoir 231.

APPENDIX I

STATEMENT OF QUALIFICATION

APPENDIX I

STATEMENT OF QUALIFICATION

I, Brian K. Bowen, do hereby certify that:

1. I graduated from the University of British Columbia in 1970 as a Bachelor of Applied Science in Geological Engineering.

2. Since that time I have been employed as both a mine and exploration geologist in British Columbia and elsewhere.

3. I am presently employed by Getty Canadian Metals, Ltd, Vancouver, B.C.

4. I am a member in good standing of the Association of Professional Engineers of the Province of British Columbia.

5. The work described in this report was done under my direct supervision.

B. K. Bowen

B.K. Bowen, P.Eng

APPENDIX II

STATEMENT OF COSTS

APPENDIX II

STATEMENT OF COSTS

	$
MATERIALS AND SUPPLIES	200
MAPS AND BLUEPRINTS	
Miscellaneous mylars and blacklines	100
Pencil manuscript (Pacific Surveys Corp)	1,450
HELICOPTER	
Casual charter (includes traverse support, mob-demob & supply flight; also fuel)	3,200
FIXED WING	
Mob-demob and supply flights, Smithers to Johanson Lake airstrip.....	2,000
CAMP SUPPORT	
Expediting	300
Groceries	250
Fuel (kerosene, naptha)	50
Room and Board [1] (25 man-days @ $45/day)	1,125
Freight	200

SALARIES

Name	Period	Days	Rate	$	
B. Bowen	August 6-28	23	180	4,140	
	December 6-17 [2]	10	180	1,800	
D. Harris	August 6-11	6	165	990	
T. Kraft	August 16-28	13	70	910	
L. Connor	December 8-17 [3]	8	100	800	
				8,640	8,640

TRAVEL AND ACCOMMODATION	
Total	500
GRAND TOTAL !....$	18,015

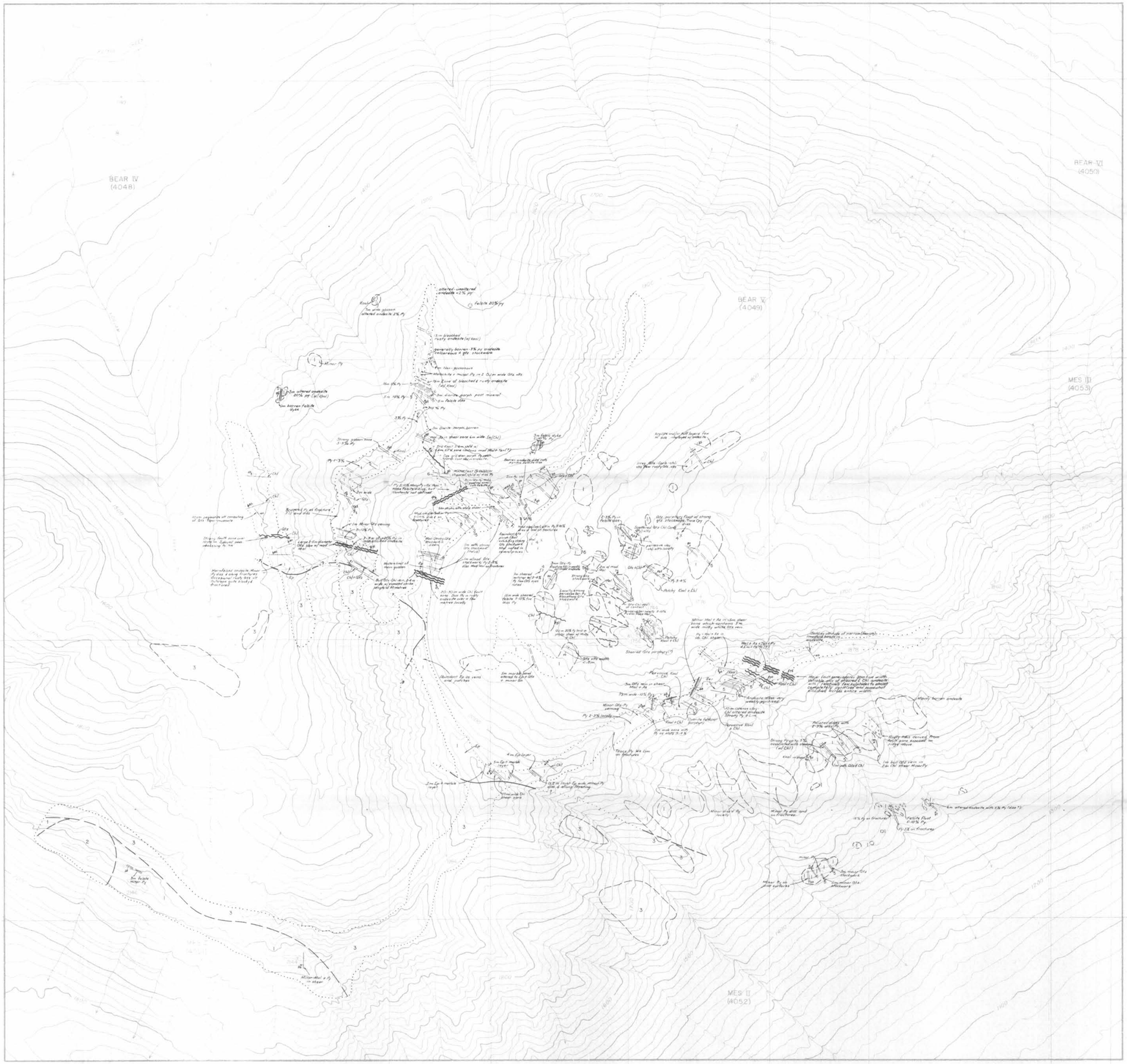
1 - Incurred at Getty base camp.

2 - Compilation and interpretation of field data, report writing.

3 - Draughting of maps.

B. K. Bowen

Dec. 16, 1982



LEGEND

LITHOLOGY

CRETACEOUS OR TERTIARY (?)

6 Quartz feldspar porphyry

5 Felsite

4 Quartz porphyry

CRETACEOUS

3 Granodiorite

JURASSIC (?)

2 Pyroxenite

TRIASSIC AND JURASSIC (TAKLA VOLCANICS)

1 Porphyritic andesite, fine grained andesite, bedded tuff. Minor limestone

ALTERATION AND MINERALIZATION

ALTERATION MINERALS

Qtz-quartz, Ser-sericite, Kaol-kaolinite, Chl-chlorite
Carb-carbonate, Ep-epidote, Gn-garnet

SULPHIDE MINERALS

Py-pyrite, Cpy-chalcopyrite, MoS2-molybdenite,
Po-pyrrhotite

OTHER MINERALS

Mal-malachite, Az-azurite, Ten-tenorite, Lim-limonite,
Fe Mo-ferrimolybdite, MnO2-pyrolusite

SYMBOLS-GEOLOGY

- Bedding (inclined, vertical)
- Joints, fractures (inclined, vertical) - number of lines shows relative intensity
- Shear zone (inclined, vertical) - number of lines shows relative intensity
- Fault zone (inclined, vertical) - number of lines shows relative intensity
- Geological contact (defined, approximate, doubtful)
- Limit of outcrop
- Limit of geological mapping in areas of continuous or nearly continuous outcrop (limit of outcrop not shown)
- Angular float, talus rubble
- Quartz vein (defined, approximate)

SYMBOLS-CLAIMS

- Legal Corner Post
- Corner Post
- Claim Boundary
- BEAR V (4049) Claim Name and Record Number
- 2000 Topographic Contour (20 metre interval)
- + 2050 Spot Elevation in Metres
- 6+000N Porphyry Creek J.V. Property Grid Co-ordinates with respect to Origin (10+000N, 10+000E) at the Confluence of Dove and Porphyry Creeks
- Stream
- (W.L. 1764) Lake with Water Level Elevation in Metres
- Swamp
- Fly Camp Location

N

100 50 0 100 200 300 400
SCALE IN METRES

GEOLOGICAL BRANCH
ASSESSMENT REPORT

10,924

B.K. Bowen
Dec. 16, 1982

PORPHYRY CREEK JOINT VENTURE

MES Cu-Mo PROSPECT

GEOLOGY

DRAWN BY: L. CONNOR	DATE: DEC. 1982
CHECKED BY: B.K. BOWEN	DRAWING No.: 4
N.T.S. 94C-5W	SCALE 1:5,000

Getty Canadian Metals, Ltd.