Original ✓

REPORT ON

MARK PROPERTY

PANGMAN PEAK 82N/15W

GOLDEN MINING DIVISION

LAT 51°47'N - LONG 116°58'W

for

DIA MET MINERALS LTD.

KELOWNA B.C.

by

K.E. Northcote and Associates Ltd.

Agassiz B.C.

Gower, Thompson & Associates

New Westminster B.C.

June 1983

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SUMMARY

The MARK claim group is located at Latitude 51°47'N, Longitude 116°58'W, NTS 82N/15W on the B.C.-Alta border approximately 50 kilometres north northwest of Golden in the Golden Mining Division. The property consists of 4 claims totalling 26 units.

The MARK claims are underlain by bedded carbonate sediments of Middle and Upper Cambrian to Ordovician age. The relatively small kimberlitic diatremes do not appear on regional scale maps. Their nature, composition, relationships to bedded sediments, structure and economic significance require detailed study.

The Mark pipe is one of a series of north-northwesterly trending belt of diatremes which crop out over a distance of 50 kilometres in the Rocky Mountains. Mantle materials incorporated in some of these pipes indicate that they are true kimberlites. Diamondiferous kimberlites contain abundant specific mantle derived indicator minerals which formed under similar physical conditions as diamonds. These indicator minerals include pyrope garnet, ilmenite, chromite and chrome diopside of a narrow range of compositions. These materials are diluted in the pipes by addition of extraneous material from the wall of the pipe all the way to the surface. Microdiamonds also occur in much smaller quantities than other indicator minerals but may also be detected in bulk samples.

Diamonds in ore grade materials occur in concentrations of only 0.25 carats per ton, or 1 part diamond to 20 million parts

waste rock, or 0.00000005 percent. There is a much greater probability of detecting indicator minerals than microdiamonds in bulk samples so indicator minerals are extremely significant for determining whether or not a kimberlite may be diamondiferous.

The exposed portion of the Mark kimberlite diatreme has not been mapped in detail so its composition, relationships to bedded sediments and structure are not well known.

Bulk sampling, however has proven the Mark kimberlite diatreme to be diamondiferous. A 30 kg (70lb) portion of 160 kg (350 lb) sample produced 1 ilmenite and 13 chromites of favourable composition consistent with diamondiferous kimberlite pipes. More significantly one 15,820 X 10^{-8} carat microdiamond fragment was recovered from this sample.

The less diluted main pipe below the kimberlitic breccia is the structure in which diamonds may occur in sufficient quantity to constitute ore. The shape, size and precise location of this pipe must be determined. The positive indication of diamondiferous kimberlite through recovery of indicator minerals and the microdiamond requires follow-up by detailed geologic mapping, geophysical studies and bulk sampling. Detailed geologic mapping and geophysical studies will assist in delineating the margins of the kimberlitic diatreme and give some indication of the location of the main pipe structure below the breccia. Additional bulk samples will measure concentration of indicator minerals and microdiamonds which in turn will idicate potential for diamonds in the main kimberlitic pipe.

The cost of the first stage of this project is estimated to be $85,000.00.

MARK CLAIM GROUP PROPOSED PROGRAM ESTIMATED COSTS

GEOLOGICAL MAPPING AND GEOPHYSICAL SURVEYS

1] Geologist and helper 30 days @ $400.00/day	$12,000.00
2] 40 bulk samples @ $600.00/sample	24,000.00
3] Mountaineer 7 days @ $150.00/day	1,050.00
4] Geophysical survey, allow	10,000.00

CAMP

Food and Lodging	4,500.00
Transportation	2,000.00
Helicopter support 20 hrs @ $550.00/hr including fuel	11,000.00

REPORT PREPARATION

Petrographic studies	2,500.00
SEM Analyses	1,000.00
Report	3,000.00
Assessment by diamondiferous kimberlite specialist	5,000.00
Contingencies	8,950.00
Total Stage 1	$85,000.00

REPORT ON

GEOLOGICAL AND HEAVY MEDIA GEOCHEMICAL SURVEYS MARK CLAIM GROUP

Golden Mining Division

NTS 82N/15W

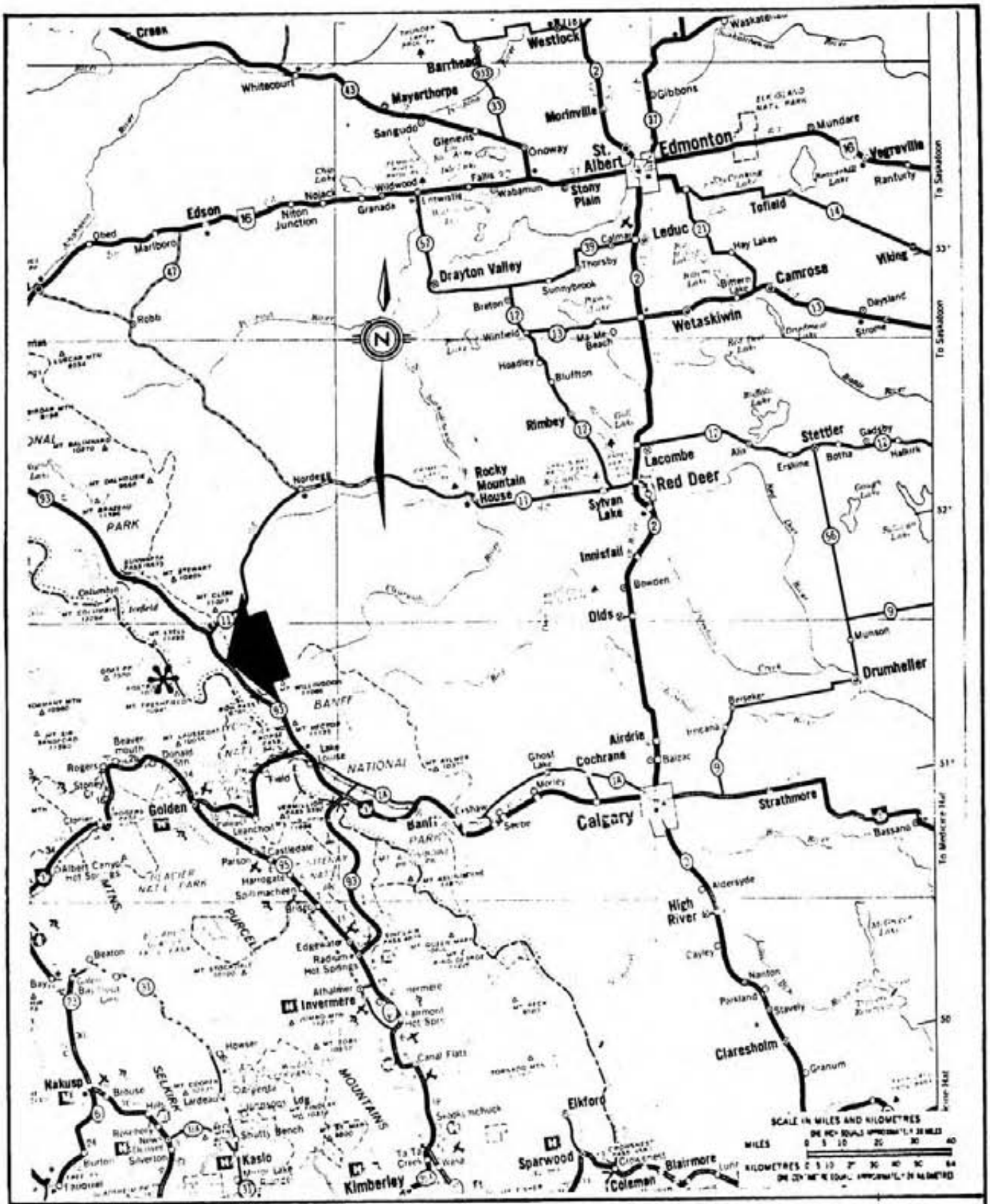
INTRODUCTION

TERMS OF REFERENCE

Gower, Thompson and Associates and K.E.Northcote and Associates Ltd. were contracted by Dia Met Minerals Ltd. to examine the MARK claims, review and substantiate available data, prepare a geological-geochemical report assessing these data and outline a program to access the potential of the MARK kimberlitic breccia pipe. This work was done in the period January 15 to April 30, 1983. Gower and Northcote, in company with C.Fipke flew over the Mark pipe by helicopter April 3, 1983. Snow conditions prevented landing and examination of the property but insight into the size and nature of the kimberlitic structure was gained. Logistical problems of access and conducting geological, bulk sampling, geophysical and geochemical surveys became apparent.

LOCATION, TOPOGRAPHY, ACCESS

The MARK claim, the principal claim of the group is located Latitude 51°47'N, Longitude 116°58'W, NTS 82N/15W, approximately 55 kilometres north of Golden in the Golden Mining District. This claim is located on the ridge leading northerly from Pangman Peak forming the B.C.-Alta border and is bounded by Banff National Park at the border. See Figures 1 and 2. The claim group extends for



DIA MET MINERALS LTD
INDEX MAP
MARK PROPERTY

82N/15W	51° 47′N 116° 58′W
GOWER, THOMPSON & ASSOCIATES Drawn J. F. B.	K.E. NORTHCOTE AND ASSOCIATES LTD April 30 1983

Figure 1

3 kilometres north-south and 2 kilometres east-west; extending westerly to Valenciennes River.

The topography is extremely rugged and hazardous with some perennial snow cover and exposed precipitous slopes and cliffs. Elevations on the property range from 1800 metres (6000 ft) at Valenciennes River to 2900 metres (9500 ft) between Pangman Peak and Bush Pass. See Figure 2.

The claims are accessible by helicopter from Golden. There is reported to be road access to within 15 kilometres of the property. Middle to late summer affords the best opportunity for mineral exploration. Freezing conditions can be expected even in the summer months in the higher parts of the claim

CLAIM STATUS

The Mark property is comprised of the MARK I and MARK II claims and the contiguous recently staked BILL I and SHEILA II claims totalling 26 units.

The claim posts have not been examined to confirm accordance with the Mineral Act. Legality of the claims is the responsibility of Dia Met Minerals Ltd.

TABLE I

MARK PROPERTY CLAIMS

NAME	UNITS	RECORD NO	RECORD DATE	EXPIRY DATE
MARK I	8	817 (9)	Sept 5, 1980	1984
MARK II	10	818 (9)	Sept 5, 1980	1984
BILL I	2	1122 (6)	June 20,1983	1984
SHEILA II	6	1121 (6)	June 20,1983	1984
Total	26 units			

BACKGROUND INFORMATION

Geological Environment of Diamond Deposits

Diamonds are found in extremely low concentrations as accessory minerals in kimberlite rocks and in fluvial and beach deposits. The Finsch Kimberlite in South Africa for example, which is one of the most profitable diamond mines in the Western World, has extremely low diamond concentrations of only the order of one part per billion by volume.

Diamonds, in order to form, require very special physical-chemical conditions found deep in the earth's outer mantle at depths exceeding 200 kilometers. Diamondiferous kimberlites may form in deep seated fracture systems where partial (H_2O, CO_2)

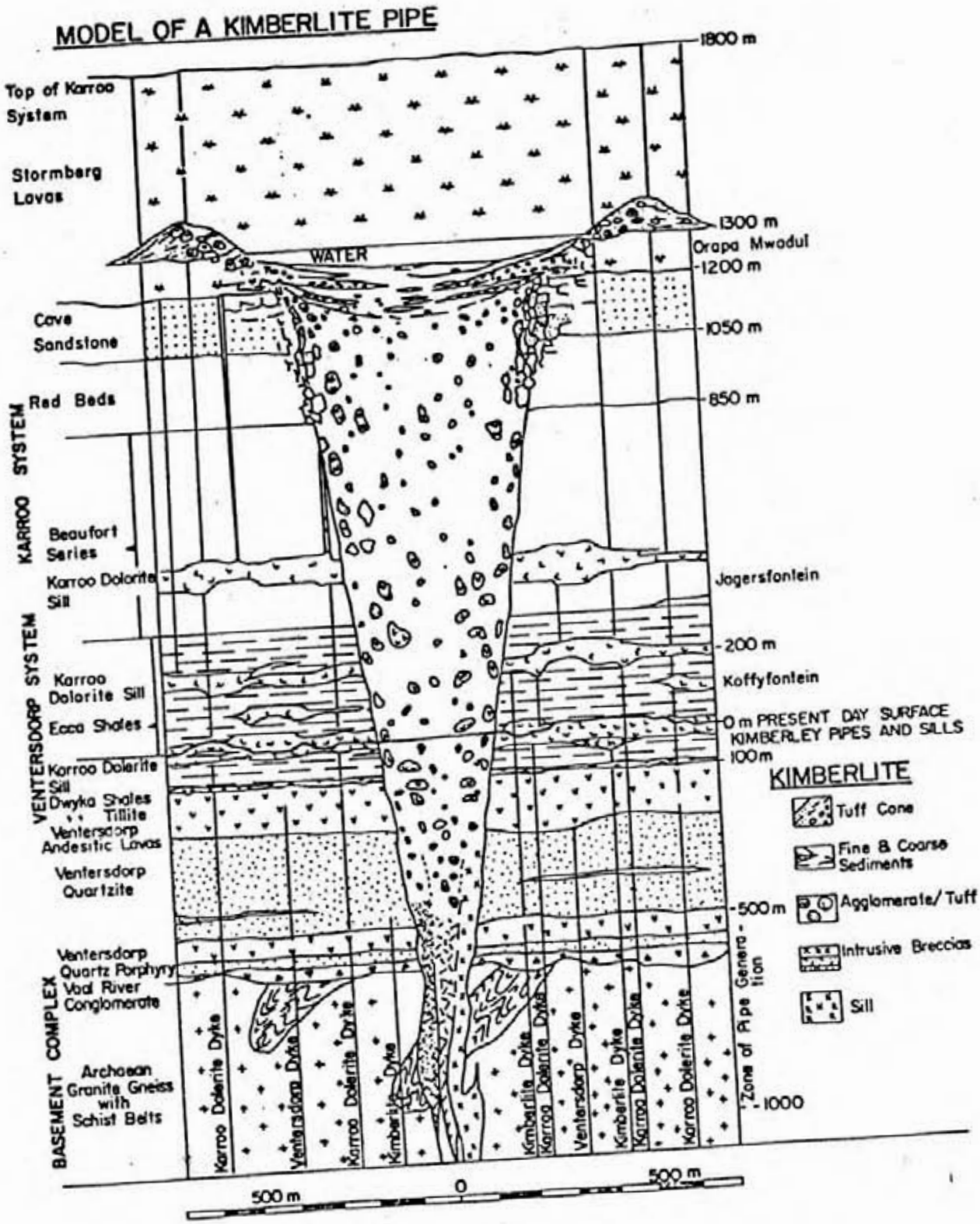

MODEL OF A KIMBERLITE PIPE
1800 m
Top of Karroo System
Stormberg Lavas
1300 m
Orapa Mwadui
WATER
-1200 m
Cave Sandstone
-1050 m
Red Beds
-850 m
KARROO SYSTEM
Beaufort Series
Karroo Dolorite Sill
Jagersfontein
-200 m
Karroo Dolorite Sill
Koffyfontein
Ecca Shales
0 m PRESENT DAY SURFACE KIMBERLEY PIPES AND SILLS
-100m
VENTERSDORP SYSTEM
Karroo Dolorite Sill
Dwyka Shales + Tillite
Ventersdorp Andesitic Lavas
Ventersdorp Quartzite
-500 m
Ventersdorp Quartz Porphyry
Vaal River Conglomerate
BASEMENT COMPLEX
Archaean Granite Gneiss with Schist Belts
Karroo Dolerite Dyke
Ventersdorp Dyke
Karroo Dolerite Dyke
Kimberlite Dyke
Kimberlite Dyke
Karroo Dolerite Dyke
Ventersdorp Dyke
Kimberlite Dyke
Karroo Dolerite Dyke
Karroo Dolerite Dyke
Zone of Pipe Generation
-1000
500 m
0
500 m
KIMBERLITE
Tuff Cone
Fine & Coarse Sediments
Agglomerate/ Tuff
Intrusive Breccias
Sill

Figure 3

volatile pressures provide an explosive mechanism to quickly transport the diamonds to the earth's surface. If the partial pressure of the volatiles exceeds the confining pressure the partial melt moves towards the surface in a series of explosive bursts. Rapid passage results in minimum corrosion and reaction while the diamonds pass through zones where chemical-physical conditions make them unstable. Diamondiferous mantle material is carried upward and mixed with increasing amounts and varieties of wall rock torn off the sides of the ever widening fracture or vent system by increasing explosive intensity upwards. As gaseous streaming diminishes there is commonly surface collapse of the cauldera and mixing of surficial materials with that brought up from depth. If the vent area or cauldera is underwater there may be sedimentary infilling showing some degree of stratification. The end result then, is a pipe similar to Figure 3, a model devised by J.B.Hawthorne of DeBeers.

Diatremes or breccia pipes are fairly common throughout much of geologic time. Most, however, have shallow origins and many have porphyry copper-molybdenum-gold-silver-tin-tungsten mineralization, corresponding characteristic suites of associated rocks, and hydrothermal minerals indicative of a shallow origin. Systems of deeper origin may be nickel-rich and have corresponding Fe Mg rich suites of associated rocks. Kimberlite diatremes of extremely deep origin, although showing a great diversity of fragments incorporated on the way to the surface, have characteristic mineral assemblages and compositions indicative of their deep origin. Similarly diamondiferous pipes have a narrower range of specific assemblages of indicator minerals of a particular composition range which originate under conditions which are also favourable for formation of diamonds.

There is not complete agreement among petrologists specializing in kimberlites regarding what constitutes kimberlites and diamondiferous kimberlites. In general, however, kimberlite is characterized by inequigranular texture (porphyry/breccia) and mineral components dominated by olivine. There may be large fragments and smaller groundmass grains of olivine and phlogopite. The effects of carbonation and serpentinization are characteristic and there may be large patches of carbonation and serpentinization in the groundmass. Macrocrystal pyrope-rich garnet and picroilmenite grains are often abundant On a finer scale the textures and chemistry of groundmass spinels and ilmenites also characterize kimberlite. Reaction relationships between early crystals and kimberlite melt are prominent. In diamondiferous kimberlites these indicator minerals have characteristic compositions and are far more abundant than microdiamonds and macrodiamonds and their presence is of extreme significance in exploring for diamonds.

Kimberlites are undersaturated rocks with a silica content near or below 33 Wt%. Alumina and titanium contents are high for ultramafic rock whereas total iron is about average. Compared to other ultramafic suites, kimberlites have a high alkali content, are volatile-rich; H_2O often greater than 7,5 wt% and CO_2 is high, 3 wt% and variable. The large P_2O_5 content 0.5 to 1.0 wt% is similar to granite.

In addition to primary upper mantle materials, such as eclogites (garnet, clinopyroxene, orthopyroxene and olivine) which originated where diamonds formed, large quantities and wide ranging varieties of extraneous material torn from the sides of the ever widening pipe are incorporated into the kimberlite during its upward passage. The composition of this extraneous material is dependent upon the rock succession traversed by the pipe and may be quite different from one locality to another.

EXPLORATION FOR DIAMONDIFEROUS KIMBERLITE DIATREMES

Aids in locating kimberlites pipes in areas devoid of vegetation include Landsat imagery, aerial photographs or aerial reconnaissance. Testing of stream sediment bulk samples for indicator minerals may assist in locating pipes in covered areas. In certain cases, dependent upon differences in lithologies, certain sensitive geophysical methods may be utilized.

However, once a kimberlite pipe is discovered determination of whether or not it is diamondiferous and economic becomes both arduous and costly. The concentration of diamond in a rich kimberlite ore (e.g. at the Premier pipe in South Africa) is approximately one carat per ton (0.2 gm/ton) or one part diamond per 4.5 million parts of waste rock which constitutes a grade of approximately 0.00000022 percent. Average kimberlite ore runs about 0.25 carat per ton or approximately one part diamond per 20 million parts waste rock (0.00000005 percent) (McCallum and Mabarak, 1976)

Although it is not unknown, the probability is extremely low that a macrodiamond will be found during reconnaisssance exploration. Microdiamonds which are minute crystals or fragments occur in greater abundance, provide a greater but still low probability for detection. Therefore exploration and evaluation of diamond potential of kimberlite pipes is carried out by exploration for and analysis of indicator minerals. These indicator minerals include pyrope garnet, chrome diopsides, picroilmentites and chromite. The presence of certain elements and element ratios in the indicator minerals are indicative of diamondiferous potential of pipes.

Other considerations include size of a kimberlitic pipe. There appears to be some empirical relationship between size and production

capability. The larger a diamondiferous pipe is the greater the potential for production is considered to be because the larger pipes appear to have higher concentrations of diamonds. Appendix B is two pages from Diamonds, by Eric Bruton, which graphically shows size relationships among kimberlite pipes

Pipe fields which have intruded thin crustal areas are thought to have less production probability than those penetrating thicker crustal areas.

There are a large number of kimberlite pipes known in North America and many of these are diamondiferous. of these, other than the Jack, three are regarded as having economic significance. These are the Prairie Creek pipe in Arkansas (located in a park), the Batty pipe on Somerset Island N.W.T. (De Beers), and the Sloan pipe in the Rocky Mountains of Colorado (Superior Oil). These were discovered where there had been no previous reports of diamonds being found.

EXPLORATION FOR DIAMONDS IN BRITISH COLUMBIA

One of the earliest reports of discovery of diamonds in British Columbia is recorded by C. Camsell, 1914. He reported a diamond identified in ultrabasic rocks of the Tulameen District* Since that time much has been learned and reported regarding the origin and occurrence of diamonds.

Exploration for diamonds in B.C. was stimulated by renewed interest in diamondiferous terrains and discovery of new diamondiferous kimberlitic breccia pipes elsewhere in North America, particularly with the Mountain diatreme Northwest Territories and the Sloan pipe in Colorado. Cominco began actively exploring for

* The diamond reported here was subsequently identified as spinel by S.E.M. analysis, by Arvid Lacis, U.B.C. (Fipke, personal communication).

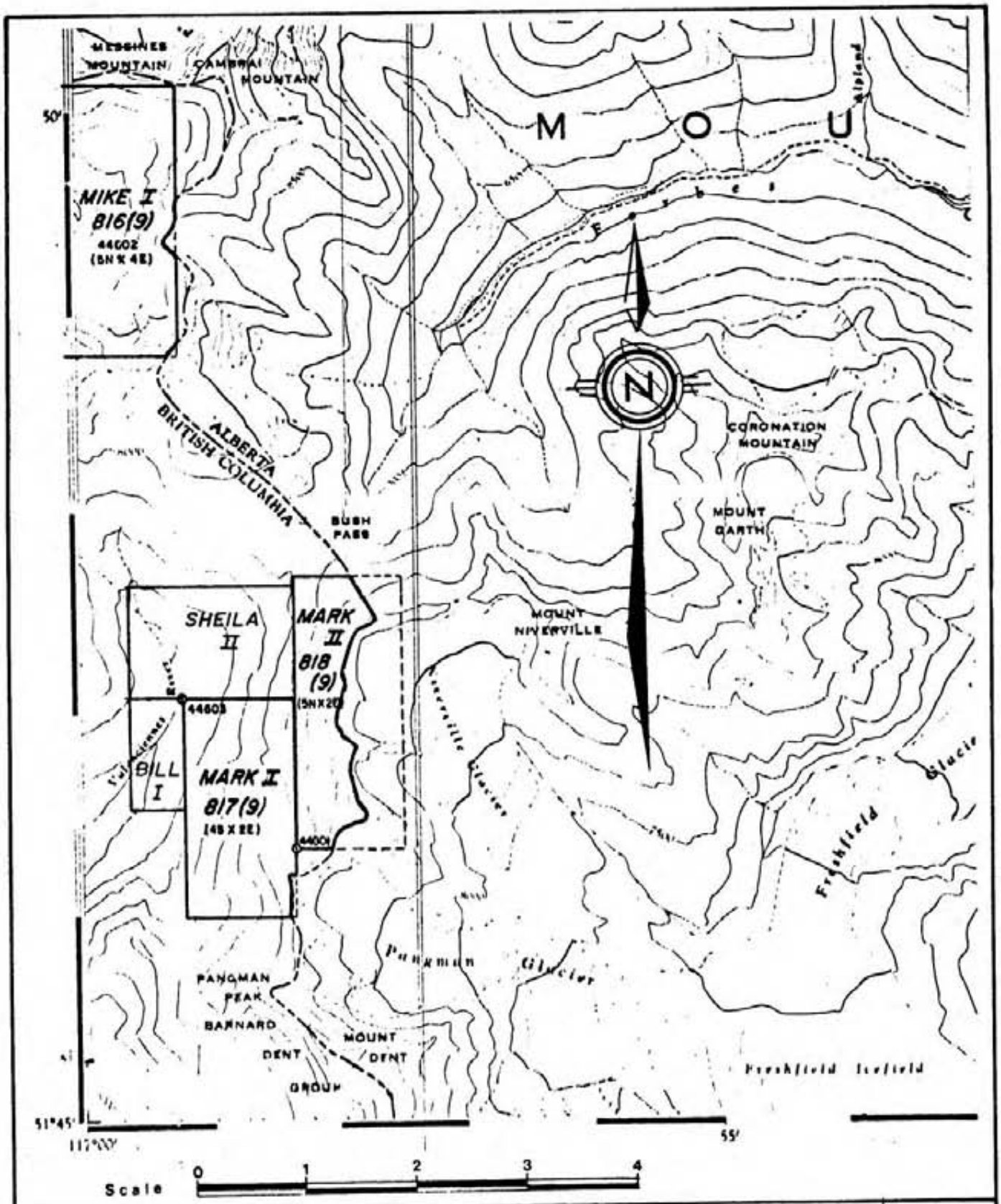
diamondiferous pipes in the B.C. - Alta Cordillera about 1976. Concurrently or subsequently other companies including Falconbridge, Superior Oil, Serem Dupont, Anaconda, Exxon, Amax and peripherally De Beers became active in exploration for diamonds in the cordillera. Junior companies including Petragem amd C.F.Minerals Research Ltd. also began active exploration for diamonds in B.C. at about this time.

During the past several years C.F.Minerals Research Ltd. has been actively conducting geological reconnaissance, heavy media stream sediment and rock geochemical surveys in the Rocky Mountains. This has lead to discovery of a number of kimberlite pipes including the Jack and Mark. The JACK and MARK claims were staked in 1980 and rock sampling and processing procedures outlined below proved the Jack and Mark kimberlite pipes to be diamondiferous. Dia Met Minerals Ltd. was formed as a vehicle to fund exploration to test economic viability of these pipes.

GEOLOGY

The regional geology of the area around the Mark property is shown on a compilation map prepared by R.A.Price from published and unpublished maps by a number of G.S.C. authors. Price, 1970. This map indicates that the Jack and Mark properties are underlain by similar bedded carbonate formations of Middle and Upper Cambrian to Ordovician age. In the Rogers Pass Map-Area, Wheeler describes these units as consisting mainly of limestones, limy slate intra-formational limestone breccia, and dolomite. The relatively small kimberlitic diatremes, however, do not appear on regional scale maps.

The geology of the Mark kimberlite diatreme and surrounding country rock requires detailed geologic mapping and bulk sampling

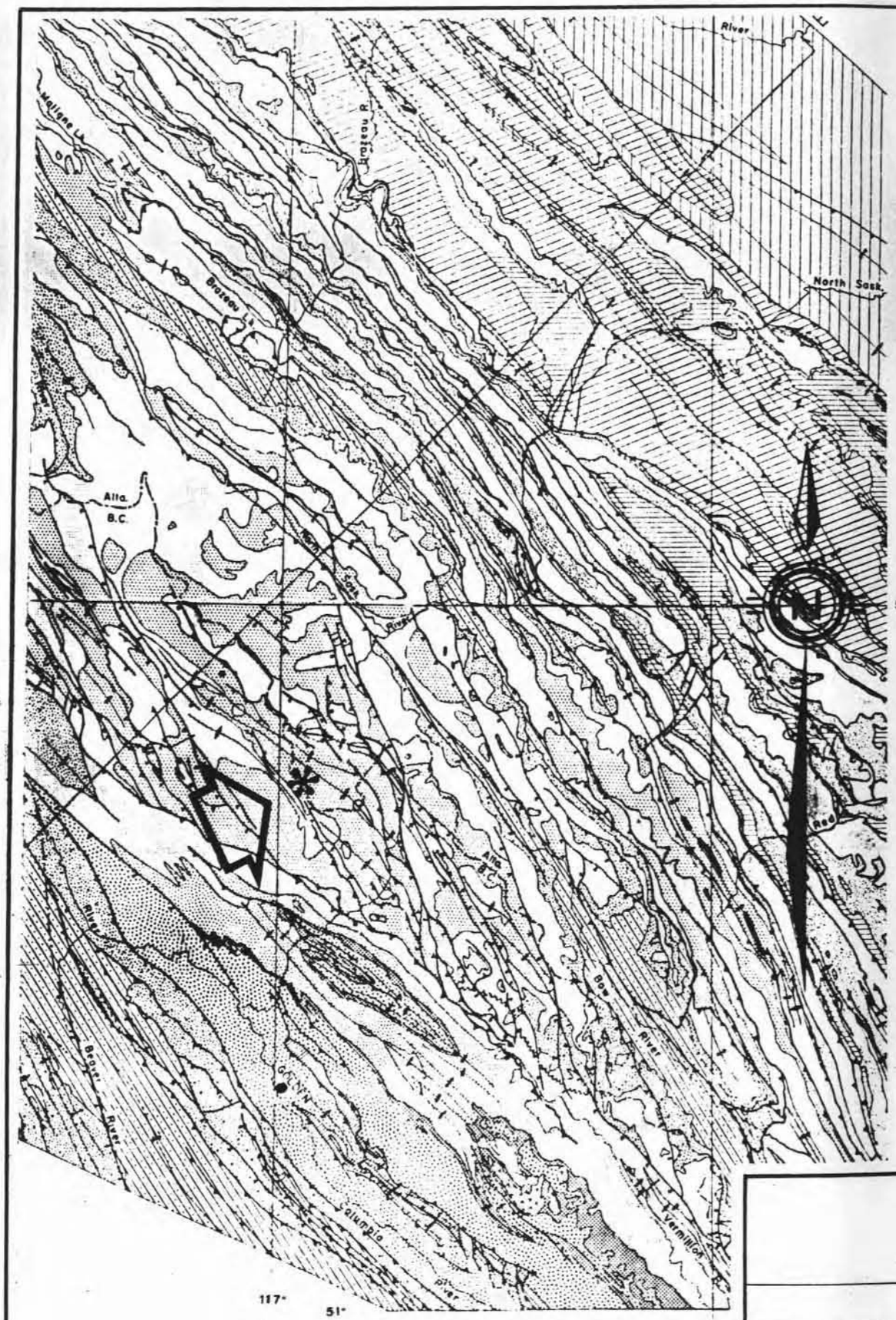


DIA MET MINERALS LTD
CLAIM MAP
MARK PROPERTY

82 N/15W	51° 47'N 116° 58'W
GOWER, THOMPSON & ASSOCIATES Drawn J. F. B.	K. E. NORTHCOTE AND ASSOCIATES LTD April 30 1983

Revised E. C.D.T. June 10, 198[illegible]

Figure 2



after Price R.A.; Mountjoy E.W.; Balkwill H.R.; Cook D.G.; et al.

LEGEND

PALEOCENE
Paskapoo and Porcupine Hills Formations

UPPER CRETACEOUS
Edmonton, Brazeau, and Belly River Formations and Alberta Group

UPPER JURASSIC and LOWER CRETACEOUS
Blairmore Group, Kootenay and Nikanassin Formations

TRIASSIC and JURASSIC
Spray River and Fernie Groups

DEVONIAN, MISSISSIPPIAN, PENNSYLVANIAN, and PERMIAN
Fairholme Group, Alexo, Palliser, Exshaw and Banff Formations, Rundle and Rocky Mountain Groups (includes Cadomin and Harrogate Formations in Western Rockies)

Shale Facies

ORDOVICIAN and SILURIAN
Beaverfoot and Mount Wilson Formations

UPPER CAMBRIAN and LOWER ORDOVICIAN
Mcka, Group and Canyon Creek Formation

UPPER CAMBRIAN
Ottertail Formation

UPPER CAMBRIAN
Chancellor Group (upper part)

MIDDLE CAMBRIAN
Chancellor Group (middle and lower parts)
(includes Lower Cambrian Badshot Formation and part of Lardeau Group)

Carbonate Facies

UPPER CAMBRIAN and ORDOVICIAN
Lynx Group, Survey Peak, Outram, Skoki, and Owen Creek Formations and equivalent rocks

MIDDLE CAMBRIAN
Mount Whyte, Cathedral, Stephen, Eldon, Pika, and Arctomys Formations and equivalent rocks

LOWER CAMBRIAN
Gog and Hamill Groups

WINDERMERE
Horsethief Creek, Mietle, and Kaza Groups

Adamant batholith
granitic rocks

'Shuswap metamorphic complex'
gneiss, schist, amphibolite and gneissic granite

Ice River complex
alkalic rocks

Scale

10 0 20 40

Kilometres

Geological contact
Approximate facies boundary
Fault
Thrust fault (teeth on upthrust side)
Gravity fault (ball on downthrown side)
Anticline
Syncline
Metamorphic isograds

DIA MET MINERALS LTD
GEOLOGY MAP
MARK PROPERTY

82 N/15 W	51 47′N ; 116 58′W
GOWER ; THOMPSON & ASSOCIATES Drawn J.F.B.	K.E.NORTHCOTE AND ASSOCIATES LTD April 30 1983

Figure 4

to determine nature and composition of the diatreme, its relationship to surrounding country rock, structure and economic significance.

The Mark kimberlite diatreme is one of a series in a north northwesterly trending belt of diatremes which crop out over a distance of 40 to 50 kilometres in the Rocky Mountains. Some of the pipes contain lithic mantle fragments, nodular chromite, magnetite and rounded serpentine autoliths and mineral grains and fragments of mantle origin. These traits classify the pipes as true kimberlites.

The Mark kimberlitic diatreme measures approximately 725 metres (2400 ft) by 274 metres (900 ft) and is estimated to cover approximately 10 hectares (25 acres). The northeast, southeast, southwest and west contacts are covered by glaciers or talus. About 2/3 of this pipe breccia is situated in Banff Park on the Alberta side of the border. (C.Fipke personal communication)

Mark Specimen

A specimen from Mark diatreme, examined by Northcote, is a weak shear foliated, high fragment to matrix ratio, carbonate-sericite-rich breccia. Fragments in hand specimen range from less than 1mm to several centimetres.

In thin section some fragments or crystal remnants show strong semi-opaque dusted margins in a very fine granular (< 0.01 mm) carbonate-sericite-rich matrix. The fragments are composed of fine granular (<.01 mm) carbonate, coarser recrystallized (?) carbonate (to 0.05 mm), broken quartz grains (<.05 to > 0.5 mm) some with serrate margins, and fragments of mixtures of fine grained carbonate and quartz (chert) and/or sericite. There are elongate sericitized

crystal remnants or shredded sericite (to 0.3 mm).

Superimposed on this breccia texture are irregular wispy generally discontinuous segregations or impregnations of fine granular (<.01 to .05 mm) quartz (chert) mixed with sericite and carbonate. Some sericitic partings are fairly continuous. These segregations follow weak shear foliation.

It should be noted that because of extreme dilution in kimberlitic diatremes and the small sampling area available in thin sections it would be most fortuitous and almost unbelievable to observe microdiamonds in random thin sections. Table II lists indicator minerals obtained from processing approximately 160 kg. (350 lbs) of rock from the Mark diatreme which also yielded one microdiamond.

The structural controls for emplacement of the Mark kimberliic diatreme is presently not known. Fipke notes that a number (+20) of kimberlitic diatremes elsewhere in the southern B.C.-Alta Cordillera have some spatial relationship to northeast and north-northwest trending major fracture zones. The possible relationships between kimberlitic diatremes and these structures suggests that the great thickened mass of Rocky Mountain stratigraphy thrust on the cratonic basement during Late Jurassic to Teriary time caused basement subsidence and breakage on preexisting northeast and north-northwest basement structures. The breaks may have allowed kimberlite mantle derived magma, in several instances, to explosively penetrate the crust thickened by approximately 10 km (6 miles) of overthrust sediments.(Fipke, personal communication)

Recent seismic data reported by Price, 1980, indicate that the crustal thickness north and east of Golden is the thickest in B.C., 50 to 55 km to the Mohorovicic discontinuity, and compares well with the Sloan area, Colorado. Because formation of diamonds requires a pressure of approximately 200 km depth the Sloan diamonds must have formed in the plastic mantle below 200 km depth even though the crust in the vicinity is 50 km thick. A similar situation is envisaged for the Mark diatreme.

EXPLORATION FOR DIAMONDS, MARK CLAIM

In order to determine the potential for presence of diamonds in the Mark pipe, one bulk sample of kimberlitic rock, weighing approximately 30 kg was collected from an outcrop. Dr. Paul Lurie, Falconbridge Metallurgical Laboratories, Thornhill, Ontario, subjected this sample to a series of treatments in order to separate indicator minerals (pyrope-garnet, ilmenite, chrome diopside, chromite) and microdiamonds.

The indicator minerals are separated by a combination of crushing, milling, heavy liquids and a variety of magnetic separations. These minerals are identified microscopically and compositions determined by microprobe. Separation and detection of microdiamonds requires a similar procedure coupled with acid digestion and fusion. The minerals surviving fusion are zircon and moissanite, which may be etched, and microdiamonds which are relatively unaffected. Microdiamonds are detected by optical properties and may be confirmed by scanning electron microscope.

Treatment of a 30 kg (70lb) portion of a total of 160 kg (350 lbs) of kimberlitic rock from outcrop produced the indicator minerals listed in Table II of favourabe composition for diamondiferous kimberlite. See Appendix A.

TABLE II

INDICATOR MINERALS WITH COMPOSITIONS CONSISTENT WITH GENETIC RELATIONSHIP TO DIAMONDIFEROUS KIMBERLITE PIPES

SAMPLE NO.	Garnet (Pyrope)	Ilmenite	Chromite*
Big Mark 1 **		1	13

* Chromite of this composition also found in alpine ultramafics
** Produced the microdiamond Figure 5 and 6.

Microdiamonds

A single clear white microdiamond fragment weighing 15, 820 X 10^{-8} carats was found in 160 kg (350 lbs) of rock tested. See Figures 5 and 6. The 30 kg (70 lbs) portion that contained the microdiamond fragment contained diamondiferous kimberlite ilmenite and chromite indicator minerals. The microdiamond fragment came from the kimberlite pipe within the MARK claims on the B.C. side of the border. Discovery and authenticity of the Mark microdiamond are well documented by specialists in diamond exploration, the mineralogy and petrology of diamondiferous kimberlitic pipes. Notable among these investigators are Dr. Paul Lurie, S.W.Marsh of Falconbridge and Hugo Dummett of Superior Oil. Documentation of the Mark microdiamond by scanning electron microscope (SEM) and micrographs is found in company reports by Superior Oil and Falconbridge Nickel

Mines Limited. Although there is always some possibility of the Mark microdiamond being a laboratory contaminant this possibility is remote; nor is there reason to believe the microdiamond originated other than from the sample from which it is said to have been recovered.

As a further check on authenticity the Mark microdiamond was analyzed by SEM and micrographed by Arvid Lacis of Bacon and Donaldson and Associates Ltd. Vancouver, B.C. in the presence of Northcote. The resulting SEM micrographs, Figure 6 can be compared to SEM micrographs by Superior Oil, Figure 5. SEM chart, Appendix C shows no elements greater than atomic number 12. Optical properties, atomic number less than 12 indicate diamond, and micrographs indicate it is the same microdiamond described by Superior Oil-Falconbridge.

CONCLUSIONS

The exposed portion of the Mark kimberlite diatreme is believed to be the upper portion of a kimberlitic diatreme breccia overlying a less diluted kimberlitic pipe.

Bulk sampling has proven the Mark kimberlitic diatreme to be diamondiferous. Treatment of about 30 kg (70 lbs) portion of a total of 160 kg (350 lbs) of bulk sample produced, ilmenite and 13 chromites of composition consistent with diamondiferous kimberlite. More significantly this same 30 kg (70 lbs) portion produced a clear microdiamond of $15{,}820 \times 10^{-8}$ carats.

It is noted that approximately 2/3 of this kimberlitic diatreme is located in Banff Park on the Alberta side of the B.C.-Alta border

so that portion is not available for exploration or development.

The kimberlite diatreme is located where there is thickening of the earth's crust which is considered to be a condition favourable for diamond exploration.

The less diluted pipe below the collapse breccia is the structure in which diamonds may occur in sufficient quantity to constitute ore. The shape, size and precise location of this pipe must be determined.

The extremely high dilution of mantle material in diamondiferous kimberlitic breccia pipes and the nature of diamonds and indicator minerals limits exploration techniques for their detection to processing bulk samples on surface or in core drill holes. Some geophysical techniques may help define diatreme margins under talus.

Although the Mark kimberlite is diamondiferous there is presently insufficient geological information regarding nature of the kimberlitic breccia, its structural controls, and position of the underlying pipe relative to the B.C.-Alta border. Core drilling at this stage would be premature.

RECOMMENDATIONS

A detailed geologic mapping program, say scale 1 to 1000, is required to determine the nature of the kimberlitic breccia, its structural controls, relationship to country rock and in determining position of the main kimberlitic pipe with respect to the B.C.-Alta border.

Provision should be made for geophysical orientation surveys to assist in locating pipe or breccia boundaries under talus or glaciers.

Bulk samples of approximately 30 kg each should be taken, if logistically possible, on a fairly regular grid crossing the pipe in two or three lines. These samples should be processed for indicator minerals and microdiamonds. Lithologies should be carefully noted and a representative fragment retained for detailed petrographic studies.

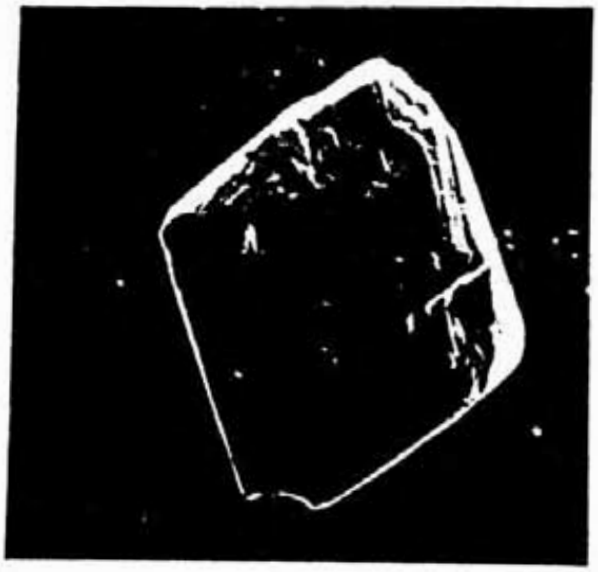
Upon completion of this stage of the project these data should be reviewed by an independent specialist in evaluation of diamond-iferous kimberlite pipes.

If the first stage indicates the main kimberlitic pipe is located on the MARK claims and gives positive indication of economic diamond concentration then a second core drilling stage should be considered.

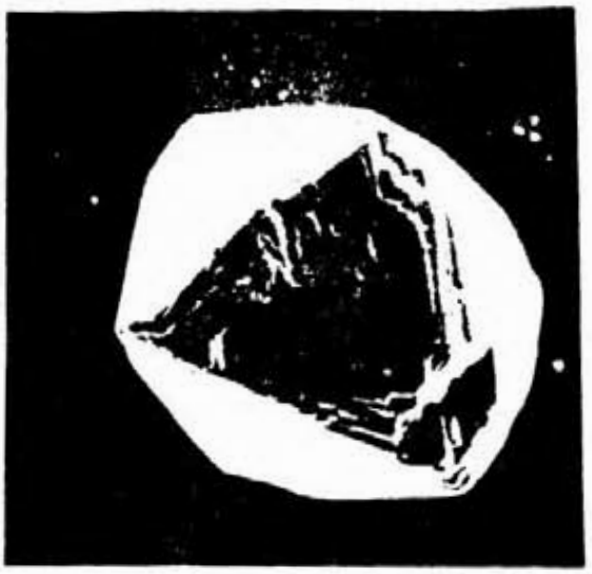
APPENDIX A

MICROPROBE ANALYSES OF MARK (BM) MICRODIAMOND

ID	NUM	OR	GRN	MIN	SIO2	TIO2	AL203	CR203	FEO	MNO	MGO	CAO	NA20	K20	TOTAL
BM	1	R	1	GT	40.51	0.00	14.43	0.03	11.50	0.12	7.58	23.22	.	.	97.39
BM	1	R	2	IL	.	48.48	0.85	4.32	31.65	0.19	13.46	.	.	.	98.95
BM	1	R	4	CR	.	0.78	16.93	49.53	18.84	0.31	14.74	.	.	.	101.13
BM	1	R	5	CR	.	0.84	18.97	47.43	16.49	0.26	16.59	.	.	.	100.58
BM	1	R	6	CR	.	0.83	16.94	49.99	16.32	0.31	16.06	.	.	.	100.45
BM	1	R	7	CR	.	0.83	17.57	49.28	16.91	0.31	15.24	.	.	.	100.14
BM	1	R	8	CR	.	0.88	20.92	45.58	16.20	0.27	16.35	.	.	.	100.20
BM	1	R	9	CR	.	0.76	20.94	46.04	16.19	0.28	16.47	.	.	.	100.68
BM	1	R	10	CR	.	0.76	17.53	50.13	16.34	0.26	15.79	.	.	.	100.81
BM	1	R	11	CR	.	0.74	20.75	45.95	16.05	0.26	16.28	.	.	.	100.03
BM	1	R	12	CR	.	0.74	22.18	44.68	15.76	0.25	16.56	.	.	.	100.17
BM	1	R	13	CR	.	0.76	20.60	46.49	16.06	0.24	16.35	.	.	.	100.50
BM	1	R	14	CR	.	0.70	19.84	47.89	15.82	0.24	15.56	.	.	.	100.05
BM	1	R	15	CR	.	0.76	21.12	46.32	15.81	0.26	15.90	.	.	.	100.17
BM	1	R	16	CR	.	0.75	20.83	46.26	15.71	0.28	16.31	.	.	.	100.14
C	74		1	CD	52.84	0.24	2.61	1.45	2.56	0.09	17.95	21.31	0.44	0.00	99.49
C	88		1	CR	0.00	0.80	30.01	34.66	15.49	0.43	18.31	0.00	0.00	0.00	99.70
C	97		1	CR	0.00	1.15	18.78	45.09	17.71	0.53	16.44	0.00	0.00	0.00	99.70
C	98		1	CR	0.00	0.51	15.83	52.87	13.55	0.72	17.28	0.00	0.00	0.00	100.76
C	98		2	CR	0.00	0.79	16.61	50.52	14.86	0.81	16.20	0.00	0.00	0.00	99.79
C	98		3	CR	0.00	1.01	19.88	43.99	15.55	0.00	17.38	0.00	0.00	0.00	97.81
C	98		4	CR	0.00	0.83	16.87	48.90	16.28	0.76	16.34	0.00	0.00	0.00	99.98
C	101		1	IL	0.00	51.99	0.00	0.02	45.80	0.91	0.22	0.00	0.00	0.00	98.94
C	113		1	CR	0.05	0.63	19.29	46.75	14.95	0.00	16.04	0.00	0.00	0.00	97.71
C	113		2	CR	0.00	0.66	18.79	47.20	18.63	0.00	14.30	0.00	0.00	0.00	99.58
C	113		3	CR	0.03	0.69	19.28	46.20	15.59	0.00	16.49	0.00	0.00	0.00	98.28
C	113		4	CR	0.27	0.57	17.65	46.84	17.15	0.00	14.86	0.00	0.00	0.00	97.34
C	113		5	CR	0.00	0.66	18.38	47.43	15.59	0.76	17.03	0.00	0.00	0.00	99.85
C	127		1	CD	52.59	0.27	2.92	1.40	2.01	0.06	17.23	23.18	0.40	0.00	100.06
C	127		2	CD	52.54	0.30	2.85	1.57	2.19	0.03	17.28	22.54	0.48	0.00	99.78
C	127		3	CD	53.00	0.50	2.43	1.16	2.12	0.06	17.82	22.98	0.52	0.00	100.59
C	127		4	CD	52.67	0.30	2.91	1.34	2.02	0.07	17.51	23.09	0.41	0.02	100.34
C	127		5	CD	52.34	0.31	2.98	1.31	2.09	0.05	17.29	22.88	0.30	0.00	99.55
C	127		6	CD	52.93	0.36	2.71	1.16	2.29	0.04	17.44	22.73	0.42	0.00	100.08
C	127		7	CD	52.80	0.32	2.67	1.22	2.23	0.11	17.37	22.66	0.46	0.16	100.00
C	127		8	CD	52.83	0.24	2.95	1.52	2.21	0.08	17.91	22.23	0.49	0.00	100.46
C	127		10	CD	51.97	0.28	2.93	1.21	2.09	0.06	17.26	22.71	0.42	0.00	98.93
C	127		11	CD	52.41	0.28	3.18	1.64	2.24	0.06	17.47	22.13	0.55	0.00	99.96
C	127		12	CD	53.15	0.24	2.14	1.59	2.14	0.06	18.17	22.13	0.44	0.00	100.06
C	127		13	CR	0.00	0.68	17.23	48.30	14.80	0.57	17.53	0.00	0.00	0.00	99.11
C	129		1	CR	0.00	0.72	16.79	43.91	23.92	0.65	13.04	0.00	0.00	0.00	99.03
C	129		2	CR	0.00	0.22	23.59	43.15	17.63	0.55	15.25	0.00	0.00	0.00	100.39
C	129		3	CD	55.29	0.04	1.47	2.31	2.35	0.08	17.29	19.40	2.10	0.00	100.33
C	129		4	CD	55.24	0.00	1.32	1.95	2.15	0.00	16.89	20.54	1.54	0.00	99.63
C	129		6	CD	55.41	0.00	0.56	1.98	2.11	0.08	17.35	21.88	1.05	0.00	100.42
C	129		7	CD	55.42	0.00	1.80	2.18	2.63	0.08	16.60	19.67	1.69	0.00	100.07
C	170		1	CR	0.00	0.82	23.66	42.22	13.99	0.47	18.68	0.00	0.00	0.00	99.84
E	3		1	CR	0.47	2.41	14.84	43.37	25.04	0.52	11.86	0.12	0.00	0.00	98.63
E	21		1	GT	41.58	0.11	21.53	3.49	8.10	0.52	18.68	5.65	0.00	0.00	99.66
E	21		2	CR	0.54	0.06	34.91	30.90	18.97	0.20	14.33	0.04	0.00	0.05	100.00
E	55		1	CR	0.59	0.74	28.31	37.06	15.53	0.20	17.46	0.11	0.00	0.00	100.00

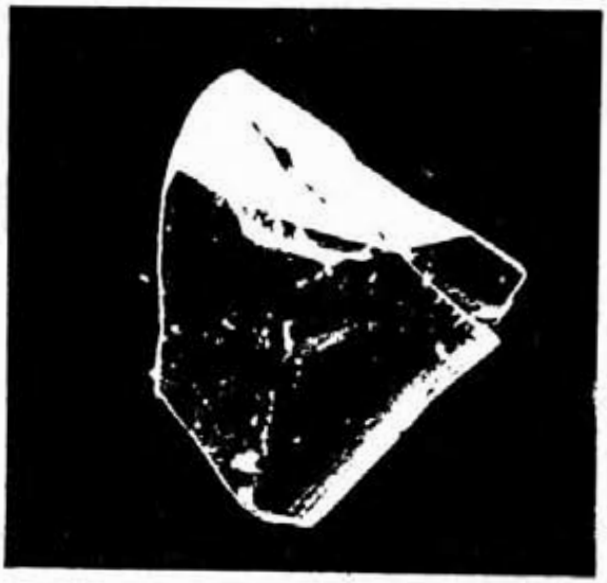


Orientation A 140X



Orientation B 170X

#18 Jack 1



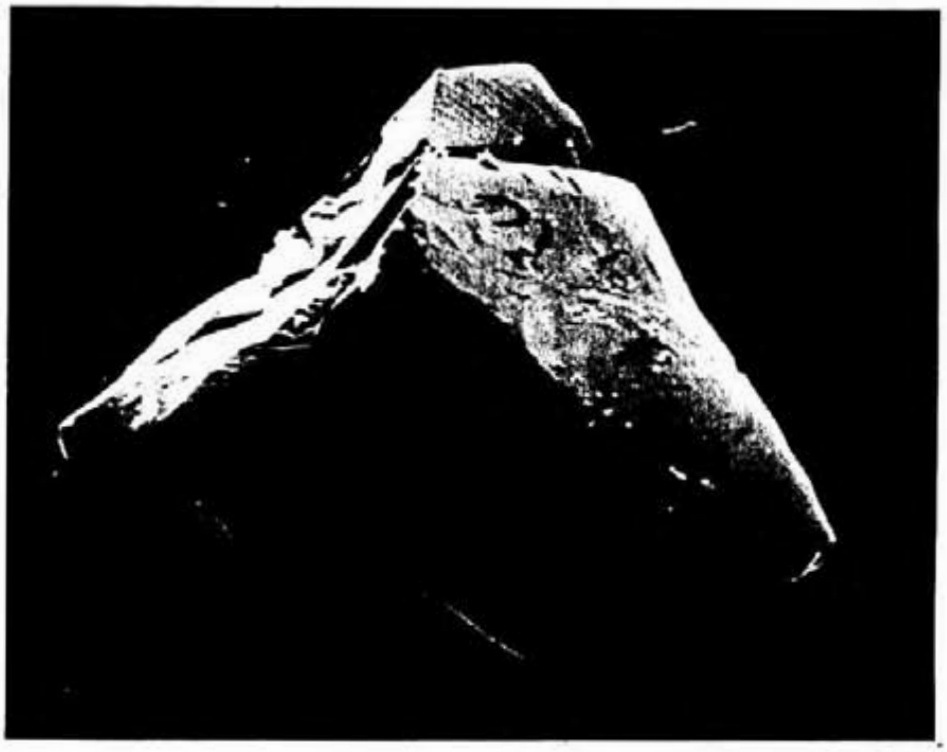
170X

500X

#9 Big Mark Lower West

Figure 5 SEM Micrographs of Microdiamonds

recovered from Jack and Big Mark Lower West pipes. The microdiamonds weigh 37,320 X 10^{-8} and 15,820 X 10^{-8} carats respectively.



Scale 100 u

Scale 100 u

Figure 6 MARK MICRODIAMOND
Scanning Electron Microscope Micrograph
Note partly removed gold film placed on microdiamond to aid in SEM analyses

(4) "Mark" Claims

A single clear white small diamond fragment was found in 350 lbs. of rock tested. The 70 lb. portion of the sample that contained the fragment contained kimberlitic ilmenites and chromites of very good compositions. It is not yet known whether or not the remainder of the samples contain diamond indicator minerals.

The Big Mark kimberlite pipe is at least 800 yds. long and at least 300 yds. wide. The NE, SE and West contacts are covered in glacier or talus. As about 2/3 of the pipe is situated in Banff Park, the pipe could be at best an underground target.

The microdiamond fragment came from the British Columbia side

from Fipke, Company Report

FALCONBRIDGE LIMITED
METALLURGICAL LABORATORIES
8810 Yonge Street
Thornhill, Ontario, Canada L4J 1W9
Telex 06-986615 Telephone 416/889-6221

February 23, 1983

Mr. Chuck Fipke
C.F. Mineral Research Ltd.
263 Lake Avenue
Kelowna, British Columbia
V1Y 5W6

Dear Chuck,

Enclosed please find the micro-diamonds extracted from the J.V. project samples, as you requested. The sample details are given in Table 1. I have attached a copy of a memo to Hugo Dummett which presents SEM micrographs of the above MDs.

Please note that I have attached the MDs to double-sided tape in the bottle lids, so open the lids carefully and if we are lucky the MDs will still be there for easy removal. If not, they will be in the bottles. In addition, you will have to acid clean the MDs, as they were coated with gold for the SEM work.

Yours sincerely,

FALCONBRIDGE LIMITED

P.G. Lurie

PGL/seh
Enclosures

TABLE 1: Details of the MD Samples

Sample Description	Bottle #	No. of MDs	Approx. MD Weight (carats x 10^{-8})	Bulk Sample Weight (kgs)
# 18 Jack 1	4	1	37320	29.50
# 9 Big Mark Lower West	5	1	15820	30.4

FALCONBRIDGE NICKEL MINES LIMITED

INTER OFFICE MEMORANDUM

MEMO TO: H. Dummett

FROM: S.W. Marsh/P.G. Lurie

DATE: August 10, 1982

SUBJECT: SEM Micrographs of Diamonds from British Columbia Samples

PROJECT No. 307-820810 (JO#2717)

KEYWORDS: Diamonds, Kimberlite

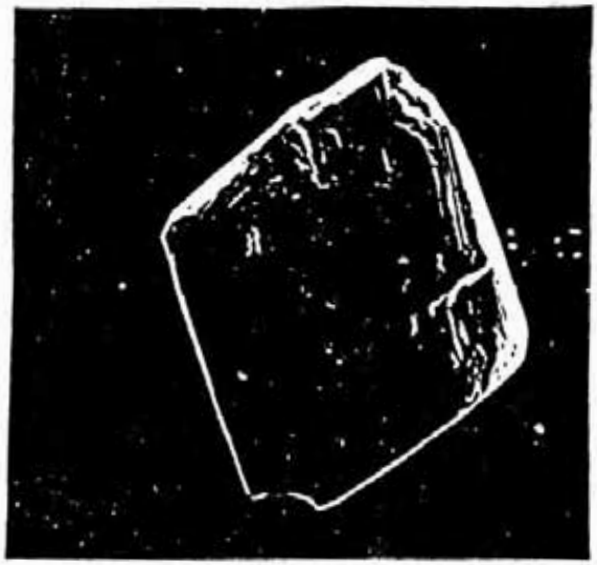
COPIES TO: CMHJ, RAB, RB/File, File (2)

As requested, this memo presents the SEM micrographs of the diamonds from the British Columbia prospecting samples (Jack 1 and Big Mark Lower West).

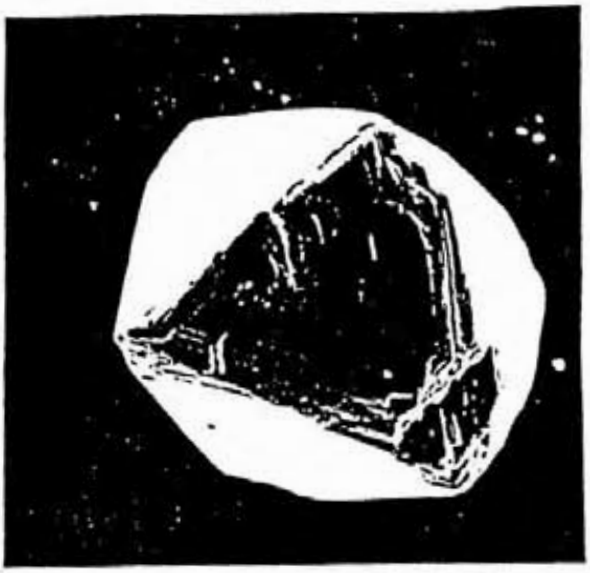
In some instances, different crystal orientations and higher magnifications were used to illustrate the diamond shapes and the surface features.

S.W. Marsh P.G. Lurie

SWM/PGL:sls
attach.



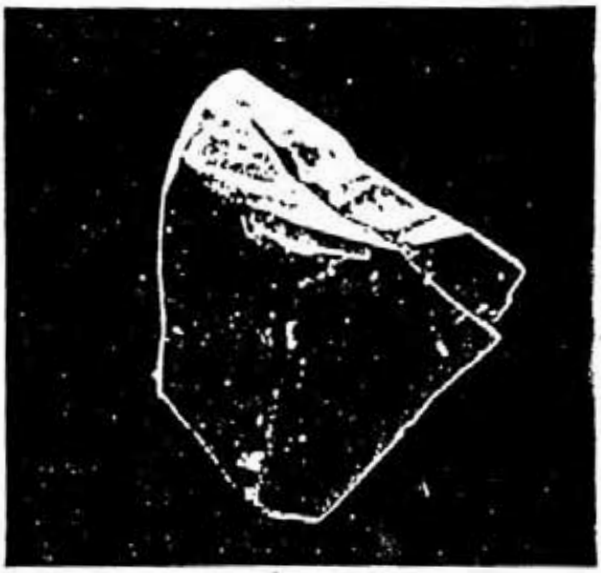
BOTTLE # (4)



Orientation A 140X

Orientation B 170X

#18 Jack 1



BOTTLE # (5)

170X

500X

#9 Big Mark Lower West

SEM Micrographs of Microdiamonds

CERTIFICATE

I, STEPHEN C. GOWER, of Gower, Thompson and Associates Ltd., New Westminster, B. C., hereby certify that:

1. I am the President of Gower, Thompson and Associates Ltd.;

2. I am currently residing at 985 Gatensbury Street, Coquitlam, B. C.

3. I am a graduate of the University of British Columbia and hold a Bachelor of Science Degree (1970) in Geology. Subsequent to receiving my degree, I have practiced my profession for the last 13 years.

4. I have no interest, direct or indirect, in the properties discussed in the report, nor do I anticipate any such interest in DIA MET MINERALS LTD.

5. This report is based on a knowledge of the properties gained from a review of government-published data and material submitted by DIA MET.

Signed: Stephen C Gower

DATED at New Westminster, B. C., this 14 day of June, 1983.

CERTIFICATE

I, Kenneth E. Northcote of 2346 Ashton Road, R.R.#1, Agassiz B.C. do hereby certify that:

1] I have been practising as a professional geologist for a period of approximately 25 years for petroleum exploration companies, mining exploration and consulting companies, federal and provincial agencies.

2] I obtained a Ph.D in geology from U.B.C. in 1968 and qualified for registration with the Association of Professional Engineers of B.C. in 1967.

3] One day was spent on helicopter reconnaissance at the JACK and MARK claims in company with C.Fipke and S.C.Gower. Recent publications and data supplied by Dia Met Minerals Ltd and laboratory tests of microdiamonds from Jack and Mark kimberlitic diatremes form the basis for this report.

4] I have no interest either directly or indirectly in the properties or securities of Dia Met Minerals Ltd. nor do I expect to receive any.

5] I consent to use of this report in, or in connection with, a prospectus relating to the raising of funds.

Dated at Agassiz B.C. this 19th day of June 1983.

REFERENCES

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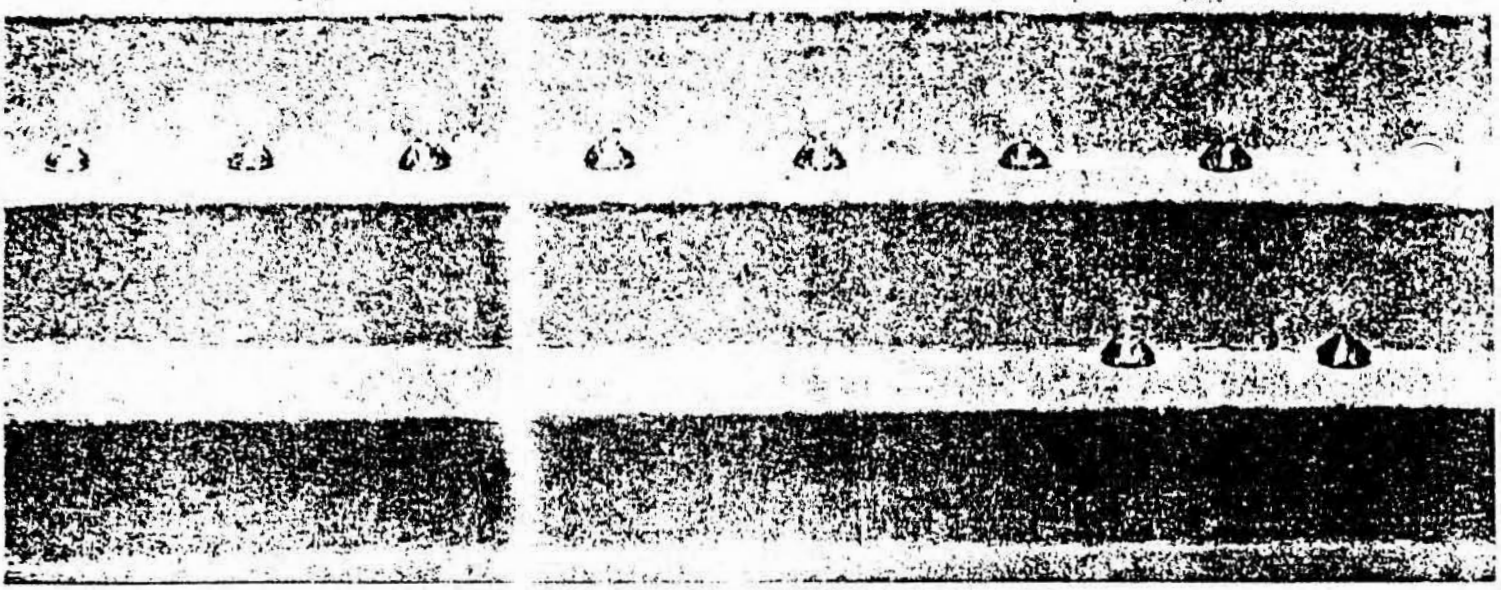
APPENDIX B

DIAMONDS BY BRUTON



It is impossible to show on the printed page an accurate range of polished diamonds graded for colour and the object of this plate is to give some idea of the narrowness of the range of colour in "white" stones. The stones in the top row are Cape Series stones and range from about Crystal to Yellow or Dark Cape *(see page 270).* *There are several grades whiter than the stone on the left. The two stones on the lower row are Brown Series. The stones are shown on a corrugated piece of white paper in a white light at about the angle that they should be graded by eye. The difficulties in reproducing the colours accurately are in the different colour values caused by the camera lighting, the film stock, the colour separation at the printing block makers, the ink used in reproduction and finally the paper on which the reproduction is printed, since that also has a tint which is several grades below that of the finest white diamond. Photograph by Peter Parkinson, F.I.I.P., London.*

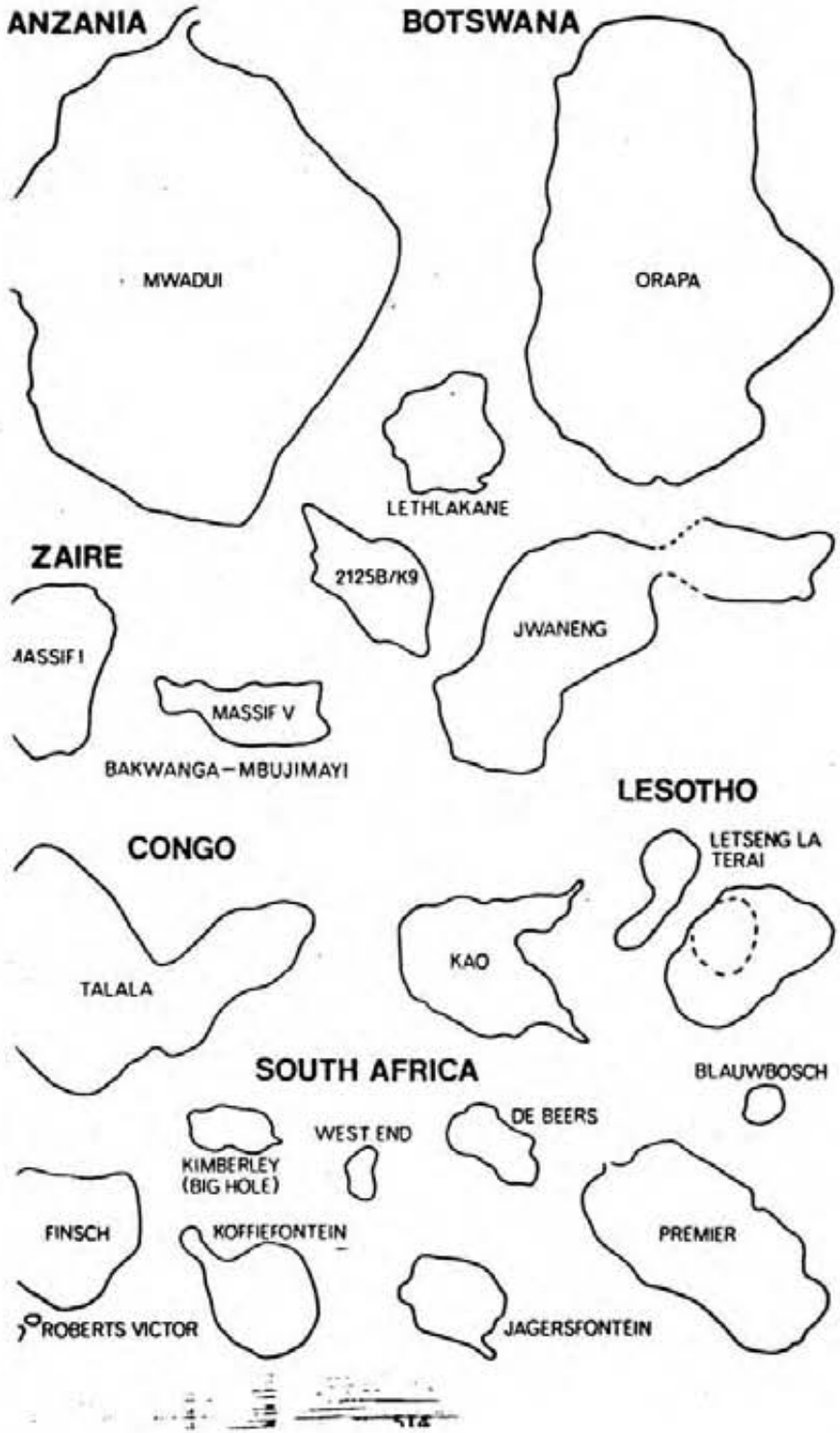
DIAMONDS

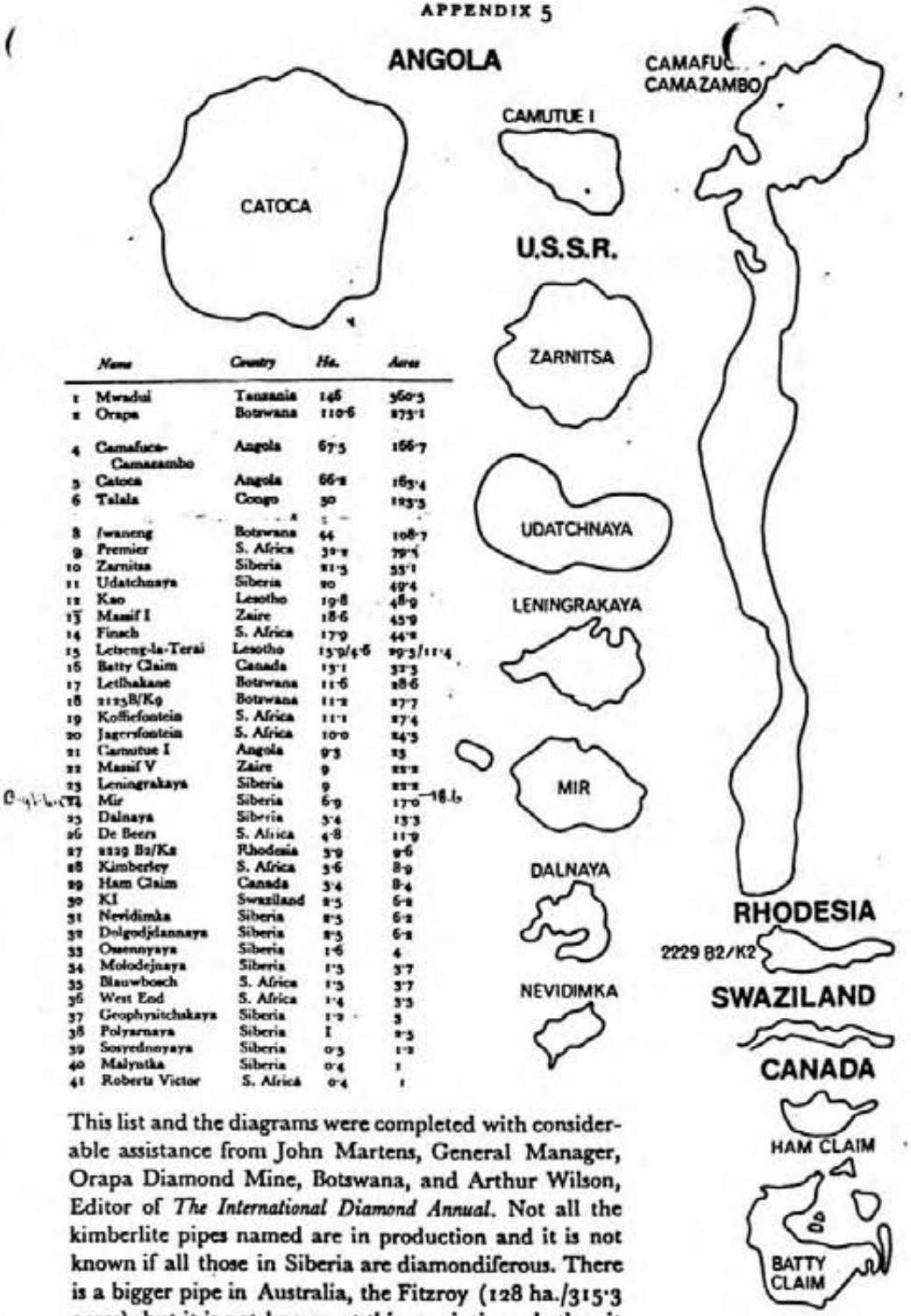
Second Edition

Eric Bruton F.G.A.

CHILTON BOOK COMPANY
Radnor, Pennsylvania

Shapes and Sizes of Diamond Pipes





	Name	*Country*	*Ha.*	*Acres*
1	Mwadui	Tanzania	146	360·5
2	Orapa	Botswana	110·6	273·1
4	Camafuca-Camazambo	Angola	67·5	166·7
5	Catoca	Angola	66·2	163·4
6	Talala	Congo	50	123·5
8	Jwaneng	Botswana	44	108·7
9	Premier	S. Africa	32·2	79·5
10	Zarnitsa	Siberia	21·5	53·1
11	Udatchnaya	Siberia	20	49·4
12	Kao	Lesotho	19·8	48·9
13	Massif I	Zaire	18·6	45·9
14	Finsch	S. Africa	17·9	44·2
15	Letseng-la-Terai	Lesotho	13·9/4·6	89·3/11·4
16	Batty Claim	Canada	13·1	32·3
17	Letlhakane	Botswana	11·6	28·6
18	2125B/K9	Botswana	11·2	27·7
19	Koffiefontein	S. Africa	11·1	27·4
20	Jagersfontein	S. Africa	10·0	24·5
21	Camutue I	Angola	9·3	23
22	Massif V	Zaire	9	22·2
23	Leningrakaya	Siberia	9	22·2
24	Mir	Siberia	6·9	17·0
25	Dalnaya	Siberia	5·4	13·3
26	De Beers	S. Africa	4·8	11·9
27	2229 B2/K2	Rhodesia	3·9	9·6
28	Kimberley	S. Africa	3·6	8·9
29	Ham Claim	Canada	3·4	8·4
30	K1	Swaziland	2·5	6·2
31	Nevidimka	Siberia	2·5	6·2
32	Dolgodjdannaya	Siberia	2·5	6·2
33	Ossennyaya	Siberia	1·6	4
34	Molodejnaya	Siberia	1·3	3·7
35	Blauwbosch	S. Africa	1·3	3·7
36	West End	S. Africa	1·4	3·5
37	Geophysitchskaya	Siberia	1·2	3
38	Polyarnaya	Siberia	1	2·5
39	Sovyednoyaya	Siberia	0·5	1·2
40	Malyutka	Siberia	0·4	1
41	Roberts Victor	S. Africa	0·4	1

This list and the diagrams were completed with considerable assistance from John Martens, General Manager, Orapa Diamond Mine, Botswana, and Arthur Wilson, Editor of *The International Diamond Annual*. Not all the kimberlite pipes named are in production and it is not known if all those in Siberia are diamondiferous. There is a bigger pipe in Australia, the Fitzroy (128 ha./315·3 acres), but it is not known at this reprinting whether it is diamondiferous or not.

APPENDIX C

DOCUMENTATION

Mark Microdiamond (Bottle #5)

Scanning Electron Microscope Analyses shows no major constituents of atomic number greater than 12.

APPENDIX D

RECORD OF MINERAL CLAIMS

Record of Mineral Claim
FORM G

MAP NO. 82K/15 W½ RECORD NO. 817

MINING RECEIPT NO. 137150E RECORDED AT GOLDEN B.C. THIS 5th DAY OF Sept. 19 80

DO NOT WRITE IN SHADED AREAS

Deputy Gold ~~Recorder~~ ~~Commissioner~~ GOLDEN MINING DIVISION

Affidavit for Mineral Claim

I, Daniel Tomlin (NAME) AGENT FOR (NAME)

(ADDRESS) B.C. (ADDRESS)

VALID SUBSISTING F.M.C. NO. 152671 VALID SUBSISTING F.M.C. NO.

MAKE OATH AND SAY: I COMMENCED LOCATING THE ... I MINERAL CLAIM

ON THE 10 DAY OF AUG 19 80 AT 3:00 P.M. (TIME: INDICATE A.M. OR P.M.) AND COMPLETED THE LOCATION

ON THE 10 DAY OF AUG 19 80 AT 3:30 P.M. (TIME: INDICATE A.M. OR P.M.) CONSISTING OF

4 (NUMBER) UNIT LENGTHS SOUTH (DIRECTION) AND 2 (NUMBER) UNIT LENGTHS EAST (DIRECTION) AND I HAVE IMPRESSED ALL THE REQUIRED INFORMATION

ON METAL TAG NO. 44603 WHICH HAS BEEN SECURELY FASTENED TO THE POSTS AS REQUIRED UNDER THE REGULATIONS.

COPY

IDENTIFICATION POST(S) NOT PLACED WERE ALL UNIT POSTS WITNESSED FROM CORNER POSTS - ALL CORNERS WERE LAYED.

CHECK THE APPLICABLE SQUARE

- [x] THE LEGAL CORNER POST
- [ ] † THE WITNESS POST FOR THE LEGAL CORNER POST

IS SITUATED IN HEADWATERS OF VALENCIENNES RIVER N.W. OF ... PARK

(BRIEFLY DESCRIBE POINT ON OR POST RELATIVE TO KNOWN TOPOGRAPHICAL OR SURVEYED FEATURES THAT RELATE TO FEATURES ON A MAP)

† BEARING AND DISTANCE TO TRUE POSITION OF LEGAL CORNER POST FROM THE WITNESS POST ____ °

BEARING AND DISTANCE FROM IDENTIFICATION POST TO WITNESS POST ____ °

I HAVE COMPLIED WITH ALL THE TERMS OF THE MINERAL ACT AND REGULATIONS PERTAINING TO THE STAKING OF MINERAL CLAIMS AND HAVE ATTACHED A PLAN, ACCEPTABLE TO THE MINING RECORDER, OF THE LOCATION.

SWORN AND SUBSCRIBED TO AT ____

THIS ____ DAY OF ____ 19 ____ BEFORE ME

*

(SIGNATURE)

Gold Commissioner SEP 8 1980 GOLDEN, B.C. $40.00 (RECORDER'S STAMP)

* THIS AFFIDAVIT MAY BE TAKEN BY A PERSON EMPOWERED TO TAKE AFFIDAVITS BY THE EVIDENCE ACT OF BRITISH COLUMBIA

NO. OF UNITS 8

WORK NUMBERS	C.L. IN $	WORK NUMBER AND DATE RECORDED	TYPE OF WORK	YEAR OF EXPIRY	CREDIT: WORK UNITS	CREDIT: RENTAL IN $	TRANSFERS (BILLS OF SALE, AGREEMENTS, CONVEYANCES)
SURVEY PENDING			4/1	54 29/87			Sept. 4/81 B/S 9787 all int. to Harley Erland Pyett.
23779-32		3 yrs Sept 4/81	G	1984			Jun 11/82 #1010 all int from Harley Erl to Charles Edgar Pipke.
							Mar 23/82 #1013 all int from Charles Edgar Pipke to G.P. Mineral Research ...

Record of Mineral Claim
FORM G

MAP NO. 82N/15W | RECORD NO. 818

MINING RECEIPT NO. 137150E RECORDED AT GOLDEN B.C. THIS 5th DAY OF SEPT 19 80

DO NOT WRITE IN SHADED AREAS — Deputy Gold ~~Recorder~~ Commissioner — GOLDEN

Affidavit for Mineral Claim

I, DANIEL TOMBLIN (NAME) AGENT FOR ... (NAME)
... DUNNERY (ADDRESS) — (ADDRESS)
VALID SUBSISTING F.M.C. NO. 140671 — VALID SUBSISTING F.M.C. NO. —

MAKE OATH AND SAY:- I COMMENCED LOCATING THE MARK II MINERAL CLAIM

ON THE 10 DAY OF AUG 19 80 AT 1:00 PM. (TIME INDICATE A.M. OR P.M.) AND COMPLETED THE LOCATION

ON THE 10 DAY OF AUG. 19 80 AT 1:45 P.M. (TIME INDICATE A.M. OR P.M.) CONSISTING OF

5 (NUMBER) UNIT LENGTHS NORTH (DIRECTION) AND 2 (NUMBER) UNIT LENGTHS EAST (DIRECTION) AND I HAVE IMPRESSED ALL THE REQUIRED INFORMATION

ON METAL TAGS NO. II 44601, WHICH HAS BEEN SECURELY FASTENED TO THE POSTS AS REQUIRED UNDER THE REGULATIONS.

COPY

IDENTIFICATION POST(S) NOT PLACED WERE ALL UNIT POSTS WITNESSED FROM. FOUR CORNER POSTS.

CHECK THE APPLICABLE SQUARE
[✓] THE LEGAL CORNER POST
† [ ] THE WITNESS POST FOR THE LEGAL CORNER POST
IS SITUATED BETWEEN HEADWATERS OF VALENCIENNES RIVER AND MIVERVILLE GLACIER JUST NORTH OF PARGMAN PEAK.
(PRECISELY DESCRIBE POSITION OF POST RELATIVE TO KNOWN TOPOGRAPHICAL OR SURVEYED FEATURES THAT RELATE TO FEATURES ON A MAP)

† BEARING AND DISTANCE TO TRUE POSITION OF LEGAL CORNER POST FROM THE WITNESS POST ___°___

BEARING AND DISTANCE FROM IDENTIFICATION POST TO WITNESS POST ___°___ ft.

I HAVE COMPLIED WITH ALL THE TERMS OF THE MINERAL ACT AND REGULATIONS PERTAINING TO THE STAKING OF MINERAL CLAIMS AND HAVE ATTACHED A PLAN, ACCEPTABLE TO THE MINING RECORDER, OF THE LOCATION.

SWORN AND SUBSCRIBED TO AT ___
THIS ___ DAY OF ___ 19 ___ BEFORE ME
* ___

[signature] (SIGNATURE)

* THIS AFFIDAVIT MAY BE TAKEN BY A PERSON EMPOWERED TO TAKE AFFIDAVITS BY THE EVIDENCE ACT OF BRITISH COLUMBIA

Gold Commissioner
137150
SEP 5 1980
940
GOLDEN, B.C.
MR OR SMR STAMP

NO. OF UNITS 10

WORK NUMBERS	C/L IN $	MINING RECEIPT AND DATE RECORDED	TOTAL OF WORK	YEAR OF EXPIRY	CREDIT WORK UNITS	CREDIT PAYMENTS $	TRANSFERS (B.S. ASSIGNMENTS OPTIONS CHANGES)
SURVEY PENDING			4/	5477/81			Sept. 4/81 1/0 993: all int. to Harley Erland Fyett.
23732-52		3 yrs Sept 4/81	6	1985			Jan 11/84 ... all int from Harley Erland Fyett to Charles Sugar Fipke. Mar 23/84 ... all int from Charles Sugar Fipke to C.F mineral research L...

RECORDS

APPENDIX E

SUPPLEMENT TO ENGINEERING REPORT FOR MARK GROUP CLAIMS

C.E. Fipke & R. Capell

INTRODUCTION

Additional bulk rock sampling and stream sediment sampling and geologic mapping were implemented on the Mark Group claims subsequent to the fore going engineering report of Dr. K.E. Northcote.

METHOLOGY AND RESULTS

1) Bulk Rock Sampling - As of June 20/84 six additional ±35 kg rock samples had been helicopter collected over and above the results of five rock samples reported in the previous assessment report. One of the six rock samples were processed as per Northcotes report at Falconbridge Metalurgical Laboratories. Two of the remaining five are being processed by Monopros Ltd. in South Africa. Two of the remaining five are being processed at the C.F.M. laboratory in Kelowna using crushing, pulverizing, ball milling, washing and wet sieving, TBE and MI heavy liquid separations, electromagnetic separations and acid digestions. The remaining sample is a variety of diatreme rock float from the Bill claim on the Upper Valencianness River. Kimberlite petrographer Barbara Scott Smith has select many of the differing float rock types for petragraphic studies. At the time of writing this report only the Falconbridge Metalurgical Lab. result is available. The sample contained a single microdiamond and is outlined in the report of K.E. Northcote.

2) Stream Sediment Sampling And Geologic Mapping - Two ±10 kg samples (J 15 & 17) were collected in the Upper Valenciannes River. The stream sediment sample locations and the location of kimberlitic diatremes as geologic mapped by Dr. S.L. Blusson and C.E. Fipke is given as figure 1 . Although the stream sediment samples have been processed as indicated in the statement of expenditures, the subsequent microscope work has not yet been completed.

CONCLUSIONS AND RECOMMENDATIONS

Subsequent microdiamond and indicator mineral results are needed to substanciate the favorable findings of the Falconbridge Laboratory. The petrographic findings will be useful in classifying the kimberlitic diatremes.

Statement of Exploration & Development Mark Group
Claims

Northcote, Gower and Thompson professional fees for completion of engineering report	$2,000.00
Field and report compilation expenses of Northcote, Gower and Thompson including drafting etc.	$2,276.25
Total helicopter and fuel cost to June 20,1983	$1,500.00
Bacon and Donalson S.E.M. analysis of microdiamonds	$ 253.00
Geologist C.E.Fipke's salary and expenses of Anaconda geologist trip April 13-15	$ 629.11
Freight of rock samples and thin sections Steve Bergman, Anaconda, Houston, Texas	$ 23.31
Vancouver Petrographic costs	$ 241.33
Total technical field salaries and benefits S.Emerson, Brent Carr, Paul Derkson,Mike Finney and Dan Tomelin	$ 610.00
Total equipment rentals-camp gear, topofil,radios, chain saw	$ 225.00
Total meals and food	$ 260.00
Total hotels	$ 63.00
Motorway freight of samples to Kelowna	$ 57.00
Total four wheel drive truck rental and taxis	$ 202.00
Total gas and oil	35.61
Total supplies-plastic bags, rock pails, batteries, gloves, topofil, propane etc.	$ 54.00
Long distance telephone to Anaconda, Houston, Texas Monopros, Kelowna etc.	$ 21.00
Services of R. Gersch, mountain climber	$ 300.00
Professional salary geologist C.E.Fipke organization and field 14 days @$350.00 per day	$1050.00

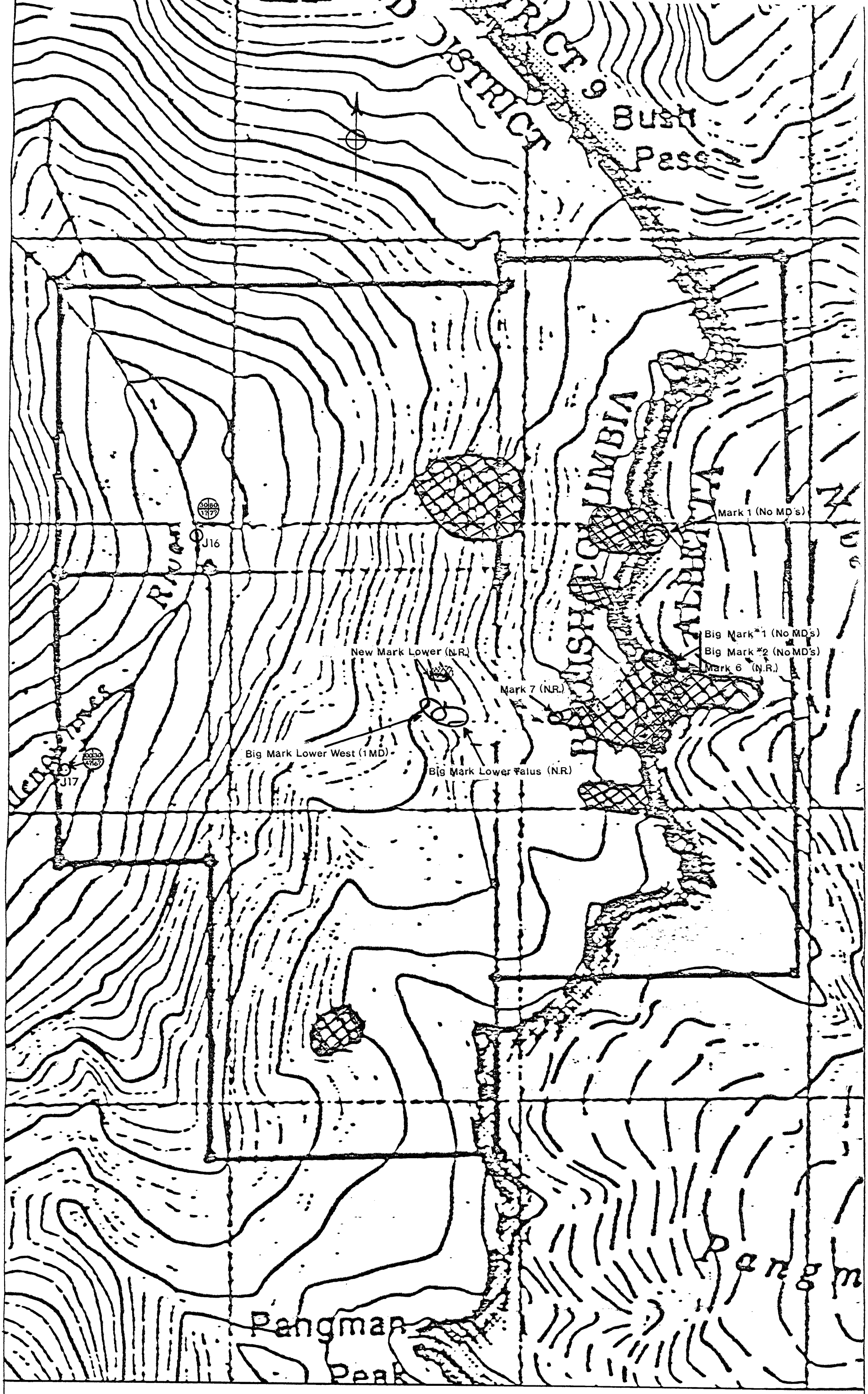
Sample processing 2 Mark bulk samples through multistage washing, sizing, specific gravity concentration; processing 2000 gms. -20+35, 2000 gms. -35+60 and all -6- mesh through a TBE and a methylene iodide heavy liquid separations; processing the resultant heaviest fractions through 7 electromagnetic diamond indicator separations @ $88.50 each	$ 177.00
Drafting and copying costs	$ 68.00
Geologist writing copying organizing appendix 1 day	$ 300.00
	$10,345.61

Please apply any excess assessment approved to a PAC account of DIA Met Minerals Ltd.

STATEMENT OF QUALIFICATIONS

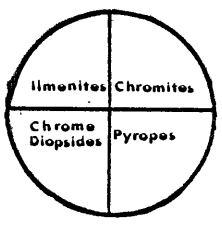
Mrs Rosemary Capell is a 1965 BSc graduate of University College of Rhodesia. Between 1966 and 1975 Mrs Capell worked for Anglo American in Rhodesia chiefly on base metal geochemistry.

C. Fipke is a BSc Honors Geology graduate of the University of British Columbia. Between 1970 and 1977, C. Fipke worked as a geologist involved to a large extent in heavy mineral exploration and research for Kennecott Copper in New Guinea, Samedan Oil in Australia, Johannesburg Consolidated Investments in Southern Africa and Cominco Ltd. in Brazil and British Columbia. C. Fipke and L.M. Fipke organized C. F. Mineral Research Ltd. in 1977. Currently the C.F. Mineral Research heavy mineral laboratory which employes 25 to 35 people is involved in heavy mineral exploration and processing on behalf of many international companies.



SCALE : 1:12,000

LEGEND



Kimberlitic Diatremes

(NR) No Results

(1MD) 1 Microdiamond

MARK CLAIMS

13,596

FIGURE 1