FILMED

LOG NO: 1229 RD.
ACTION:

FILE NO:

Petrographic and Metallurgical

LOG NO: 0620 RD.
ACTION:

FILE NO:

ASSESSMENT REPORT
ON THE
TINA-CATHY CLAIMS
SIMILKAMEEN MINING DIVISION
BRITISH COLUMBIA
LATITUDE 49 DEGREES 31' N LONGITUDE 120 DEGREES 53' W
92 H
for
DIA MET MINERALS LTD.
1675 POWICK ROAD
KELOWNA, B.C.

LOG NO: 0512 RD. /
ACTION: Date received back from amendment.

FILE NO:

GEOLOGICAL BRANCH
ASSESSMENT REPORT

19,480

M.A. WALDMAN
DECEMBER, 1989

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APPENDICES

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ABSTRACT

This report reviews the exploration development work completed on the Tina-Cathy claim group olivine prospect 10 km. west of Tulameen, British Columbia.

The claims cover 2,300 acres of dunite of which the olivine content was tested for industrial usage (Appendix III).

A program costing $18,500 comprising beneficiation tests, petrography of diamond drill core and surface outcrop rocks and surveying of outcrops was completed.

Beneficiation tests indicate that commercially suitable olivine with loss on ignition (L.O.I.) content < 2 is not readily obtainable.

INTRODUCTION

This report reviews the geology and the commercial suitability of olivine for industrial use of the Tina-Cathy property (J & L claims) located in the Similkameen Mining Division, British Columbia. Dia Met Minerals holds the option on 43 mineral claims and two reverted crown grants from Richard Chapman, Penticton, B.C.

The potential for commercially suitable olivine from the dunite-ultrabasic intrusives was reported by White, et al. Material from outcrops and drill cutting were analyzed for L.O.I. content. Tests to beneficiate the olivine from marginal (2.0-4.0% L.O.I.) to commercial grade ore were conducted (Appendix III).

CLAIM DESCRIPTION AND LOCATION

The Tina-Cathy property is covered by 43 mineral claims and two reverted crown grants (J and L claims) (Fig. 2). The group is located 10 km. west of Tulameen in the Similkameen Mining Division, B.C. under option to Dia Met Minerals from Richard Chapman, Penticton, B.C.

CLAIM NAME	RECORD NUMBER	EXPIRATION DATE
J 1	437	Sept. 29, 1991
J 2	438	Sept. 29, 1990
J 3	439	Sept. 29, 1990
J 4	440	Sept. 29, 1990
J 5	442	Sept. 29, 1990
J 6	443	Sept. 29, 1990
L 1	478	Nov. 15, 1990
L 2	479	Nov. 15, 1990
L 3	480	Nov. 15, 1990
L 4	481	Nov. 15, 1990
L 5	482	Nov. 15, 1990
L 6	483	Nov. 15, 1990
L 7	484	Nov. 15, 1990
L 8	485	Nov. 15, 1990
L 9	849	Nov. 13, 1990
L 10	850	Nov. 13, 1990
L 11	851	Nov. 13, 1990
L 8 FRAC.	1347	Dec. 12, 1990
L 9 FRAC.	1348	Dec. 12, 1990
L 10 FRAC.	1349	Dec. 12, 1990
L 11 FRAC.	1350	Dec. 12, 1990
J 9 FRAC.	1332	Dec. 12, 1990
L 12	1880	Apr. 11, 1991
L 12 FRAC.	1873	Apr. 11, 1991
L 13	1881	Apr. 11, 1991
L 13 FRAC.	1874	Apr. 11, 1991
L 14	1882	Apr. 11, 1991
L 15	1883	Apr. 11, 1991
L 16	1884	Apr. 11, 1991
L 17	1885	Apr. 11, 1991
L 18 FRAC.	1875	Apr. 11, 1991
L 19 FRAC.	1876	Apr. 11, 1991
L 20 FRAC.	1877	Apr. 11, 1991
L 21	1886	Apr. 11, 1991
L 22	1887	Apr. 11, 1991
L 23 FRAC.	1878	Apr. 11, 1991
L 24 FRAC.	1879	Apr. 11, 1991
L 25 FRAC.	1903	May 16, 1991

CLAIM NAME	RECORD NUMBER	EXPIRATION DATE
L 26 FRAC.	1904	May 16, 1991
L 27	1932	June 13, 1991
L 28	1933	June 13, 1991
L 29	1934	June 13, 1991
L 30	1935	June 13, 1991
L 1137 KEATHY	2036	Sept. 29, 1990
L 1136 CAMERON	2037	Sept. 29, 1990
L 31 FRAC.	3251	Nov. 24, 1990

PREVIOUS WORK

The area has been prospected for gold and platinum since 1886. Dia Met's work prior to 1988 focused on platinum until the potential for commercial grade olivine was realized. Principal report prepared is as follows:

1. Geological Report on Tina-Cathy Claims 92 H
   Similkameen Mining Division, British Columbia
   by E.A. Schiller April, 1987

GEOLOGY

The geology covered by the claim group consists of a central core of north-northwest striking dunite surrounded by pyroxenites within the Mesozoic Alaskian type Tulameen ultramafic complex. Narrow dikes of syenite, diorite, gabbro and ultramafics intrude the dunite-pyroxenite complex (Coveney & Lee, 1970).

SUMMARY OF 1989 WORK COMPLETED

Petrographic analysis of 26 surface and subsurface dunite samples to identify serpentine impurity occurrences was completed by G. Case (Appendix II). Outcrops were surveyed and geologically mapped (Fig. 1). Rock samples used in the petrographic analysis were obtained from ±two kilogram grab samples of as fresh a sample as available from surface outcroppings, i.e. loose friable weathered rock around fractures was removed before collection. Samples from the diamond drill holes were taken from the core at the down hole footage as indicated in the sample number.

Beneficiation test work on dunite samples to determine upgradability of olivine ore from serpentine to produce a marketable grade product was completed (Appendix III).

DISCUSSION AND CONCLUSION

Petrographic analyses of 26 dunite samples from surface outcrops and diamond drill core to observe olivine occurrence showed that the dunites were variably serpentinized with both fibrous and asbestaform varieties of serpentine replacing 10-90% of olivine along grain boundaries and interstitially. Talc replaces 2-5% of olivine and carbonate alteration was noted. Accessary minerals include opaques (Appendix II).

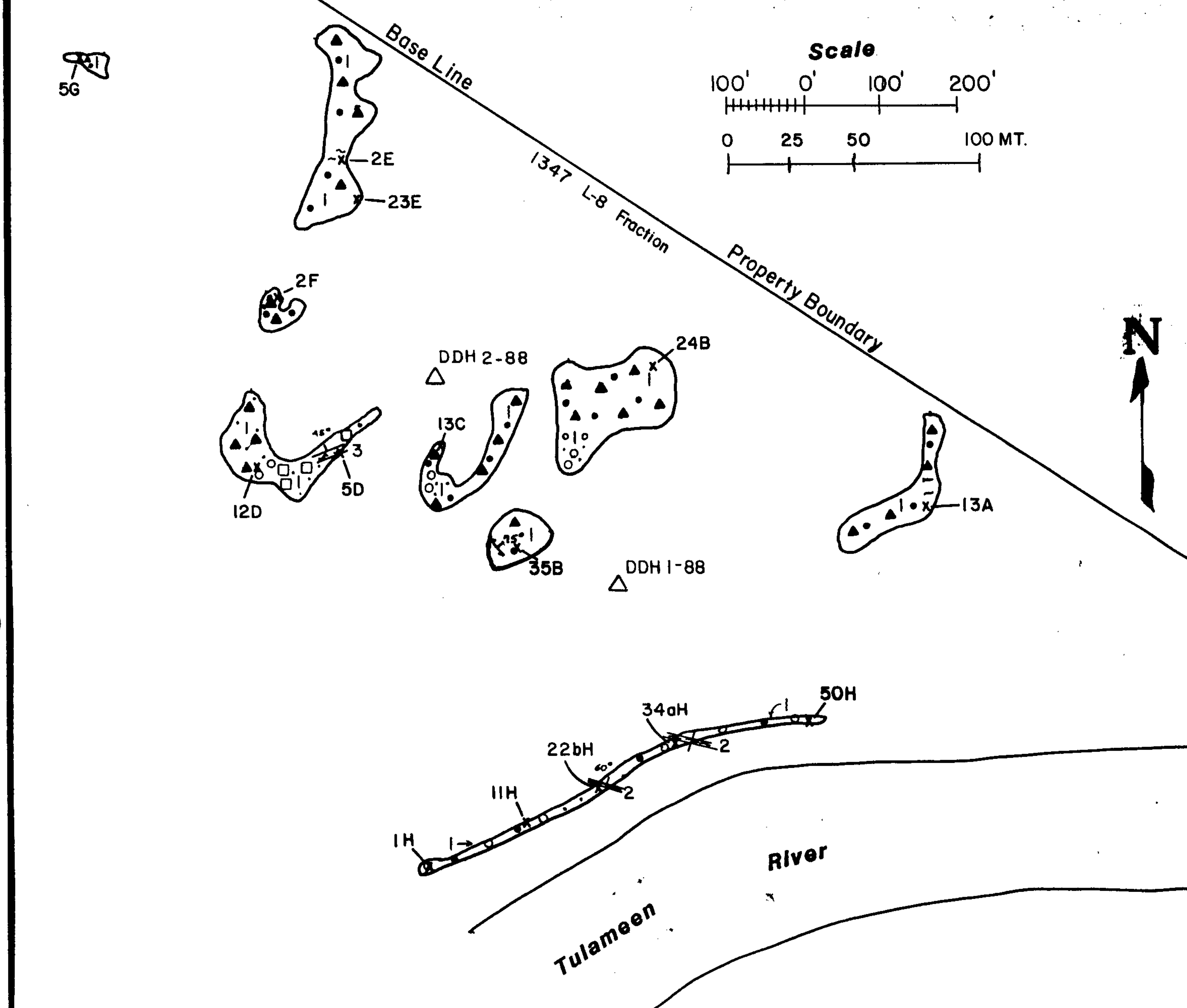
Beneficiation tests were conducted on 23 dunite samples from split diamond drill core to test if grinding would liberate olivine from a serpentine impurity so simple gravity separation could upgrade the olivine product. No sample with loss on ignition (L.O.I.) > 3.5% could be cleaned to < 2% L.O.I. needed for commercial grade olivine. Simple grinding and gravity separation techniques could not produce commercial grade olivine (Appendix III).

REFERENCES

Coveney, C. & Lee, F (1970)
Geological and Magnetometer Survey Report for Consteel Explorations Ltd.
Tina-Cathy Property unpublished report

TINA CATHY CLAIMS

GEOLOGY, DRILL HOLE AND OUTCROP LOCATIONS



LEGEND

A. ROCK UNITS

- 1 DUNITE
- 2 DIORITE
- 3 SYENITE

B. SERPENTIZATION

- SLIGHTLY
- MODERATELY
- HIGHLY

C. MINERALIZATION

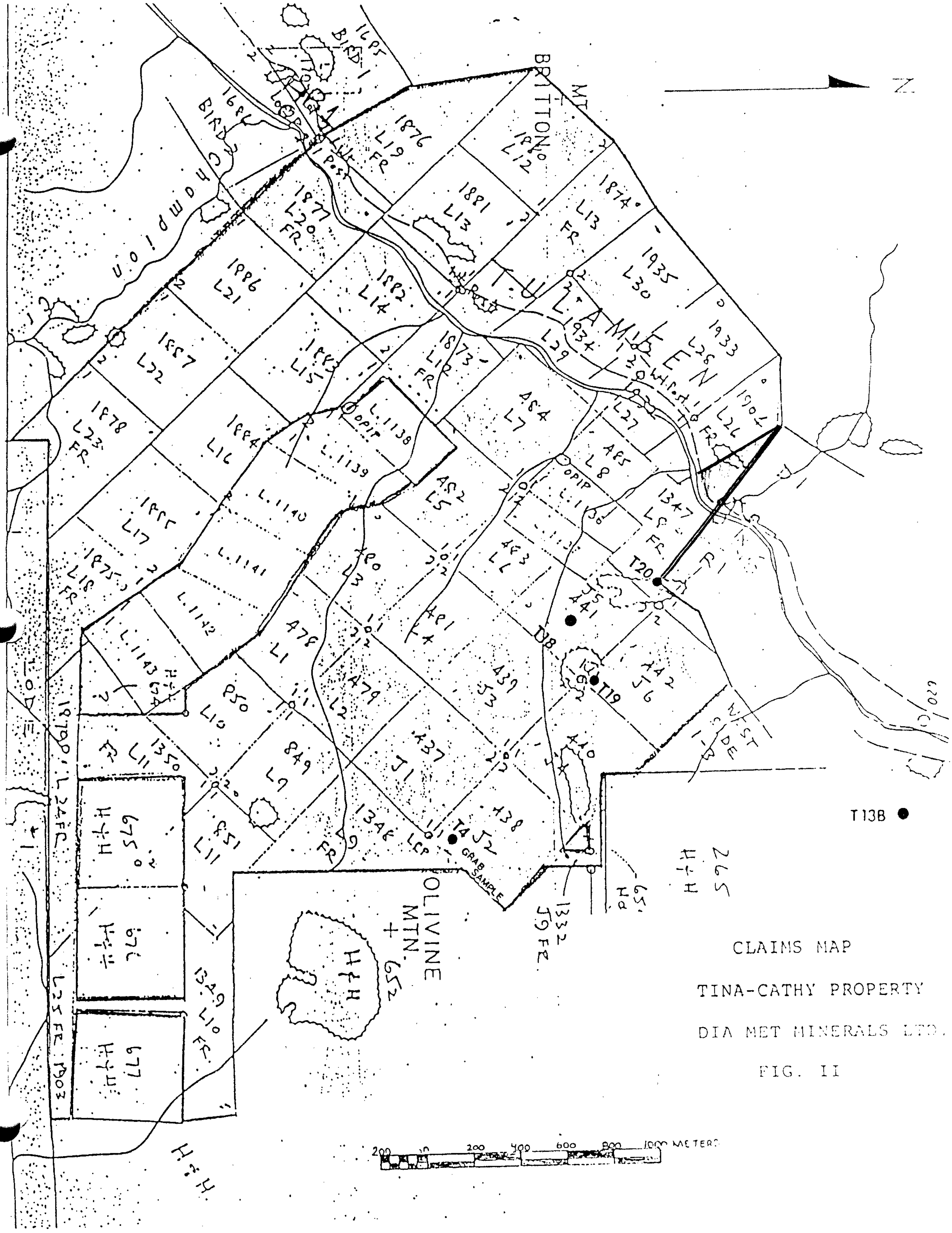
- <1% CHROMITE
- 1-3% "
- 4-5% "

D. SYMBOLS

- DIKE: DIP <90°
- DIKE: DIP PERPENDICULAR
- FABRIC
- △ DIAMOND DRILL HOLE
- X GC T.S. SAMPLE LOCATIONS

FIGURE 1.

G.D.CASE 1988



CLAIMS MAP

TINA-CATHY PROPERTY

DIA MET MINERALS LTD.

FIG. II

APPENDIX I

STATEMENT OF QUALIFICATIONS
FOR M.A. WALDMAN, GEOLOGIST

EDUCATION

1960-1965	Purdue University B.S. Degree - Geology
1966-1971	Geological Assistant for Vice President and Chief Geologist in New York headquarters office of The Anaconda Co. with collation of all exploration and development data from projects worldwide; did commodity research and forecasting; computed ore reserve estimates for project evaluation; and assisted in exploration and salary budgeting.
1971-1973	Geologist for Anaconda Co.; designed, consolidated, organized and implemented new method of filing and retrieval system of geologic reports and maps for Anaconda geology department; did library research and copper production forecasting.
1973-1974	Field Geologist for Anaconda Co.; Mapped on both large and small scale for gold at Atlantic City, Wyoming and Jardine, Montana; compiled district and mine maps for delineation of drilling targets; supervised drilling programs; prepared plan and cross sections for ore reserve estimates; supervised claim staking crews and did court house research to ascertain land positions.
1975-1976	Univ.of Arizona Graduate work Economic Geology
1976-1985	Project Geologist for Lac Minerals. Managed Arkansas diamond exploration joint venture from inception to discovery and testing of Twin Knobs #1 (TK #1) lamproite; contracted, supervised and interpreted airborne magnetic survey; conducted heavy mineral stream sediment sampling, soil and rock chip sampling, gravity and magnetic surveying; did detailed geologic mapping; supervised and coordinated pitting and trenching of TK #1 for macrodiamond testing and supervised the plant operations; negotiated with landowners for mineral leases; represented Superior Oil in negotiations with State representatives on possible leasing and optioning of the Crater of Diamonds State Park for mining; conducted reconnaissance exploration for diamondiferous kimberlites/lamproites in western and southern United States; evaluated the precious metal potential in southern Arkansas. Coordinated joint venture exploration program for nickel - copper potential in Archean Wyoming craton via mapping, soil and rock sampling, and diamond drilling of one target area; directed drilling program for tungsten in California; logged core on several base metal projects in Arizona; contracted and supervised

geophysical crews; assisted in regional silt, heavy mineral and rock geochemical sampling programs for precious metals in western United States.

1985-1989 — Project Manager/Plant Manager for Lac Minerals (USA): Responsible for directing the diamond exploration programs for North America; researched diamond and kimberlite formation; initiated new regional exploration projects resulting in the delineation of three new potential diamondiferous districts; managed the day to day operations of a 6 man, 50 tonne per day diamond recovery plant; responsible, in part, for the discovery and testing of six diamondiferous kimberlites in Ontario; developed new software for evaluating kimberlitic indicator minerals for prioritization of targets thus resulting in major cost savings; reduced the exploration costs from $1,000,000/year to less than $500,000 by implementing major cost deduction programs; in part responsible for convincing the State of Arkansas to proceed with evaluating the diamond potential of the Crater of Diamonds State Park by drilling.

1989 — Project Manager/Plant Manager for Dia Met Minerals: Responsible for diamond exploration programs in North America and Plant Manager for Dia Met's diamond recovery plant in Colorado, USA.

Publications: Geology and petrology of the Twin Knobs #1 lamproite, Pike County, Arkansas: in Mantle Metasomatism and and Alkaline Magmatism, ed. by E. Mullen and J.D. Pasteris, G.S.A. Special Paper 215, 1987

APPENDIX II

The following petrographic descriptions of the dunite have been divided into two parts:

A. Mineralogy, and

B. Alteration

Part A includes all minerals noted totalling 100% - with the olivine percentages including both unaltered and altered (serpentine, talc, etc.) olivine. Other minerals are pyroxene, opaques, secondary carbonate, etc.

Part B, alteration, is an in-depth description of the olivine alteration, i.e. serpentine, talc etc. The percentages given here are with respect to the total olivine (altered and unaltered) percentages given in Part A.

For Example: from Part A, total olivine = 90%

from Part B, total serpentine = 15% of 90%

Also, the dunites have been classified based on alteration as follows:

0- 5% - unaltered to slightly altered

5-15% - slightly to moderately altered

10-25% - moderately to highly altered

>25% - highly altered

SAMPLE # DH-88-1 32'

A. MINERALOGY

Essential:	Olivine	...90%
		...<0.5 - 3.0 mm
		...slightly altered to serpentine
		...anhedral to subhedral grains
Accessory:	Opaques	...5-10%
		...0.1 - 1.0 mm, average 0.5 mm
		...common in the several 0.1 - 1.0 mm wide veinlets noted
		...a few percent "dusty" magnetite observed
Secondary:	Carbonate	...3-5%
		...located in the several veinlets noted and at a few grain margins proximal to the veinlets

B. ALTERATION

Serpentine	...replaces 10% of olivine
	...predominantly within olivine grain fractures (asbestiform)
	...at some olivine grain boundaries (fibrous)
	...also observed within veinlets
Talc	...replaces 2-3% of olivine
	...located mainly within olivine grains
	...at some olivine margins
	...within veinlets associated with serpentine

Classification: slightly altered dunite

Note: -No pyroxene or amphibole observed.

-Olivine proximal to veinlets show greatest alteration.

SAMPLE # DH-88-1 45.5'

A. MINERALOGY

Essential:	Olivine	...90%
		...<0.5 - 3.0 mm, average 1.0 mm
		...anhedral to subhedral
		...some zoning
		...slightly to moderately altered
Accessory:	Opaques	...5%
		...up to 0.5 mm
		...abundant within an observed 0.2 mm wide veinlet
		...some dusty magnetite at olivine grain margins
Secondary:	Carbonate	...3-5%
		...mainly in 0.2 mm wide veinlet

B. ALTERATION

	Serpentine	...replaces 10-15% of olivine
		...located mainly at olivine grain margins and, to a much lesser extent, within olivine fractures
		...some observed within the 0.2 mm wide veinlet. Also, a 0.1 mm wide veinlet entirely filled with serpentine observed.
	Talc	...replaces 2-3% of olivine
		...located within olivine fractures and at margins of olivine grains
		small amount also present in veinlets

Classification: slightly to moderately altered dunite

Note: No pyroxene or amphibole abserved.

SAMPLE # DH-88-1 62.5'

A. MINERALOGY

Essential:	Olivine	...90%
		...<0.5 - 3.0 mm, average 1.0 - 2.0 mm
		...highly fractured and cut by numerous serpentine-filled veinlets
		...anhedral to subhedral grains
Accessory:	Opaques	...3-5%
		...<0.5 mm grains
		...some magnetite dusting
		...concentrated in veinlets
Secondary:	Carbonate	...5%
		...mainly within the numerous veinlets observed and between olivine grains
		...predominantly calcite with lesser siderite

B. ALTERATION

Serpentine	...some asbestiform serpentine within olivine fractures, however the majority of serpentine is located with the numerous veinlets cutting rock
Talc	...minor alteration mineral
	...associated with serpentine in veinlets

Classification: moderately to highly serpentinized dunite

Note: -No pyroxene or amphibole noted.

-veinlets comprise approx. 15% of total slide.

SAMPLE # DDH-88-2 15.5'

A. MINERALOGY

Essential:	Olivine	...only 5% unaltered olivine remaining remainder altered to serpentine
Accessory:	Opaques	...5-10% ...very fine-grained ...banded appearance
Secondary:	Carbonate	...3-5% ...mainly in a number of 0.5 - 1.0 mm wide veinlets

B. ALTERATION

Serpentine	...replaces approx. 90% of olivine ...mainly asbestiform
Talc	...approx. 5% ...in veinlets associated with carbonate and some serpentine

Classification: Serpentinite

SAMPLE # DDH-88-2 116.5'

A. MINERALOGY

Essential:	Olivine	...75-85%
		...up to 1.5 mm, average <0.3 mm
		...recrystallized appearance
		...subhedral grains
		...moderately to highly serpentinized
Accessory:	Opaques	...10-15%
		...<0.1 - 0.5 mm
Secondary:	Carbonate	...10%
		...mostly siderite with lesser calcite
		...dispersed throughout

B. ALTERATION

Serpentine	...replaces 15-20% of olivine
	...fibrous
	...occurs mainly as large "clusters" separating the unaltered olivine into patches
Talc	...observed in two veinlets (0.2 mm and 1.0 mm widths)
	...associated with carbonate and serpentine

Classification: moderately to highly altered dunite

Note: No pyroxene or amphibole noted.

SAMPLE # DDH-88-2 119'

A. MINERALOGY

Essential:	Olivine	...85-90%
		...almost completely altered to serpentine. Only 2% unaltered olivine grains remaining.
Accessory:	Opaques	...10%
		...up to 1.0 mm
Secondary:	Carbonate	...5-10%
		...dispersed throughout and as veinlet fillings
		...predominantly siderite with lesser calcite

B. ALTERATION

Serpentine	...replaces approx. 95% of olivine
	...fibrous
Talc	...replaces 2-3% of olivine

Classification: Serpentinite

SAMPLE # DDH-88-2 129.3'

A. MINERALOGY

Essential:	Olivine	...80%
		...recrystallized appearance
		...up to 6.0 mm grains (relict), average <0.5 mm (recrystallized grains)
		...subhedral
		...highly altered to serpentine
Accessory:	Opaques	...3-5%
		...<0.5 mm
		...some magnetite dusting
Secondary:	Carbonate	...15%
		...mostly siderite, lesser calcite

B. ALTERATION

	Serpentine	...replaces 40% of olivine
		...fibrous - fibres average 0.5 mm
		...serpentinization is widespread and divides unaltered olivine into "patches"
	Talc	...2-3%
		...located in two veinlets associated with carbonate - one 0.5 - 1.0 mm wide and the other 0.1 mm wide

Classification: highly serpentinized dunite

Note: -Texture appears recrystallized (relict olivine noted)

-No pyroxene or amphibole observed.

SAMPLE # DDH-88-2 147'

A. MINERALOGY

Essential:	Plagioclase	...exhibits seriate porphyritic texture - phenocrysts of plagioclase (25%) in a plagioclase groundmass (45-50%)
		...phenocrysts 0.5 mm to 2.5 mm length
		...groundmass up to 0.2 mm length
		...both groundmass and phenocrysts include numerous flecks of sericite - moderately sericitized
		...subhedral to euhedral
		...albite and Carlsbad twinning common
Accessory:	Opaques	...10%
		...up to 2.0 mm length
		...contain inclusions of plagioclase
Secondary:	Carbonate	...15-20%

Classification: Anorthosite

Note: -no mafics noted

-carbonate probably resulted from the replacement of calcic units within the plagioclase by sericite

SAMPLE # DH-88-2 155'

A. MINERALOGY

Essential:	Olivine	...95%
		...0.5 - 3.0 mm, average 1.0 mm
		...highly fractured and cut by numerous narrow (0.1 mm wide) veinlets
		...some grains exhibit undulatory extinction - strain?
		...subhedral grains
Accessory:	Opaques	...2-4%
		...up to 1.0 mm grains
		...very fine-grained in veinlets
Secondary:	Carbonate	...2-3%
		...at grain margins and within fractures

B. ALTERATION

Serpentine	...replaces approx. 10% of olivine
	...in olivine fractures (asbestiform) and at grain margins (fibrous and asbestiform)
	...also present within numerous narrow veinlets observed
Talc	...replaces 1% of olivine
	...tiny grains within olivine

Classification: slightly to moderately altered dunite

Note: No pyroxene or amphibole noted.

SAMPLE # DDH-88-2 286.5'

A. MINERALOGY

Essential: Olivine ...85-90%
...some recyrstallization observed
...0.1 mm (recrystallized) to 2.0 mm
...anhedral to subhedral
...highly serpentinized

Pyroxene (Ortho?)
...2-3%
...2.0 - 2.5 mm
...anhedral grains

Accessory: Opaques ...3-5%
...dominantly as elongate patches associated with serpentine
...dispersed individual grains <0.5 mm also noted
...some dusty magnetite

Secondary: Carbonate ...5-10%
...mainly as large calcite crystals (up to 2.0 mm)
...also as small grains of siderite dispersed throughout (subordinate)

B. ALTERATION

Serpentine ...replaces approx. 50% of olivine
...bladed
...mainly as large "clusters" surrounding groups of olivine grains

Talc ...replaces 2-3% of olivine
...associated with & dispersed throughout serpentine

Classification: highly serpentinized dunite

SAMPLE # DDH-88-2 303.5'

A. MINERALOGY

Essential:	Olivine	...95%
		...0.5 - 3.0 mm, average 1.0 mm
		...slightly to moderately serpentinized
		...anhedral to subhedral
		...some recrystallization observed
Accessory:	Opaques	...3-5%
		...<0.1 - 0.2 mm
		...some magnetite dusting
Secondary:	Carbonate	...1-2%
		...in 0.2 - 0.3 mm wide veinlet

B. ALTERATION

Serpentine	...replaces 10-15% of olivine
	...fibrous approx. 0.2 mm fibres
	...predominantly at olivine grain margins and, to a much lesser degree, within olivine fractures
	...also partially filling the observed veinlet
Talc	...replaces 1-2% of olivine
	...within olivine grains and at grain margins

Classification: slightly to moderately altered dunite

Note: -Olivine recrystallization is noted associated with serpentine and carbonate in veinlet.

-No pyroxene or amphibole noted.

SAMPLE # GC-13A

A. MINERALOGY

Essential:	Olivine	...85-90%
		...<0.5 - 3.0 mm, average 1.5 mm
		...slightly serpentinized
		...subhedral
		...some zoning observed
	Augite	...up to 5%
		...subhedral
Accessory:	Opaques	...2-4%
		...<0.1 - 1.0 mm
		...some "dusty" magnetite giving rock a grungy appearance in places
Secondary:	Carbonate	...5%
		...in a couple of 1 mm wide veinlets and at some olivine grain margins

B. ALTERATION

Serpentine	...replaces 5-10% of olivine
	...located predominantly at olivine grain margins and to a lesser degree in veinlets
Talc	...replaces 2-3% of olivine
	...associated with serpentine
Fe - staining	...<1%

Classification: slightly altered dunite

SAMPLE # GC-24B

A. MINERALOGY

Essential:	Olivine	...90-95%
		...highly fractured
		...anhedral to subhedral
		...highly altered
Accessory:	Opaques	...2-3%
		...average <0.5 mm grain size
Secondary:	Carbonate	...5%
		...filling 0.1 - 1.0 mm wide veinlets

B. ALTERATION

Serpentine and lesser talc

...replaces 25-30% of olivine

...predominantly filling olivine fractures

...also noted as veinlet filling. Serpentine and talc in veinlets comprise 5-10% of total rock

Classification: highly altered dunite

Note: No pyroxene or amphibole observed.

SAMPLE # GC-35B

A. MINERALOGY

Essential:	Olivine	...80-85%
		...average grain size 1.5 - 2.0 mm
		...highly altered
		...anhedral grains
Accessory:	Opaques	...15%
		...up to 0.5 mm
		...disseminated throughout
Secondary:	Carbonate	...2-3%

B. ALTERATION

Serpentine	...replaces approx. 30% of olivine
	...bladed
	...where serpentine has not completely replaced an olivine grain, alteration is located both within grain fractures and at margins
Talc	...replaces 10% of olivine
	...associated with serpentine

Classification: highly altered dunite

Note: -No pyroxene or amphibole noted.

-abundant Fe-staining observed associated with serpentine - limonite?

SAMPLE # GC-13C

A. MINERALOGY

Essential:	Olivine	...90-95%
		...0.5 to 4.0 mm, average 1.0 to 1.5 mm
		...grains subhedral
		...some zoning
		...moderately altered
Accessory:	Opaques	...5-7%
		...up to 0.5 mm

B. ALTERATION

Serpentine	...replaces 10-15% of olivine
	...bladed
	...located at olivine grain margins and as olivine fracture filling
Talc	...replaces 5-10% of olivine
	...associated with serpentine at olivine margins and within olivine fractures

Classification: moderately altered dunite

Note: No pyroxene or amphibole noted.

SAMPLE # GC-05D

Plagioclase ...Exhibits seriate-porphyritic texture
...Phenocrysts -25-30%
-0.5 - 3.0 mm
-subhedral
-Carlsbad, albite & pericline twinning
-altered to sericite, calcite & clay minerals
...Groundmass -60-65%
-<0.1 - 0.2 mm

Quartz ...1-2%
...<0.5 mm

Carbonate ...siderite - 5%
...dispersed throughout groundmass

Opaques ...5%
...up to 0.5 mm
...associated with siderite (alteration product of siderite?)

Classification: Plagioclase-phyric Anorthosite (dyke)

SAMPLE # GC-12D

A. MINERALOGY

Essential:	Olivine	...75-80%
		...up to 3.0 mm in length
		...highly fractured giving rock a brecciated appearance
		...slightly to moderately altered to serpentine
Accessory:	Opaques	...20-25%
		...in "breccia matrix"
		...associated with serpentine - overprinting of serpentine by opaques noted

B. ALTERATION

	Serpentine	...10-15%
		...predominately asbestiform (antigorite)
		...located both at margins of olivine and in olivine fractures

Classification: slightly to moderately serpentinized, "brecciated" dunite

Note: No pyroxene or amphibole observed.

SAMPLE # GC-02E

A. MINERALOGY

Essential:	Olivine	...85-90%
		...<0.5 - 4.0 mm, average 0.5 - 1.0 mm
		...very slightly serpentinized
		...anhedral to subhedral grains
Accessory:	Opaques	...10-15%
		...<0.1 - 1.5 mm
		...some dusty magnetite

B. ALTERATION

Serpentine	...replaces 5% of olivine
	...fibrous
	...mainly at olivine margins
	...subordinate amounts as fracture filling
Talc	...replaces 1-2% of olivine
	...within olivine grains and at margins

Classification: unaltered to slightly altered dunite

Note: -0.1 mm wide veinlet filled with serpentine and subordinate talc noted.
-No pyroxene or amphibole observed.

SAMPLE # GC-23E

A. MINERALOGY

Essential:	Olivine	...95%
		...<0.5 - 3.0 mm, average 1 mm
		...some zoning
		...slightly serpentinized
Accessory:	Opaques	...5%
		...<0.5 mm
		...some "dusty" magnetite observed

B. ALTERATION

Serpentine	...replaces 5% of olivine
	...located presominately at olivine grain margins and, to a lesser degree, as fracture fillings and in a 1-2 mm wide veinlet
Talc	...replaces 1-2% of olivine
	...located within olivine grains and in veinlet

Classification: slightly altered dunite

Note: No pyroxene or amphibole observed.

SAMPLE # GC-02F

A. MINERALOGY

Essential:	Olivine	...95%
		...0.5 - 4.0 mm, average 1.0 mm
		...anhedral to subhedral
		...some zoning
		...slightly to moderately altered
		...slight recrystallization at grain margins
		...some undulatory extinction - strain?
Accessory:	Opaques	...3-5%
		...up to 0.5 mm grain size
		...some magnetite dusting
Secondary:	Carbonate	...1-2%

B. ALTERATION

	Serpentine	...replaces 5-10% of olivine
		...bladed
		...located mainly at olivine grain margins
		...also in some olivine fractures (minor)

Classification: slightly to moderately serpentinized dunite

Note: No pyroxene or amphibole noted.

SAMPLE # GC-05G

A. MINERALOGY

Essential:	Olivine	...95%
		...<0.5 - 6.0 mm, average 1.0 - 2.0 mm
		...unaltered to slightly serpentinized
		...some zoning
		...subhedral grains
		...minor recrystallization along veinlets (approx. 0.2 mm wide)
		...many grains exhibit undulatory extinction possibly indicative of strain
	Augite	...1%
		...0.5 - 1.0 mm
		...subhedral grains
Accessory:	Opaques	...2-3%
		...0.1 - 1.0 mm
		...subhedral to euhedral

B. ALTERATION

Serpentine	...replaces <5% of olivine
	...located mainly in numerous narrow (0.1 - 0.2 mm) veinlets observed. Very small amount located within olivine fractures.

Classification: unaltered to slightly altered dunite

SAMPLE # GC-01H

A. MINERALOGY

Essential:	Olivine	...85-90%
		...recrystallized texture
		...grain size averages <0.5 mm (recrystallized grains). Also a few large grains noted (up to 3.0 mm) (relict olivine)
Accessory:	Opaques	...10-15%
		...up to 0.5 mm
		...fine grains dispersed throughout giving slide a grungy appearance

B. ALTERATION

	Serpentine	...replaces 25-30% of olivine
		...predominantly fibrous and occurring as large patches at olivine margins
		...some asbestiform serpentine within olivine fractures

Classification: highly serpentinized dunite

Note: -a couple of wide (3.0 - 6.0 mm) veinlets also noted comprised of abundant serpentine and talc

-no pyroxene or amphibole observed.

SAMPLE # GC-11H

A. MINERALOGY

Essential:	Olivine	...95%
		...average 2-3 mm length
		...slightly to moderately altered to talc and serpentine
Accessory:	Opaques	...3-5%
		...<0.5 mm length
		...associated mainly with a wide (approx. 3 mm) veinlet

B. ALTERATION

Serpentine	...replaces 10-15% of olivine
	...this alteration is located mainly at olivine grain margins and to a much lesser degree within the grains ("inclusions")
	...also abundant serpentine (approx. 10% of total slide) within the 3 mm wide veinlet as well as in a few much narrower veinlets (0.1 - 0.2 mm)
Talc	...replaces up to 5% of olivine
	...minute grains located within olivine
	...quite often absent from olivine grains

Classification: moderately altered dunite

Note: No pyroxene or amphibole observed.

SAMPLE # GC-22bH

A. MINERALOGY

Essential:	Olivine	...90%
		...<0.5 mm to 4.0 mm, average 1-2 mm
		...highly fractured
		...anhedral to subhedral grains
		...highly serpentinized
Accessory:	Opaques	...5%
		...up to 0.4 mm length
		...extensive magnetite dusting giving slide a grungy appearance
Secondary:	Carbonate	...2-3%
		...as 0.4 mm wide veinlet filling

B. ALTERATION

	Serpentine	...replaces 20-25% of olivine
		...present as olivine fracture filling and at olivine margins. Asbestiform serpentine almost completely fills olivine fractures.
		...also observed within the 0.4 mm wide veinlet and associated with talc and carbonate

Classification: moderately to highly serpentinized dunite

Note: No pyroxene or amphibole observed.

SAMPLE # GC-34aH

Plagioclase	...seriate - porphyritic texture	
	...phenocrysts	-15-20%
		-0.5 - 2.0 mm
		-highly sericitized
		-altered to calcite in places - possibly the result of the sericitization of the plagioclase
	...groundmass	-60-65%
		-<0.2 mm plagioclase laths
Hornblende	...phenocrysts (0.4 - 4.0 mm)	
	...10-15%	
	...highly altered to chlorite, calcite, opaques, epidote	
Opaques	...5%	
Carbonate	...3%	

Classification: Hornblende- and Plagioclase-phyric Diorite

SAMPLE # GC-50H

A. MINERALOGY

Essential: Olivine
...85-90%
...<0.5 - 3.0 mm
...grains anhedral to subhedral
...some zoning
...slightly to moderately altered to talc and serpentine

Accessory: Opaques
...10-15%
...<0.1 - 3.0 mm
...1/3 of opaques noted are in the form of a highly disseminated "dusty" magnetite

Secondary: Carbonate
...2-3%
...located within a couple of 0.1 mm wide veinlets

B. ALTERATION

Serpentine
...replaces 10% of olivine
...located predominantly at margins of olivine grains. Also present to a much lesser degree within olivine fractures and in a couple of 0.1 mm wide veinlets

Talc
...replaces 2-3% of olivine
...minute grains within olivine crystals

Classification: slightly to moderately serpentinized dunite

Note: No pyroxene or amphibole noted.

APPENDIX III

EXPLORATORY TESTWORK ON BENEFICIATION OF OLIVINE

FINAL REPORT

JANUARY 30, 1989

B.L. Street, Research Engineer

G.W. Poling, Principal Investigator

1.0 INTRODUCTION

This research work was to determine whether fine crushing could liberate olivine from a serpentine impurity so that simple gravity separation could upgrade diamond drill core samples of olivine to a marketable grade.

The purity standard used for assessing olivine gravity concentrates was the Refractory Loss-on-Ignition (L.O.I.) test. The L.O.I. is the percentage of a sample's weight lost when the sample is heated according to the test procedure given in Appendix 1. For example, a 35 gram sample that loses 3.5 gms during the L.O.I. test has an L.O.I. of 10.0. The object of this testwork was to produce olivine concentrates of L.O.I. 2.0 or lower.

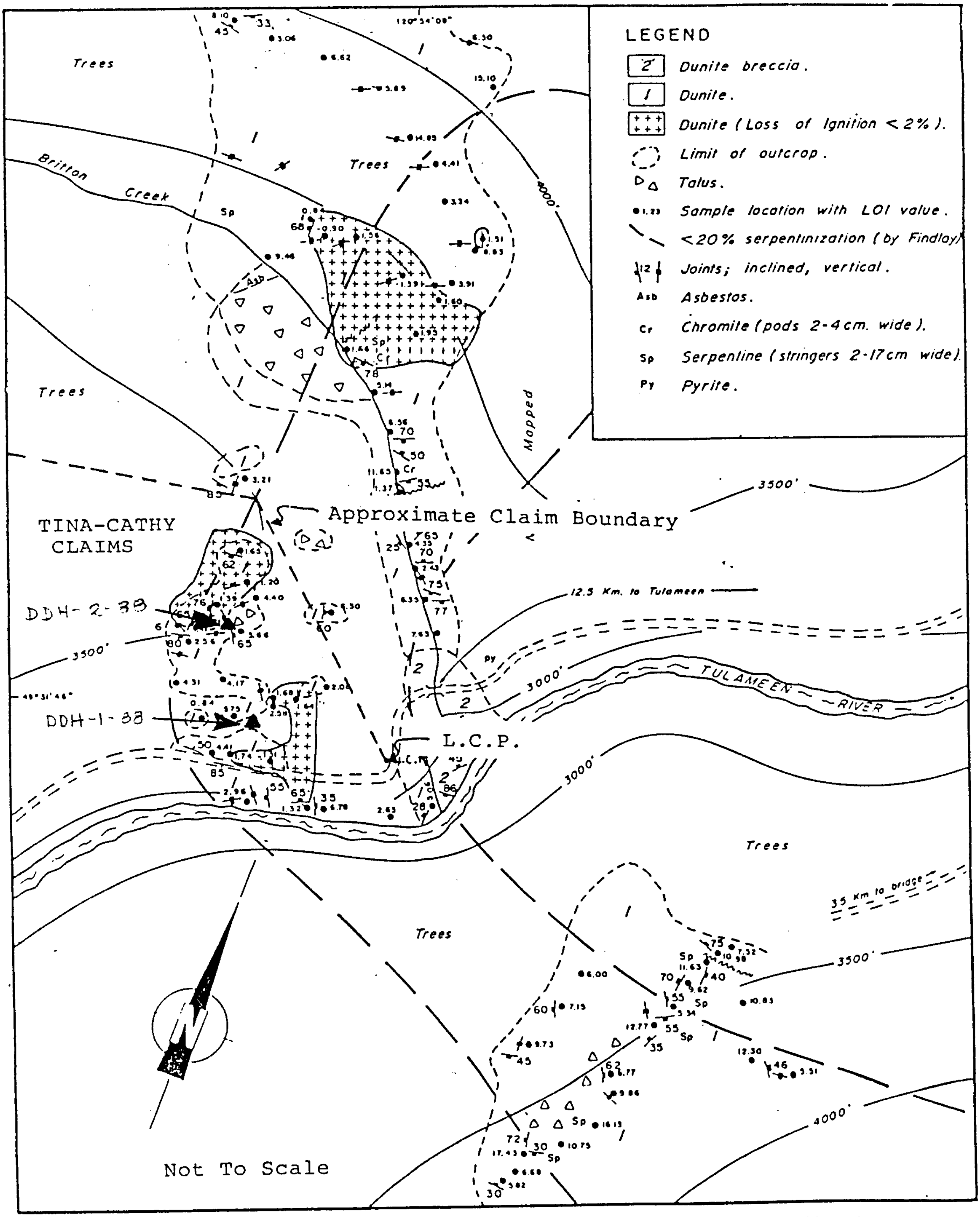
Twenty three composite drill core samples (Table 1) were received for testing. Samples were composed of quarter core sections split from two diamond drill holes located on Olivine mountain. Figure 1 shows the location of these holes. Appendix 2 lists the subsample composition for each composite, along with original core loss-on-ignition (L.O.I.) data and core weights provided by C.F. Minerals Ltd. of Kelowna.

L.O.I. values for the composite samples were calculated using two different methods: weighted average based on core length, and weighted average based on core weight. Because core splitting might not have yielded exact "quarter cores", it was possible that a weighted L.O.I. based on subsample weights would not reflect the true average L.O.I. of the intact core. To check this, calculations were made using both methods, and the results compared. Deviations between the two sets of results were small - in most cases less than 0.1 L.O.I. units (Appendix 3). Therefore, results obtained for the sample composites should closely approximate results obtainable for the full cores. L.O.I. values in Table 1 were calculated using subsample core weights.

TABLE 1. TEST SAMPLE WEIGHTS AND LOSS-ON-IGNITION VALUES

SAMPLE I.D.	WEIGHT (LBS)	AVERAGE L.O.I.
DDH 1 : 20 - 45	20.5	4.62
" : 45 - 76.25	29.25	3.30
" : 80 - 90	8.0	3.18
" : 150 - 155	5.0	7.03
" : 160 - 170	10.5	2.59
" : 170 - 190	19.25	2.84
" : 190 - 200	10.0	3.49
DDH 882: 30 - 33.1	4.0	2.79
" : 33.1 - 45.5	11.0	3.85
" : 45.5 - 70	24.75	3.77
" : 70 - 80	9.0	7.49
" : 80 - 90	10.5	5.28
" : 90 - 94.5	4.0	5.10
" : 95 - 116	17.75	5.62
" : 116 - 125.5	8.5	7.25
" : 125.5 - 130	4.0	10.28
" : 160 - 170	9.25	4.55
" : 170 - 195	25.5	3.24
" : 200 - 212.5	13.25	7.12
" : 212.5 - 228	17.25	3.17
" : 228 - 233.5	5.25	5.78
" : 233.5 - 262	30.75	2.48
" : 262 - 300	37.75	4.68

FIGURE 1. LOCATION OF SAMPLE DRILL HOLES



Geological sketch map of the study area and sample locations with reported loss-on-ignition values.

(After White, G. V.)

2.0 SAMPLE PREPARATION AND TESTWORK

Each sample was crushed in a laboratory shorthead cone crusher set at approximately 2.5mm gap. Crusher product was screened at 8 mesh, and screen oversize re-crushed. The cycle was repeated until all material was -8 mesh.

Density values were determined for three of the crushed samples. Samples with L.O.I. values ranging from 2.59 to 10.28 were chosen in order to check for a correlation between sample density and L.O.I value.

After crushing, samples were split. Samples larger than 4 kg were split into 2 kg lots, while samples of less than 4 kg were split in half. One lot of each sample was screened into the following size fractions: -8 +14M, -14 +28M, -28 + 48M, -48 +100M, -100M. Each size fraction except the -100M fines was subjected to gravity separation in tetrabromoethane (S.G. 2.96) in order to separate olivine (S.G. 3.2 - 3.6) from serpentine (S.G. 2.5 - 2.8). All sink-float products were dried,weighed, pulverized, and assayed for L.O.I. according to the test procedure listed in Appendix 1.

FIGURE 2. GAUDIN-SCHUHMANN PLOT SHOWING RANGE OF SIZE DISTRIBUTIONS OBTAINED FOR CRUSHED SAMPLES

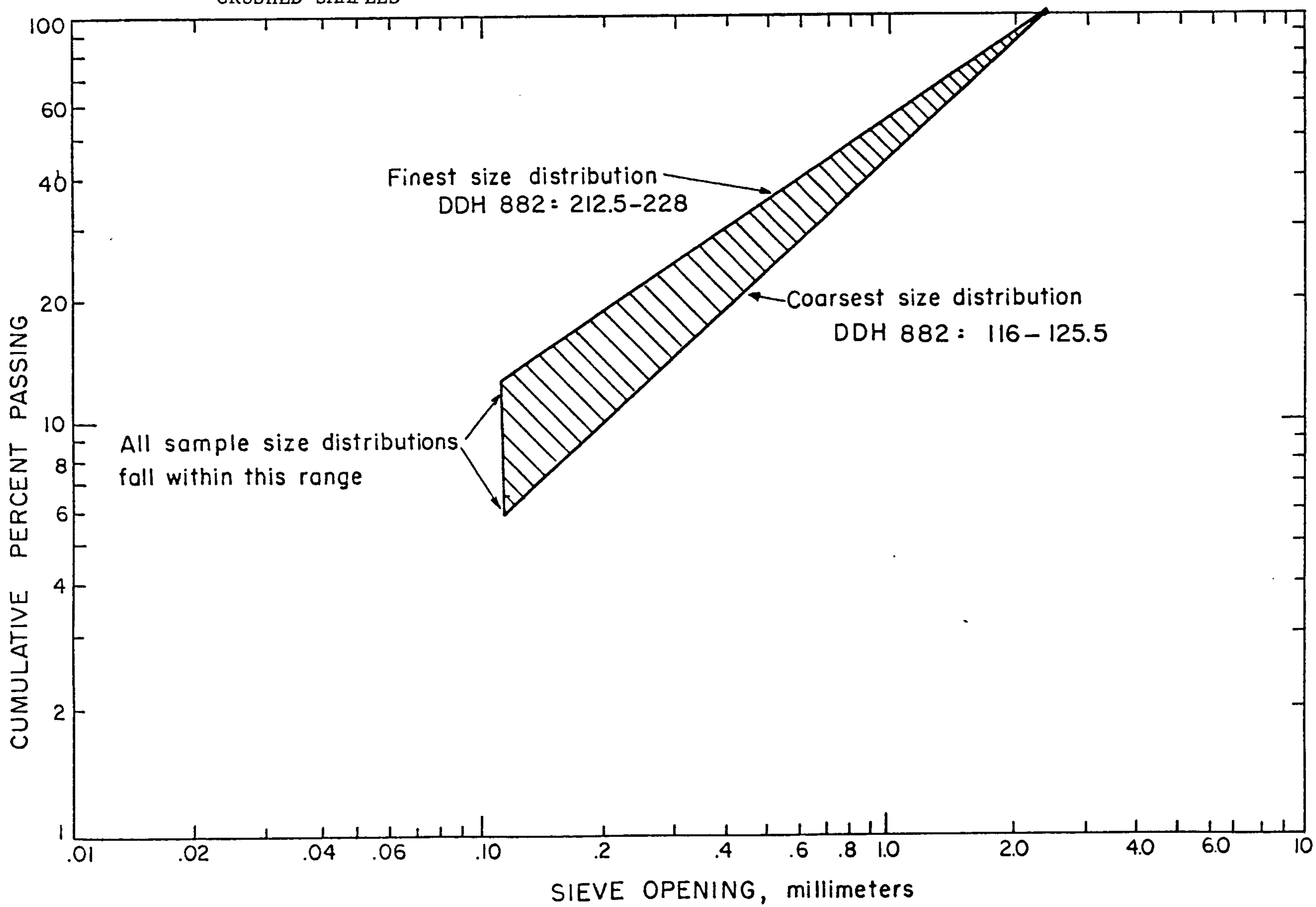


TABLE 3 - SIZE ANALYSIS OF CRUSHED SAMPLES

SIZE ANALYSIS OF CRUSHED SAMPLES

SINK/FLOAT

SAMPLE I.D.	WEIGHT PERCENTS OF TOTAL SAMPLE SIZE FRACTION					
	-8+14M	-14 +28M	-28 +48M	-48 +100M	-100M	TOTAL
DDH-1: 20-45	46.17	23.87	9.92	7.47	12.57	100.00
45-76.25	51.31	16.14	10.49	8.33	13.73	100.00
80-90	50.09	18.78	10.94	7.87	12.32	100.00
150-155	54.73	15.78	9.55	6.97	12.97	100.00
160-170	45.51	22.21	11.30	8.85	12.13	100.00
170-190	53.76	16.07	10.00	8.07	12.10	100.00
190-200	51.45	16.90	10.26	7.98	13.41	100.00
DDH-882: 30-33.1	51.04	18.07	9.57	7.65	13.67	100.00
33.1-45.5	42.73	16.57	14.03	14.10	12.57	100.00
45.5-70	48.53	17.63	10.75	9.06	14.03	100.00
70-80	45.62	25.97	9.92	7.18	11.31	100.00
80-90	54.11	16.50	9.60	7.85	11.94	100.00
90-94.5	53.46	19.75	9.01	6.45	11.33	100.00
95-116	48.80	22.76	9.04	6.64	12.76	100.00
116-125.5	59.66	17.38	8.47	5.11	9.38	100.00
125.5-130	56.27	20.05	7.76	4.59	11.33	100.00
160-170	54.26	16.95	8.71	6.67	13.41	100.00
170-195	46.79	23.82	10.69	8.61	10.09	100.00
200-212.5	53.99	17.38	9.95	7.46	11.22	100.00
212.5 - 228	41.67	17.66	13.34	11.67	15.66	100.00
228 - 233.5	50.06	17.27	10.44	8.52	13.71	100.00
233.5 - 262	43.36	16.94	13.33	11.42	14.95	100.00
262 - 300	50.23	18.37	10.03	7.12	14.25	100.00

3.0 RESULTS AND DISCUSSION

Measured sample densities are shown in Table 2. As expected, there was a correlation between sample density and L.O.I value, with a lower density corresponding to a high L.O.I and vice versa.

TABLE 2. DENSITY DETERMINATION OF SELECTED SAMPLES

SAMPLE	L.O.I.	DENSITY
DDH1: 160.0 - 170.0	2.59	3.14
DDH882: 200.0 - 212.5	7.12	2.97
DDH882: 125.5 - 130.0	10.28	2.81
PURE OLIVINE (REF.)		3.2 - 3.6
PURE SERP. (REF.)		2.5 - 2.8

Table 3 shows size analysis data for the crushed samples. Selected data plotted on a Gaudin-Schuhmann plot (Figure 2) show that the range of sample size distributions is relatively narrow. (See Appendix 4 for raw data). No correlation was observed between mode of occurence of serpentine and sample breakage characteristics.

Results of sink-float testing are shown in Table 4 and Figure 3. They show that as feed particle size is decreased, the sink float procedure produces a cleaner olivine concentrate. Figure 3 indicates that comminution to -48 +100 mesh liberated olivine in a few core segments sufficient to produce L.O.I.'s of < 2. This figure also indicates that comminution to less than 100 # (150μm) would be required for adequate liberation on most core segments. This would mean that simple gravity separation techniques are probably inadequate for the majority of the Olivine Mountain material.

As a check on accuracy, original sample L.O.I. values were compared with the L.O.I.'s recalculated from sink-float products (Table 5). Good agreement was obtained between the two sets of values, with an L.O.I. difference of 0.5 units or less for twenty of the twenty three samples.

No correlation was found between feed and product L.O.I.'s. For example, one feed of L.O.I. 7.03 was upgraded to an L.O.I. of 2.76, while another feed of L.O.I. 7.25 was cleanable only to an L.O.I. of 4.97. This difference in cleanability could not be attributed to any one specific factor. Mode of occurence of serpentine did not appear to be the reason.

Only five of the twenty three samples were cleanable to an overall (i.e. cumulative for all size fractions) L.O.I. of 2.0 or less. They were:

DDH-1:	160-170
	170-190
	190-200
DDH-882:	212.5-228
	233.5-262

Tables 4 and 5 show that for all samples, the L.O.I. for the -100M fraction was lower than the feed L.O.I. This indicates that serpentine tended to remain in the coarser size fractions.

TABLE 4

RESULTS OF SINK/FLOAT ANALYSES

SAMPLE I.D.	-8 +14M				-14 +28M				-28 +48M				-48 +100M				-100M		
	FLOATS (WT. %)	L.O.I.	SINKS (WT. %)	L.O.I.	FLOATS (WT. %)	L.O.I.	SINKS (WT. %)	L.O.I.	FLOATS (WT. %)	L.O.I.	SINKS (WT. %)	L.O.I.	FLOATS (WT. %)	L.O.I.	SINKS (WT. %)	L.O.I.	(WT. %)	L.O.I.	CUMULATIVE WEIGHT PERCENT
DDH-1: 20-45	6.97	11.71	39.25	3.30	3.14	11.87	20.74	3.32	1.63	11.90	8.24	2.56	1.10	11.39	6.34	1.99	12.59	3.60	100.00
45-76.25	4.33	11.90	46.98	2.77	1.81	12.13	14.32	2.31	1.09	12.35	9.39	1.81	0.76	12.27	7.56	1.33	13.75	3.01	100.00
80-90	3.75	12.03	46.40	3.07	1.59	12.58	17.20	2.58	0.91	12.95	10.00	2.00	0.59	12.13	7.23	1.78	12.33	2.85	100.00
150-155	12.66	12.49	42.08	2.93	4.37	12.81	11.43	2.73	2.53	13.13	6.99	2.36	1.40	13.53	5.56	2.02	12.99	4.43	100.00
160-170	3.30	11.55	42.19	1.75	1.98	11.09	20.26	1.71	0.80	12.56	10.50	1.37	0.48	12.27	8.37	1.14	12.13	2.42	100.00
170-190	4.12	12.93	49.67	1.57	1.25	13.34	14.82	1.63	0.78	13.09	9.20	1.35	0.48	13.24	7.58	1.11	12.10	2.25	100.00
190-200	6.46	12.06	44.99	1.93	2.30	12.38	14.59	2.04	1.32	12.54	8.93	1.72	0.83	12.83	7.16	1.42	13.42	2.88	100.00
DDH-382: 30-33.1	3.81	10.74	47.33	2.83	1.41	11.78	16.62	2.67	0.78	12.69	8.74	2.26	0.48	12.72	7.16	1.93	13.67	3.04	100.00
33.1-45.5	6.82	11.45	35.92	2.80	1.72	12.12	14.85	2.29	1.07	11.14	12.96	1.51	0.90	11.35	13.20	0.94	12.57	2.87	100.00
45.5-70	5.27	11.25	43.31	2.75	1.80	11.96	15.85	3.46	0.94	12.28	9.79	1.89	0.59	12.75	8.43	1.52	14.02	2.97	100.00
70-80	21.70	10.88	23.91	4.74	12.39	11.62	13.64	6.61	4.51	12.23	5.38	4.47	2.72	12.38	4.44	5.23	11.31	5.80	100.00
80-90	9.77	10.86	44.33	3.79	3.07	11.26	13.47	3.87	1.81	11.31	7.75	3.46	1.26	11.35	6.59	2.73	11.95	3.99	100.00
90-94.5	9.32	12.08	44.19	3.91	3.83	11.75	15.94	3.84	1.72	12.81	7.25	3.60	1.09	12.90	5.29	3.43	11.36	4.42	100.00
95-116	13.95	10.22	34.88	4.77	6.74	10.46	16.03	4.03	2.75	10.75	6.27	3.57	1.69	10.91	4.92	2.59	12.77	4.79	100.00
116-125.5	20.92	10.41	38.84	5.15	7.24	10.33	10.11	4.67	3.44	11.26	5.01	4.40	1.98	12.18	3.05	4.52	9.40	5.33	100.00
125.5-130	42.65	11.31	13.61	5.74	14.33	11.98	5.74	5.63	5.38	12.29	2.37	5.12	2.86	12.87	1.74	3.83	11.31	8.08	100.00
160-170	7.20	10.72	47.07	3.58	2.40	10.91	14.57	3.44	1.34	11.01	7.36	2.96	0.98	11.55	5.68	2.13	13.41	3.76	100.00
170-195	4.97	11.56	41.83	2.49	2.40	11.77	21.44	2.50	0.96	11.90	9.71	1.95	0.72	12.00	7.86	1.39	10.11	2.84	100.00
200-212.5	22.28	12.71	31.69	2.78	6.45	12.78	10.98	2.72	3.20	12.53	6.73	2.07	1.90	12.30	5.56	2.04	11.22	4.95	100.00
212.5 - 228	5.64	10.30	36.05	2.23	1.52	10.80	16.13	2.14	0.86	10.91	12.46	1.53	0.60	10.59	11.06	1.29	15.67	2.54	100.00
228 - 233.5	16.43	11.20	27.69	3.14	6.36	11.40	12.97	2.89	3.20	11.47	8.51	2.17	1.99	11.68	7.49	1.71	15.36	3.96	100.00
233.5 - 262	2.16	10.19	41.20	2.16	0.75	9.95	16.20	1.88	0.48	10.02	12.85	1.45	0.42	8.75	11.00	1.11	14.95	2.30	100.00
262 - 300	9.00	11.71	41.24	3.34	3.57	9.12	14.80	3.30	2.01	10.35	8.01	3.42	1.22	11.33	5.87	2.96	14.26	4.37	100.00

FIGURE 3. SELECTED RESULTS OF SINK-FLOAT ANALYSIS

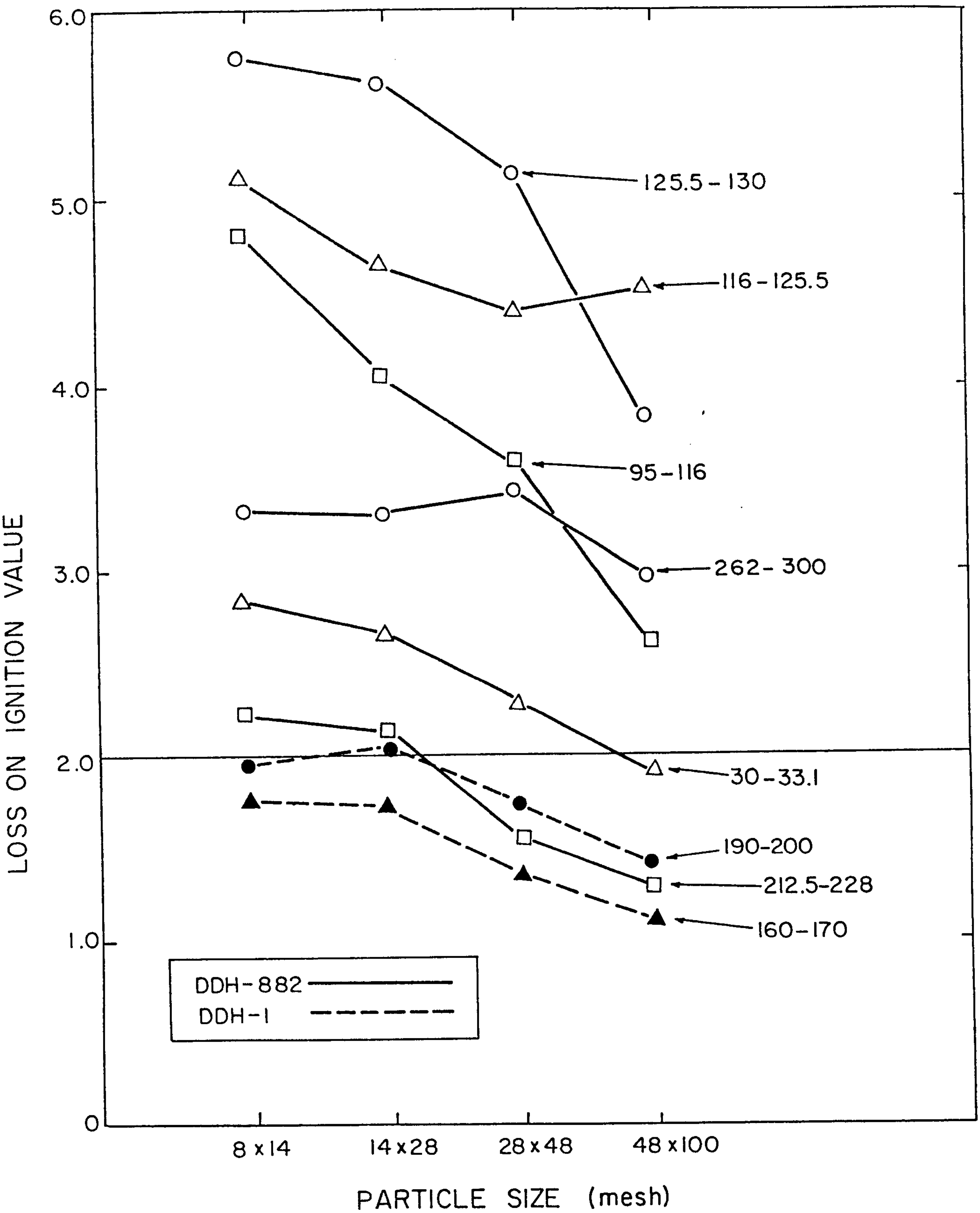


TABLE 5. COMPARISON BETWEEN ORIGINAL AND RECALCULATED FEED L.O.I.'s

		FEED (ORIGINAL) L.O.I.	RECALCULATED L.O.I.	DIFFERENCE (L.O.I. UNITS)
DDH-1:	20-45	4.62	4.28	0.34
	45-76.25	3.30	3.28	0.02
	80-90	3.18	3.39	-0.21
	150-155	7.03	5.06	1.97
	160-170	2.59	2.38	0.21
	170-190	2.84	2.37	0.47
	190-200	3.49	3.14	0.35
DDH-882:	30-33.1	2.79	3.27	-0.48
	33.1-45.5	3.85	3.24	0.61
	45.5-70	3.77	3.47	0.30
	70-80	7.49	7.85	-0.36
	80-90	5.28	4.88	0.40
	90-94.5	5.10	5.22	-0.12
	95-116	5.62	5.88	-0.26
	116-125.5	7.25	6.89	0.36
	125.5-130	10.28	9.78	0.50
	160-170	4.55	4.32	0.23
	170-195	3.24	3.22	0.02
	200-212.5	7.12	6.28	0.84
	212.5-228	3.17	2.78	0.39
	228-233.5	5.78	5.33	0.45
	233.5-262	2.48	2.23	0.25
	262-300	4.68	4.66	0.02

Table 6 shows the total yield to "sinks" and resultant L.O.I. for each sample. Three of the low yields (DDH882:70-80, DDH882:116-125.5, and DDH882:125.5-130) were at least partly due to gouge material in the samples. The low yield obtained for DDH882:200-212.5 is probably due to the presence of material from a porphyry dike. No explanation was found for the low yield of sample DDH882:228-233.5.

TABLE 6. TOTAL YIELD TO SINKS, AND CUMULATIVE L.O.I. OF SINKS

		TOTAL YIELD TO SINKS	CUMULATIVE L.O.I. OF SINKS
DDH-1:	20-45	74.57	3.11
	45-76.25	78.25	2.43
	80-90	80.82	2.72
	150-155	66.05	2.76
	160-170	81.32	1.63
	170-190	81.27	1.51
	190-200	75.67	1.88
DDH-882:	30-33.1	79.85	2.65
	33.1-45.5	76.93	2.17
	45.5-70	77.38	2.65
	70-80	47.36	5.29
	80-90	72.14	3.67
	90-94.5	72.68	3.83
	95-116	62.10	4.29
	116-125.5	57.02	4.97
	125.5-130	23.48	5.51
	160-170	74.68	3.38
	170-195	80.83	2.32
	200-212.5	54.96	2.61
	212.5-228	75.71	1.96
	228-233.5	56.66	2.75
	233.5-262	81.24	1.85
	262-300	69.93	3.31

Table 7 shows data for only those size fractions that were cleanable to an L.O.I. of 2.10 or less. Overall yields at this L.O.I. ranged from zero to 81.32% of the total feed weight.

The results cited were obtained under ideal separation conditions. In a commercial scale gravity concentration operation, separations tend to be less than ideal due to entrainment and misreporting of particles. One measure of the amenability of an ore to gravity concentration is the Concentration Criterion:

$$CC = \frac{(\sigma_h - \sigma_f)}{(\sigma_l - \sigma_f)}$$

where: σ_h = S.G. of heavy mineral (gms/cc)
σ_l = S.G. of light mineral (gms/cc)
σ_f = density of suspending fluid (gms/cc)

for this ore (assuming water as the suspending fluid):

$$CC = \frac{(3.4 - 1)}{(2.7 - 1)} = 1.41$$

The standard Concentration Curve presented by Fuerstenau (1) (Figure 4) shows that wet gravity concentration might not be effective on this ore. Use of a heavy separating medium would increase the Concentration Criterion, making a separation easier. However, medium recovery circuits would then be required.

Figure 4. The Concentration Criterion at Different Particle Size (After Burt[1])

4.0 CONCLUSIONS

1. As feed particle sized decreased, olivine product L.O.I.'s also decreased, indicating improved liberation of olivine and greater cleanability at fine sizes.

2. No feed sample of L.O.I greater than 3.5 could be cleaned to an L.O.I. of 2.0 or less.

3. There was no observable correlation between feed L.O.I and product L.O.I, or between mode of occurence of serpentine and sample cleanability.

4. Of the twenty three samples tested, fifteen contained one or more size fractions cleanable to an L.O.I. of 2.10 or less. Only five of the samples were cleanable to L.O.I. less than 2.0 when all the +100M material was treated.

5. Additional testwork using grinding to -100 mesh and possibly flotation separations at these finer sizes is required to prove commercially viable processability to an L.O.I. of < 2.

'ABLE 7: SIZE FRACTIONS CLEANABLE TO L.O.I. OF 2.10 OR LESS

;ample I.D.	SIZE FRACTION									
	-8 + 14m		-14 + 28m		-28 + 48m		-48 + 100m			
	SINKS (WT.%)	L.O.I.	SINKS (WT.%)	L.O.I.	SINKS (WT.%)	L.O.I.	SINKS (WT.%)	L.O.I.	TOTAL YIELDS TO SINKS (WT %)	CUMULATIVE L.O.I. OF SINKS
DH-1: 20-45	---	---	---	---	---	---	6.34	1.99	6.34	1.99
45-76.25	---	---	---	---	9.39	1.81	7.56	1.33	16.95	1.60
80-90	---	---	---	---	10.00	2.00	7.23	1.78	17.23	1.91
150-155	---	---	---	---	---	---	5.56	2.02	5.56	2.02
160-170	42.19	1.75	20.26	1.71	10.50	1.37	8.37	1.14	81.32	1.63
170-190	49.67	1.57	14.82	1.63	9.20	1.35	7.58	1.11	81.27	1.51
190-200	44.99	1.93	14.59	2.04	8.93	1.72	7.16	1.42	75.67	1.88
DH-882:										
30-33.1	---	---	---	---	---	---	7.16	1.93	7.16	1.93
33.1-45.5	---	---	---	---	12.96	1.51	13.20	0.94	26.16	1.22
45.5-70	---	---	---	---	9.79	1.89	8.43	1.52	18.22	1.72
70-80									00.00	N/A
80-90									00.00	N/A
90-94.5									00.00	N/A
95-116									00.00	N/A
116.125.5									00.00	N/A
125.5-130									00.00	N/A
160-170									00.00	N/A
170-195	---	---	---	---	9.71	1.95	7.86	1.39	17.57	1.70
200-212.5	---	---	---	---	6.73	2.07	5.56	2.04	12.29	2.06
212.5-228	---	---	---	---	12.46	1.53	11.06	1.29	23.52	1.42
228-233.5	---	---	---	---	---	---	7.49	1.71	7.49	1.71
233.5-262	---	---	16.20	1.88	12.85	1.45	11.00	1.11	40.05	1.53
262-300									00.00	N/A

REFERENCE CITED

Burt, R.O., Gravity Concentration Technology, Elsevier Science Publishing Company Inc., New York, (c) 1984.

White, G.V., Olivine potential in the Tulameen ultramafic complex, Preliminary Report, B.C. Energy Mines & Pet. Res., Geol. Fieldwork Paper 1987-1, p. 303-306.

APPENDIX 1 - LOSS-ON-IGNITION TEST PROCEDURE

Instruction for Processing and Analysis of Dia Met Percussion Rock Samples.

1. Dry any wet or damp samples. (Note: most samples will be dry).

2. Split out a representative 200 to 250 grms portion using a 1/4 to 3/8 inch wide chute sample splitter.

3. Pulverize the entire 200 - 250 gram split to -150 mesh.

4. Air dry at least 20 - 25 gram portion of the pulverized sample to 160^{0}C for one hour. Cool or store in a desiccator with drying agent such as anhydride and red/blue silica gel indicator to indicate if drying agent is water saturated.

5. Prelabel (if sample # labelling required) empty 50 cc wide mouth quartz crucibles* and fire crucibles to remove any water by heating crucibles to 1800^{0}F (982^{0}C) for one half hour.

   * Note: OK to use porcelain crucibles provided fired as above.

6. Cool empty crucibles as for #4 above in a desiccator and weigh each empty crucible to 0.001 gram accuracy.

7. Add about 20 to 25 grams of dried sample to crucible and weigh to 0.001 gram accuracy so that weight of sample to three decimal places is determined.

8. Add open crucibles to preheated furnace in which the temperature has stabilized to 1800^{0}F (982^{0}C). Note the time.

9. Heat sample for two hours at 1800^{0}F (982^{0}C) or for the time required to achieve a constant weight, cool to maximum temperature permitting transfer to desiccator.

10. Cool sample in desiccator as for #4 and #6 above and reweigh sample and crucible to three decimal places, so that the loss on ignition of the sample is calculated as follows:

Weight of crucible only............................ W1 gram
Weight of crucible plus sand before heating......... W2 gram
Weight of crucible plus sand after heating.......... W3 gram

$$L.O.I.\ \% = \frac{W2 - W3}{W2 - W1} \times 100$$

APPENDIX 2. SAMPLE DRILL CORE DATA AND L.O.I. VALUES

TEST SAMPLE #	CORE INCLUDED	CORE LENGTH (FEET)	CORE WEIGHT (LBS)	% OF TOTAL LENGTH	% OF TOTAL WEIGHT	BARRINGER LOI VALUE
1	DDH-1: 20.00 - 25.67	5.67	2.50	22.68	12.20	3.25
	DDH-1: 25.67 - 30.00	4.33	4.25	17.32	20.73	4.98
	DDH-1: 30.00 - 38.33	8.33	7.75	33.32	37.80	2.50
	DDH-1: 38.33 - 40.00	1.67	1.25	6.68	6.10	10.18
	DDH-1: 40.00 - 41.25	1.25	1.25	5.00	6.10	9.03
	DDH-1: 41.25 - 42.75	1.50	1.50	6.00	7.32	3.86
	DDH-1: 42.75 - 45.00	2.25	2.00	9.00	9.76	8.11
	TOTAL	25.00	20.50	100.00	100.00	

WEIGHTED ASSAY (LENGTH BASIS)	=	4.53
WEIGHTED ASSAY (WEIGHT BASIS)	=	4.62
DIFFERENCE		-0.09 LOI UNITS

TEST SAMPLE #	CORE INCLUDED	CORE LENGTH (FEET)	CORE WEIGHT (LBS)	% OF TOTAL LENGTH	% OF TOTAL WEIGHT	BARRINGER LOI VALUE
2	DDH-1: 45.00 - 50.00	5.00	4.00	16.00	13.68	1.53
	DDH-1: 50.00 - 58.67	8.67	8.50	27.74	29.06	1.75
	DDH-1: 58.67 - 60.00	1.33	1.25	4.26	4.27	2.77
	DDH-1: 60.00 - 61.83	1.83	1.75	5.86	5.98	3.63
	DDH-1: 61.83 - 63.83	2.00	1.75	6.40	5.98	5.61
	DDH-1: 63.83 - 69.25	5.42	6.00	17.34	20.51	3.11
	DDH-1: 69.25 - 70.00	0.75	0.75	2.40	2.56	4.09
	DDH-1: 70.00 - 76.25	6.25	5.25	20.00	17.95	6.51
	TOTAL	31.25	29.25	100.00	100.00	

WEIGHTED ASSAY (LENGTH BASIS)	=	3.36
WEIGHTED ASSAY (WEIGHT BASIS)	=	3.30
DIFFERENCE		0.06 LOI UNITS

Appendix 2. Cont'd

TEST SAMPLE #	CORE INCLUDED	CORE LENGTH (FEET)	CORE WEIGHT (LBS)	% OF TOTAL LENGTH	% OF TOTAL WEIGHT	BARRINGER LOI VALUE
3	DDH-1: 80.00 - 86.00	6.00	4.50	60.00	56.25	3.77
	DDH-1: 86.00 - 90.00	4.00	3.50	40.00	43.75	2.42
	TOTAL	10.00	8.00	100.00	100.00	

WEIGHTED ASSAY (LENGTH BASIS) = 3.23
WEIGHTED ASSAY (WEIGHT BASIS) = 3.18

DIFFERENCE 0.05 LOI UNITS

TEST SAMPLE #	CORE INCLUDED	CORE LENGTH (FEET)	CORE WEIGHT (LBS)	% OF TOTAL LENGTH	% OF TOTAL WEIGHT	BARRINGER LOI VALUE
4	DDH-1:150.00 - 155.00	5.00	5.00	100.00	100.00	7.03
	TOTAL	5.00	5.00	100.00	100.00	

WEIGHTED ASSAY (LENGTH BASIS) = 7.03
WEIGHTED ASSAY (WEIGHT BASIS) = 7.03

DIFFERENCE 0.00 LOI UNITS

Appendix 2. - cont'd -

TEST SAMPLE #	CORE INCLUDED	CORE LENGTH (FEET)	CORE WEIGHT (LBS)	% OF TOTAL LENGTH	% OF TOTAL WEIGHT	BARRINGER LOI VALUE
5	DDH-1:160.00 - 163.83	3.83	4.00	38.45	38.10	2.47
	DDH-1:163.83 - 164.80	0.97	1.00	9.74	9.52	2.42
	DDH-1:164.83 - 168.40	3.57	3.75	35.84	35.71	2.36
	DDH-1:168.41 - 170.00	1.59	1.75	15.96	16.67	3.44
	TOTAL	9.96	10.50	100.00	100.00	

WEIGHTED ASSAY (LENGTH BASIS) = 2.58
WEIGHTED ASSAY (WEIGHT BASIS) = 2.59

DIFFERENCE -0.01 LOI UNITS

TEST SAMPLE #	CORE INCLUDED	CORE LENGTH (FEET)	CORE WEIGHT (LBS)	% OF TOTAL LENGTH	% OF TOTAL WEIGHT	BARRINGER LOI VALUE
6	DDH-1:170.00 - 174.25	4.25	2.50	21.25	12.99	5.63
	DDH-1:174.25 - 180.00	5.75	6.75	28.75	35.06	2.77
	DDH-1:180.00 - 187.00	7.00	7.00	35.00	36.36	2.19
	DDH-1:187.00 - 190.00	3.00	3.00	15.00	15.58	2.22
	TOTAL	20.00	19.25	100.00	100.00	

WEIGHTED ASSAY (LENGTH BASIS) = 3.09
WEIGHTED ASSAY (WEIGHT BASIS) = 2.84

DIFFERENCE 0.25 LOI UNITS

Appendix 2. - cont'd -

TEST SAMPLE #	CORE INCLUDED	CORE LENGTH (FEET)	CORE WEIGHT (LBS)	% OF TOTAL LENGTH	% OF TOTAL WEIGHT	BARRINGER LOI VALUE
7	DDH-1:190.00 - 192.92	2.92	3.00	29.32	30.00	2.20
	DDH-1:192.92 - 197.80	4.88	4.50	49.00	45.00	4.30
	DDH-1:197.84 - 200.00	2.16	2.50	21.69	25.00	3.58
	TOTAL	9.96	10.00	100.00	100.00	

WEIGHTED ASSAY (LENGTH BASIS) = 3.53
WEIGHTED ASSAY (WEIGHT BASIS) = 3.49

DIFFERENCE 0.04 LOI UNITS

TEST SAMPLE #	CORE INCLUDED	CORE LENGTH (FEET)	CORE WEIGHT (LBS)	% OF TOTAL LENGTH	% OF TOTAL WEIGHT	BARRINGER LOI VALUE
8	DDH-882: 30.00 - 33.10	3.10	4.00	100.00	100.00	2.79
	TOTAL	3.10	4.00	100.00	100.00	

WEIGHTED ASSAY (LENGTH BASIS) = 2.79
WEIGHTED ASSAY (WEIGHT BASIS) = 2.79

DIFFERENCE 0.00 LOI UNITS

TEST SAMPLE #	CORE INCLUDED	CORE LENGTH (FEET)	CORE WEIGHT (LBS)	% OF TOTAL LENGTH	% OF TOTAL WEIGHT	BARRINGER LOI VALUE
9	DDH-882: 33.10 - 34.50	1.40	1.25	11.29	11.36	6.94
	DDH-882: 34.50 - 40.00	5.50	4.75	44.35	43.18	3.15
	DDH-882: 40.00 - 45.50	5.50	5.00	44.35	45.45	3.74
	TOTAL	12.40	11.00	100.00	100.00	

WEIGHTED ASSAY (LENGTH BASIS) = 3.84
WEIGHTED ASSAY (WEIGHT BASIS) = 3.85

DIFFERENCE -0.01 LOI UNITS

Appendix 2. - cont'd -

TEST SAMPLE #	CORE INCLUDED	CORE LENGTH (FEET)	CORE WEIGHT (LBS)	% OF TOTAL LENGTH	% OF TOTAL WEIGHT	BARRINGER LOI VALUE
10	DDH-882: 45.50 - 50.00	4.50	4.50	18.37	18.18	2.94
	DDH-882: 50.00 - 60.00	10.00	10.75	40.82	43.43	4.20
	DDH-882: 60.00 - 65.80	5.80	5.50	23.67	22.22	3.66
	DDH-882: 65.80 - 70.00	4.20	4.00	17.14	16.16	3.71
	TOTAL	24.50	24.75	100.00	100.00	

WEIGHTED ASSAY (LENGTH BASIS) = 3.76
WEIGHTED ASSAY (WEIGHT BASIS) = 3.77

DIFFERENCE -0.01 LOI UNITS

TEST SAMPLE #	CORE INCLUDED	CORE LENGTH (FEET)	CORE WEIGHT (LBS)	% OF TOTAL LENGTH	% OF TOTAL WEIGHT	BARRINGER LOI VALUE
11	DDH-882: 70.00 - 72.00	2.00	2.00	20.00	22.22	6.59
	DDH-882: 72.00 - 80.00	8.00	7.00	80.00	77.78	7.75
	TOTAL	10.00	9.00	100.00	100.00	

WEIGHTED ASSAY (LENGTH BASIS) = 7.52
WEIGHTED ASSAY (WEIGHT BASIS) = 7.49

DIFFERENCE 0.03 LOI UNITS

TEST SAMPLE #	CORE INCLUDED	CORE LENGTH (FEET)	CORE WEIGHT (LBS)	% OF TOTAL LENGTH	% OF TOTAL WEIGHT	BARRINGER LOI VALUE
12	DDH-882: 80.00 - 82.50	2.50	2.50	25.00	23.81	8.53
	DDH-882: 82.50 - 90.00	7.50	8.00	75.00	76.19	4.26
	TOTAL	10.00	10.50	100.00	100.00	

WEIGHTED ASSAY (LENGTH BASIS) = 5.33
WEIGHTED ASSAY (WEIGHT BASIS) = 5.28

DIFFERENCE 0.05 LOI UNITS

Appendix 2. - cont'd -

TEST SAMPLE #	CORE INCLUDED	CORE LENGTH (FEET)	CORE WEIGHT (LBS)	% OF TOTAL LENGTH	% OF TOTAL WEIGHT	BARRINGER LOI VALUE
13	DDH-882: 90.00 - 94.50	4.50	5.25	100.00	100.00	5.10
	TOTAL	3.10	4.00	100.00	100.00	

WEIGHTED ASSAY (LENGTH BASIS) = 5.10
WEIGHTED ASSAY (WEIGHT BASIS) = 5.10

DIFFERENCE 0.00 LOI UNITS

TEST SAMPLE #	CORE INCLUDED	CORE LENGTH (FEET)	CORE WEIGHT (LBS)	% OF TOTAL LENGTH	% OF TOTAL WEIGHT	BARRINGER LOI VALUE
14	DDH882: 95.00 - 97.50	2.50	2.25	11.90	12.68	5.59
	DDH882: 97.50 - 99.50	2.00	1.75	9.52	9.86	7.78
	DDH882: 99.50 - 105.50	6.00	5.00	28.57	28.17	3.43
	DDH882: 105.50 - 110.00	4.50	3.25	21.43	18.31	5.60
	DDH882: 110.00 - 116.00	6.00	5.50	28.57	30.99	6.94
	TOTAL	21.00	17.75	100.00	100.00	

WEIGHTED ASSAY (LENGTH BASIS) = 5.57
WEIGHTED ASSAY (WEIGHT BASIS) = 5.62

DIFFERENCE -0.05 LOI UNITS

TEST SAMPLE #	CORE INCLUDED	CORE LENGTH (FEET)	CORE WEIGHT (LBS)	% OF TOTAL LENGTH	% OF TOTAL WEIGHT	BARRINGER LOI VALUE
15	DDH882: 116.00 - 118.50	2.50	2.50	26.32	29.41	8.14
	DDH882: 118.50 - 119.50	1.00	0.50	10.53	5.88	11.09
	DDH882: 119.50 - 125.50	6.00	5.50	63.16	64.71	6.49
	TOTAL	9.50	8.50	100.00	100.00	

WEIGHTED ASSAY (LENGTH BASIS) = 7.41
WEIGHTED ASSAY (WEIGHT BASIS) = 7.25

DIFFERENCE 0.16 LOI UNITS

Appendix 2. - cont'd -

TEST SAMPLE #	CORE INCLUDED	CORE LENGTH (FEET)	CORE WEIGHT (LBS)	% OF TOTAL LENGTH	% OF TOTAL WEIGHT	BARRINGER LOI VALUE
16	DDH882: 125.50 - 130.00	4.50	4.00	100.00	100.00	10.28
		4.50	4.00	100.00	100.00	

WEIGHTED ASSAY (LENGTH BASIS)	=	10.28
WEIGHTED ASSAY (WEIGHT BASIS)	=	10.28
DIFFERENCE		0.00 LOI UNITS

TEST SAMPLE #	CORE INCLULUDED	CORE LENGTH (FEET)	CORE WEIGHT (LBS)	% OF TOTAL LENGTH	% OF TOTAL WEIGHT	BARRINGER LOI VALUE
17	DDH-882:160.00 - 166.00	6.00	5.75	60.00	62.16	4.79
	DDH-882:166.00 - 170.00	4.00	3.50	40.00	37.84	4.15
	TOTAL	10.00	9.25	100.00	100.00	

WEIGHTED ASSAY (LENGTH BASIS)	=	4.53
WEIGHTED ASSAY (WEIGHT BASIS)	=	4.55
DIFFERENCE		-0.01 LOI UNITS

TEST SAMPLE #	CORE INCLULUDED	CORE LENGTH (FEET)	CORE WEIGHT (LBS)	% OF TOTAL LENGTH	% OF TOTAL WEIGHT	BARRINGER LOI VALUE
18	DDH-882:170.00 - 177.20	7.20	7.50	28.80	29.41	3.92
	DDH-882:177.20 - 180.00	2.80	3.50	11.20	13.73	3.72
	DDH-882:180.00 - 187.00	7.00	7.00	28.00	27.45	2.67
	DDH-882:187.00 - 190.00	3.00	2.75	12.00	10.78	3.01
	DDH-882:190.00 - 191.40	1.40	1.25	5.60	4.90	4.18
	DDH-882:191.40 - 195.00	3.60	3.50	14.40	13.73	2.27
	TOTAL	25.00	25.50	100.00	100.00	

WEIGHTED ASSAY (LENGTH BASIS)	=	3.22
WEIGHTED ASSAY (WEIGHT BASIS)	=	3.24
DIFFERENCE		-0.02 LOI UNITS

Appendix 2. - cont'd -

TEST SAMPLE #	CORE INCLULUDED	CORE LENGTH (FEET)	CORE WEIGHT (LBS)	% OF TOTAL LENGTH	% OF TOTAL WEIGHT	BARRINGER LOI VALUE
19	DDH-882:200.00 - 207.00	7.00	7.75	56.00	58.49	5.04
	DDH-882:207.00 - 210.00	3.00	3.00	24.00	22.64	10.41
	DDH-882:210.00 - 212.50	2.50	2.50	20.00	18.87	9.64
	TOTAL	12.50	13.25	100.00	100.00	

WEIGHTED ASSAY (LENGTH BASIS)	=	7.25
WEIGHTED ASSAY (WEIGHT BASIS)	=	7.12
DIFFERENCE		0.13 LOI UNITS

TEST SAMPLE #	CORE INCLUDED	CORE LENGTH (FEET)	CORE WEIGHT (LBS)	% OF TOTAL LENGTH	% OF TOTAL WEIGHT	BARRINGER LOI VALUE
20	DDH-882:212.50 - 217.00	4.50	4.50	29.03	26.09	2.82
	DDH-882:217.00 - 220.00	3.00	3.50	19.35	20.29	3.65
	DDH-882:220.00 - 228.00	8.00	9.25	51.61	53.62	3.15
	TOTAL	15.50	17.25	100.00	100.00	

WEIGHTED ASSAY (LENGTH BASIS)	=	3.15
WEIGHTED ASSAY (WEIGHT BASIS)	=	3.17
DIFFERENCE		-0.01 LOI UNITS

TEST SAMPLE #	CORE INCLUDED	CORE LENGTH (FEET)	CORE WEIGHT (LBS)	% OF TOTAL LENGTH	% OF TOTAL WEIGHT	BARRINGER LOI VALUE
21	DDH-882:228.00 - 230.00	2.00	1.75	36.36	33.33	7.45
	DDH-882:230.00 - 233.50	3.50	3.50	63.64	66.67	4.95
	TOTAL	5.50	5.25	100.00	100.00	

WEIGHTED ASSAY (LENGTH BASIS)	=	5.86
WEIGHTED ASSAY (WEIGHT BASIS)	=	5.78
DIFFERENCE		0.08 LOI UNITS

Appendix 2. - cont'd -

TEST SAMPLE #	CORE INCLUDED	CORE LENGTH (FEET)	CORE WEIGHT (LBS)	% OF TOTAL LENGTH	% OF TOTAL WEIGHT	BARRINGER LOI VALUE
22	DDH-882:233.50 - 240.00	6.50	7.50	22.81	24.39	2.24
	DDH-882:240.00 - 244.00	4.00	4.25	14.04	13.82	2.45
	DDH-882:244.00 - 246.00	2.00	2.50	7.02	8.13	2.45
	DDH-882:246.00 - 250.00	4.00	3.50	14.04	11.38	3.01
	DDH-882:250.00 - 253.50	3.50	3.75	12.28	12.20	2.30
	DDH-882:253.50 - 255.00	1.50	2.00	5.26	6.50	4.36
	DDH-882:255.00 - 260.00	5.00	5.00	17.54	16.26	2.25
	DDH-882:260.00 - 262.00	2.00	2.25	7.02	7.32	1.73
	TOTAL	28.50	30.75	100.00	100.00	

WEIGHTED ASSAY (LENGTH BASIS) = 2.48
WEIGHTED ASSAY (WEIGHT BASIS) = 2.48

DIFFERENCE -0.01 LOI UNITS

TEST SAMPLE #	CORE INCLUDED	CORE LENGTH (FEET)	CORE WEIGHT (LBS)	% OF TOTAL LENGTH	% OF TOTAL WEIGHT	BARRINGER LOI VALUE
23	DDH-882:262.00 - 267.00	5.00	4.25	13.16	11.26	5.38
	DDH-882:267.00 - 270.00	3.00	3.25	7.89	8.61	4.47
	DDH-882:270.00 - 276.00	6.00	6.00	15.79	15.89	5.07
	DDH-882:276.00 - 280.00	4.00	4.00	10.53	10.60	4.11
	DDH-882:280.00 - 282.10	2.10	2.50	5.53	6.62	6.34
	DDH-882:282.10 - 286.00	3.90	3.75	10.26	9.93	2.65
	DDH-882:286.00 - 290.00	4.00	4.00	10.53	10.60	4.05
	DDH-882:290.00 - 293.50	3.50	3.50	9.21	9.27	6.05
	DDH-882:293.50 - 300.00	6.50	6.50	17.11	17.22	4.49
	TOTAL	38.00	37.75	100.00	100.00	

WEIGHTED ASSAY (LENGTH BASIS) = 4.67
WEIGHTED ASSAY (WEIGHT BASIS) = 4.68

DIFFERENCE -0.01 LOI UNITS

APPENDIX 3. COMPARISON OF L.O.I. VALUES CALCULATED FOR FEED SAMPLES

SAMPLE I.D.	AVERAGE L.O.I. CORE LENGTH BASIS	CORE WEIGHT BASIS	DIFFERENCE (L.O.I. UNITS)
DDH 1 : 20 - 45	4.53	4.62	-0.09
" : 45 - 76.25	3.36	3.30	0.06
" : 80 - 90	3.23	3.18	0.05
" : 150 - 155	7.03	7.03	0.0
" : 160 - 170	2.58	2.59	-0.01
" : 170 - 190	3.09	2.84	0.25
" : 190 - 200	3.53	3.49	0.04
DDH 882: 30 - 33.1	2.79	2.79	0.0
" : 33.1 - 45.5	3.84	3.85	-0.01
" : 45.5 - 70	3.76	3.77	-0.01
" : 70 - 80	7.52	7.49	0.03
" : 80 - 90	5.33	5.28	0.05
" : 90 - 94.5	5.10	5.10	0.0
" : 95 - 116	5.57	5.62	-0.05
" : 116 - 125.5	7.41	7.25	0.16
" : 125.5 - 130	10.28	10.28	0.0
" : 160 - 170	4.53	4.55	-0.01*
" : 170 - 195	3.22	3.24	-0.02
" : 200 - 212.5	7.25	7.12	0.13
" : 212.5 - 228	3.15	3.17	-0.01*
" : 228 - 233.5	5.86	5.78	0.08
" : 233.5 - 262	2.48	2.48	-0.01*
" : 262 - 300	4.67	4.68	-0.01

* differences not exact due to roundoff error

APPENDIX 4 - SIZE ANALYSIS OF CRUSHED SAMPLES

SIZE ANALYSIS OF CRUSHED SAMPLES

Sample I.D.	Total Weight (GM)	Weights of Size Fractions (GM)				
		-8 +14M	-14 +28M	-28 +48M	-48 +100M	-100M
DDH-1: 20-45	2000.30	923.60	477.50	198.40	149.40	251.40
45-76.35	2002.30	1027.30	323.10	210.10	166.80	275.00
80-90	1635.50	819.30	307.10	178.90	128.70	201.50
150-155	602.20	329.60	95.00	57.50	42.00	78.10
160-170	1342.30	610.90	298.10	151.70	118.80	162.80
170-190	2002.50	1027.50	321.80	200.20	161.70	242.30
190-200	1394.00	717.20	235.60	143.00	111.30	186.90
DDH-882:						
30-33.1	602.70	307.60	108.90	57.70	46.10	82.40
33.1-45.5	2000.80	854.70	331.60	280.80	282.20	251.50
45.5-70	1999.80	970.80	352.50	214.90	181.10	280.50
70-80	1776.60	810.40	461.30	176.30	127.60	201.00
80-90	2005.70	1085.40	330.90	192.50	157.50	239.40
90-94.5	849.00	453.80	167.70	76.50	54.80	96.20
95-116	1998.90	975.40	454.90	180.70	132.80	255.10
116.125.5	1472.20	878.40	255.90	124.70	75.30	138.10
125.5-130	600.90	338.10	120.50	46.60	27.60	68.10
160-170	1789.50	971.00	303.30	155.90	119.40	239.90
170-195	2003.70	937.60	477.20	214.20	172.50	202.20
200-212.5	2001.10	1080.40	347.80	199.20	149.20	224.50
212.5-228	2002.60	834.40	353.70	267.10	233.80	313.60
228-233.5	1004.60	502.90	173.50	104.90	85.60	137.70
233.5-262	1999.40	866.90	338.70	266.50	228.30	299.00
262-300	2001.90	1005.70	367.70	200.70	142.50	285.30

APPENDIX IV

Statement of Assessment Expenditures for Field Period from September 30, 1988 to September 26, 1989 pertaining to the Tina-Cathy (J & L) Claim Group.

Junior geologist & Assistant 10 days @ $300.00/day salary	$3,000.00
Expenses for above @ 100.00/day	$1,000.00
Petrographic studies, map plotting & drafting of geologist	$1,400.00
Truck, all terrain vehicle, survey equipment rentals	$1,100.00
Loss On Ignition assays (Barringer Lab)	$1,700.00
Test work on beneficiation of olivine & report	$8,000.00
Core splitting, 6 days @ $150.00/day	$ 900.00
Senior Geologist supervision & report preparation @ $350.00/day	$1,400.00
Total expenditures	$18,500.00

Please apply any excess credits granted to the P.A.C. account of Dia Met Minerals Ltd.

APPENDIX V.

Loss on ignition assay results from diamond drill holes DDH 88-1 and DDH 88-2. Assaying was done by Barringer Laboratories (Alberta) Ltd., Alberta, Canada.

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KELOWNA, B.C. V1X 4L1

WORK ORDER: 5460D-88

*** FINAL REPORT ***

GEOCHEMICAL LABORATORY REPORT

SAMPLE TYPE: DRILL CORE

SAMPLE NUMBER	LOI %
DDH-1:20.00-25.67	3.25
DDH-1:25.67-30.00	4.98
DDH-1:30.00-38.33	2.5
DDH-1:38.33-40.00	10.18
DDH-1:40.00-41.25	9.03
DDH-1:41.25-42.75	3.86
DDH-1:42.75-45.00	8.11
DDH-1:45.00-50.00	1.53
DDH-1:50.00-58.67	1.75
DDH-1:58.67-60.00	2.77
DDH-1:60.00-61.83	3.63
DDH-1:61.83-63.83	5.61
DDH-1:63.83-69.25	3.11
DDH-1:69.25-70.00	4.09
DDH-1:70.00-76.25	6.51
DDH-1:76.25-80.00	1.32
DDH-1:80.00-86.00	3.77
DDH-1:86.00-90.00	2.42
DDH-1:90.00-96.00	1.89
DDH-1:96.00-100.00	1.42
DDH-1:100.0-106.00	1.53
DDH-1:106.0-110.00	0.81
DDH-1:110.0-116.5	0.53
DDH-1:116.5-120.0	1.05
DDH-1:120.0-123.5	0.9
DDH-1:123.5-124.5	4.37
DDH-1:124.5-130.0	1.68
DDH-1:130.0-134.67	1.06
DDH-1:134.67-140.0	1.69
DDH-1:148.0-150.0	3.13

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WORK ORDER: 5460D-88

***** FINAL REPORT *****

GEOCHEMICAL LABORATORY REPORT

SAMPLE TYPE: DRILL CORE

SAMPLE NUMBER	LOI %
DDH-1:150.0-155.0	7.03
DDH-1:155.0-160.0	1.5
DDH-1:160.0-163.83	2.47
DDH-1:163.83-164.8	2.42
DDH-1:164.83-168.4	2.36
DDH-1:168.41-170.0	3.44
DDH-1:170.0-174.25	5.63
DDH-1:174.25-180.0	2.77
DDH-1:180.0-187.0	2.19
DDH-1:187.0-190.0	2.22
DDH-1:190.0-192.92	2.2
DDH-1:192.92-197.8	4.3
DDH-1:197.84-200.0	3.58
DDH-1:140.0-148.0	0.98

2
44
7
308

SIGNED:________________
C. Douglas Read,
LABORATORY MANAGER

FOOTNOTES:
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*** FINAL REPORT ***

GEOCHEMICAL LABORATORY REPORT

SAMPLE TYPE: PULP

SAMPLE NUMBER		LOI FLOATS %	LOI SINKS %
DDH-1:20-45	--8+14	16.63	5.02
DDH-1:45-76.25	--8+14	11.38	3.68
DDH-1:80-90	--8+14	11.85	3.67
DDH-1:150-155	--8+14	11.39	4.97
DDH-1:160-170	--8+14	12.13	3.5
DDH-1:170-190	--8+14	6.49	1.8
DDH-1:190-200	--8+14	12.59	3.04
DDH-1:20-45	--14+28	10.2	3.74
DDH-1:45-76.25	--14+28	6.03	4.71
DDH-1:80-90	--14+28	12.32	3.61
DDH-1:150-155	--14+28	12.8	3.51
DDH-1:160-170	--14+28	11.69	3.36
DDH-1:170-190	--14+28	14.1[illegible]	1.[illegible]
DDH-1:190-200	--14+28	12.[illegible]	[illegible]
DDH-1:45-76.25	--28+48	11.49	3.94
DDH-1:150-155	--28+48	3.95	4.13
DDH-1:170-190	--28+48	8.7	3.07
DDH-1:190-200	--28+48	3.67	3.39
DDH-1:45-76.25	-40+100	5.04	3.13
DDH-1:80-90	-48+100	4.43	2.[illegible]
DDH-1:170-190	-48+100	[illegible].45	1.69
DDH-2:30-33.1	--8+14	9.2	3.45
DDH-2:33.1-45.5	--8+14	10.1	[illegible]
DDH-2:45.5-70	--8+14	11.57	[illegible]
DDH-2:70-80	--8+14	9.76	[illegible]
DDH-2:80-90	--8+14	11.64	4.09
DDH-2:90-94.5	--8+14	10.59	4.06
DDH-2:95-116	--8+14	10.07	4.[illegible]
DDH-2:116-135.5	--8+14	[illegible]	[illegible]
DDH-2:125.5-130	--8+14	10.39	[illegible]

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KELOWNA, B.C.

ATTN: C. FIPKE

P.O. # B195493

WORK ORDER: [illegible]

*** FINAL REPORT ***

GEOCHEMICAL LABORATORY REPORT

SAMPLE TYPE: PULP

SAMPLE NUMBER		LOI FLOATS %	LOI SINKS %
DDH-2:160-170	--8+14	10.19	3.94
DDH-2:170-195	--8+14	11.02	2.33
DDH-2:200-212.5	--8+14	10.54	4.39
DDH-2:212.5-228	--8+14	10.44	3.61
DDH-2:228-233.5	--8+14	11.36	4.04
DDH-2:233.5-262	--8+14	10.39	3.15
DDH-2:262-300	--8+14	10.81	3.6
DDH-2:30-33.1	--14+28	6.79	3.9
DDH-2:33.1-45.5	--14+28	11.19	3.94
DDH-2:45.5-70	--14+28	10.83	4.16
DDH-2:70-80	--14+28	10.99	6.41
DDH-2:80-90	--14+28	11.84	[illegible]
DDH-2:90-94.5	--14+28	10.3	4.67
DDH-2:95-116	--14+28	10.59	4.14
DDH-2:116-125.5	--14+28	11.29	5.34
DDH-2:125.5-130	--14+28	11.66	4.99
DDH-2:160-170	--14+28	11.5	5.2
DDH-2:170-195	--14+28	11.72	3.98
DDH-2:200-212.5	--14+28	12.5	2.87
DDH-2:212.5-228	--14+28	10.42	1.72
DDH-2:228-233.5	--14+28	11.4	4.11
DDH-2:233.5-262	--14+28	9.44	3.2
DDH-2:262-300	--14+28	10.25	3.35
DDH-2:30-33.1	--28+48	6.21	[illegible]
DDH-2:90-94.5	--28+48	4.04	4.35
DDH-2:125.5-130	--28+48	11.26	3.77
DDH-2:170-195	--28+48	7.33	[illegible]
DDH-2:233.5-262	--28+48	5.37	[illegible]
DDH-2:33.1-45.5	--48+100	11.13	[illegible]
DDH-2:95-116	--48+100	[illegible]	[illegible]

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GEOCHEMICAL LABORATORY REPORT

SAMPLE TYPE: PULP

SAMPLE NUMBER		LOI FLOATS %	LOI SINKS %
DDH-2:116-125.5	-48+100	12.36	5.51
DDH-2:160-170	-48+100	2.46	3.15
DDH-2:233.5-262	-48+100	9.3	1.59

SIGNED: ______________________
C. Douglas Read,
LABORATORY MANAGER

ORIGINAL TO:
UNIVERSITY OF BRITISH COLUMBIA
VANCOUVER, B.C. V6T 1W5

FOOTNOTES:
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P. O. : B195493

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*** FINAL REPORT ***

GEOCHEMICAL LABORATORY REPORT

SAMPLE TYPE: PULP

SAMPLE NUMBER		LOI FLOATS %	LOI SINKS %
DDH-1:20-45	--28+48	8.58	3.69
DDH-1:80-90	--28+48	8.29	2.2
DDH-1:160-170	--28+48	6.76	2.73
DDH-1:20-45	-48+100	6.63	2.81
DDH-1:150-155	-48+100	8.7	2.94
DDH-1:160-170	-48+100	5.43	3.73
DDH-1:190-200	-48+100	6.26	2.09
DDH-2:116-125.5	--8+14	9.73	MS
DDH-2:33.1-45.5	--28+48	8.21	1.72
DDH-2:45.5-70	--28+48	8.04	2.48
DDH-2:70-80	--28+48	10.7	5.33
DDH-2:80-90	--28+48	10.56	4.96
DDH-2:95-116	--28+48	8.81	3.82
DDH-2:116-125.5	--28+48	10.18	5.11
DDH-2:160-170	--28+48	MS	3.5
DDH-2:200-212.5	--28+48	11.33	2.84
DDH-2:212.5-228	--28+48	8.7	1.6
DDH-2:228-233.5	--28+48	10.25	3.72
DDH-2:262-300	--28+48	9.51	2.84
DDH-2:30-33.1	-48+100	6.04	2.57
DDH-2:45.5-70	-48+100	5.22	2.54
DDH-2:70-80	-48+100	10.89	5.71
DDH-2:80-90	-48+100	8.51	3.4
DDH-2:90-94.5	-48+100	5.16	3.37
DDH-2:125.5-130	-48+100	11.51	6.17
DDH-2:160-170	-48+100	8.13	MS
DDH-2:170-195	-48+100	6.27	1.59
DDH-2:200-212.5	-48+100	12.34	3.04
DDH-2:212.5-228	-48+100	6.61	2.0
DDH-2:228-233.5	-48+100	9.98	4.15

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P. O. : B195493

WORK ORDER: 6031D-89

*** FINAL REPORT ***

GEOCHEMICAL LABORATORY REPORT

SAMPLE TYPE: PULP

SAMPLE NUMBER		LOI FLOATS %	LOI SINKS %
DDH-2:262-300	-48+100	7.12	3.18

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GEOCHEMICAL LABORATORY REPORT

SAMPLE TYPE: DRILL CORE

SAMPLE NUMBER	LOI %
DDH882:14.0-20.5	13.27
DDH882:20.0-22.5	13.48
DDH882:22.5-28.2	5.27
DDH882:28.2-30.0	5.59
DDH882:30.0-33.1	2.79
DDH882:33.1-34.5	6.94
DDH882:34.5-40.0	3.15
DDH882:40.0-45.5	3.74
DDH882:45.5-50.0	2.94
DDH882:50.0-60.0	4.2
DDH882:60.0-65.8	3.66
DDH882:65.8-70.0	3.71
DDH882:70.0-72.0	6.59
DDH882:72.0-80.0	7.75
DDH882:80.0-82.5	8.53
DDH882:82.5-90.0	4.26
DDH882:90.0-94.5	5.1
DDH882:94.5-95.0	6.41
DDH882:95.0-97.5	5.59
DDH882:97.5-99.5	7.78
DDH882:99.5-105.5	3.43
DDH882:105.5-110.0	5.6
DDH882:110.0-116.0	6.94
DDH882:116.0-118.5	8.14
DDH882:118.5-119.5	11.09
DDH882:119.5-125.5	6.49
DDH882:125.5-130.0	10.28
DDH882:160.0-166.0	4.79
DDH882:166.0-170.0	4.15
DDH882:170.0-177.2	3.92

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*** FINAL REPORT ***

GEOCHEMICAL LABORATORY REPORT

SAMPLE TYPE: DRILL CORE

SAMPLE NUMBER	LOI %
DDH882:177.2-180.0	3.72
DDH882:180.0-187.0	2.67
DDH882:187.0-190.0	3.01
DDH882:190.0-191.4	4.18
DDH882:191.4-195.0	2.27
DDH882:195.0-197.0	7.01
DDH882:197.0-200.0	1.81
DDH882:200.0-207.0	5.04
DDH882:207.0-210.0	10.41
DDH882:210.0-212.5	9.64
DDH882:212.5-217.0	2.82
DDH882:217.0-220.0	3.65
DDH882:220.0-228.0	3.15
DDH882:228.0-230.0	7.45
DDH882:230.0-233.5	4.95
DDH882:233.5-240.0	2.24
DDH882:240.0-244.0	2.45
DDH882:244.0-246.0	2.45
DDH882:246.0-250.0	3.01
DDH882:250.0-253.5	2.3
DDH882:253.5-255.0	4.36
DDH882:255.0-260.0	2.25
DDH882:260.0-262.0	1.73
DDH882:262.0-267.0	5.38
DDH882:267.0-270.0	4.47
DDH882:270.0-276.0	5.07
DDH882:276.0-280.0	4.11
DDH882:280.0-282.1	6.34
DDH882:282.1-286.0	2.65
DDH882:286.0-290.0	4.05

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GEOCHEMICAL LABORATORY REPORT

SAMPLE TYPE: DRILL CORE

SAMPLE NUMBER	LOI %
DDH882:290.0-293.5	6.04
DDH882:293.5-300.0	4.49
DDH882:300.0-308.0	1.33
DDH882:308.0-310.0	2.57
DDH882:310.0-316.0	1.88
DDH882:316.0-320.0	5.18
DDH882:320.0-328.0	2.84
DDH882:328.0-330.0	5.23
DDH882:330.0-332.5	3.85
DDH882:332.5-333.5	8.72
DDH882:333.5-340.0	1.86
DDH882:340.0-343.0	4.58
DDH882:343.0-348.0	2.53
DDH882:348.0-350.0	5.57
DDH882:350.0-351.7	8.75
DDH882:351.7-360.0	3.44
DDH882:360.0-366.5	3.94
DDH882:366.5-367.5	8.21
DDH882:367.5-370.0	1.88
DDH882:370.0-373.0	2.54
DDH882:373.0-375.0	3.32
DDH882:375.0-380.0	4.42
DDH882:380.0-390.0	1.33
DDH882:390.0-398.4	1.87
DDH882:398.4-400.0	MS
DDH882:400.0-402.0	9.67
DDH882:402.0-410.0	0.96
DDH882:410.0-420.0	4.27
DDH882:420.0-430.0	2.11
DDH882:430.0-440.0	3.07

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AUTHORITY: C. FIPKE

DIA MET MINERALS LTD.
1675 POWICK RD.
KELOWNA, B.C. V1X 4L1

WORK ORDER: 5461D-88

*** FINAL REPORT ***

GEOCHEMICAL LABORATORY REPORT

SAMPLE TYPE: DRILL CORE

SAMPLE NUMBER	LOI %
DDH882:440.0-450.0	2.13
DDH882:450.0-454.5	3.74
DDH882:454.5-457.0	6.88
DDH882:457.0-460.0	1.42
DDH882:460.0-470.0	3.28
DDH882:470.0-480.0	1.36
DDH882:480.0-482.0	2.53
DDH882:482.0-483.0	6.45
DDH882:483.0-490.0	2.19
DDH882:490.0-502.0	3.43

SIGNED: ____________________
C. Douglas Read,
LABORATORY MANAGER

FOOTNOTES:
P=QUESTIONABLE PRECISION; *=INTERFERENCE; TR=TRACE; ND=NOT DETECTED;
IS=INSUFFICIENT SAMPLE; NA=NOT ANALYZED; MS=MISSING SAMPLE

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WORK ORDER: 5462D-88

*** FINAL REPORT ***

GEOCHEMICAL LABORATORY REPORT

SAMPLE TYPE: DRILL CORE

SAMPLE NUMBER	LOI %
DDH882:130-136'	8.73
DDH882:136-140'	5.77
DDH882:140-146'	8.29
DDH882:146-148'	2.57
DDH882:148-149'	2.15
DDH882:149-150'	2.31
DDH882:150-151'	2.02
DDH882:151-152.5'	2.15
DDH882:152.5-160'	5.42

SIGNED: ______________________
C. Douglas Read,
LABORATORY MANAGER

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