GM 41205

REPORT ON THE 1983 REVERSE CIRCULATION OVERBURDEN DRILLING PROGRAMME

Documents complémentaires

Additional Files

Licence

License

REPORT ON THE 1983
REVERSE CIRCULATION
OVERBURDEN DRILLING PROGRAMME
MALARTIC HYGRADE GOLD MINES
(CANADA) LTD.

DERRY, MICHENER, BOOTH & WAHL

R. E. Routledge, M.Sc. (Applied), F.G.A.C.
Associate

J. A. Dixon, M.A.

March 16, 1984
Toronto, Canada

TABLE OF CONTENTS

LIST OF APPENDICES

LIST OF TABLES

LIST OF FIGURES

LIST OF MAPS
(In Pockets)

DERRY, MICHENER, BOOTH & WAHL
CONSULTING GEOLOGISTS AND ENGINEERS

2302 - The Simpson Tower
401 Bay Street
Toronto, Canada M5H 2Y4
Telephone (416) 368-4636
Cable: Dembee
Telex: 06-23686

March 16, 1984

Malartic Hygrade Gold Mines (Canada) Ltd.
P.O. Box 999
Malartic, Quebec
J0Y 1Z0

Attention: M. Michel David

Dear Michel:

Re: Letter Summary to Accompany Report on the 1983 Reverse Circulation Overburden Drilling Programme Malartic Hygrade Gold Mines (Canada) Ltd.

On behalf of Malartic Hygrade Gold Mines (Canada) Ltd., Derry, Michener, Booth & Wahl carried out a dual tube reverse circulation rotary overburden drilling programme on the Company's mine property at Malartic, Quebec during the period November 16 to December 2, 1983. Eighty-six holes totalling 2,960 ft. (902.4 m) were completed in a 100 m x 100 m pattern on the mine grid extending east and northeast from the 1982 overburden drilling area.

Overburden in drill holes varied from 3 to 83 ft. (1 m to 25 m) and averaged 30.4 ft. (9.3 m). Glaciofluvial gravels and sands compose about two thirds of the basal overburden in the 1983 drilling area whereas less than one third of the area is occupied by the upper and lower till units indentified in 1982.

...2

188 overburden samples were collected (9 of which were duplicates) and processed to heavy mineral separates. From 1 to 20 gold particles were identified in 68 samples during shaker tabling, however no gold was seen in any of the separates examined under binocular microscope by DMBW. This amount of observed gold is definitely anomalous. All separates were analyzed for gold by the fire assay-absorption method. Gold values in separates ranged from 25 to greater than 15,000 ppb.

Twelve separates in 13 holes yielded analytical values equal to or better than the selected anomaly threshold of 3,000 ppb gold; in addition, 26 samples in a further 17 holes are considered anomalous under other selection criteria. Most anomalies are in glaciofluvial gravel which for the most part is believed to be derived directly from ablated till with little subsequent fluvial reworking. Hence these anomalies are useful for locating parent mineralization in bedrock.

Three principal anomalous areas designated I to III in order of anomaly size and strength, were outlined by clustering of holes containing one or more anomalous samples. Anomalies are broader in plan than the typical ribbon-like dispersal trains in tills. **Anomaly Area I** lies down-ice to the south-southeast of the old Malartic Hygrade mine and is attributed to dispersion of gold mineralization from this site. From the shape and extent of the anomaly, it would appear that additional gold occurrences may continue several hundred metres north and/or east of the shaft. Although there may be

...3

a number of contributing source areas for gold dispersal **Area II** in the centre of the drill area, the most likely one lies somewhat east of that investigated by 1983 diamond drilling at L3W/14S and this source area may include the felsic porphyry lying north of the anomalous Area II. **Anomalous Area III** in the southeast corner of the drill area may represent, in part, distal dispersion from the mine and from the source for Area II, however it is possible that parent mineralization may lie within several hundred metres up-ice to the north-northwest. In the latter case, postulated sources for Area III gold dispersion are mineralized, sheared gabbro/diorite sills analogous to that of ore-bearing diorite at the Camflo/Malartic Hygrade mine immediately to the south, or to high background gold in the felsic volcanic unit which crosses the centre of the drill area.

Areas II and III deserve further exploration and initial work should focus on:

(1) a review of gold content analyzed from bedrock chips obtained in overburden drill holes in the vicinity and up-ice of the anomalous areas.

(2) a review of diamond drill hole results from drilling west-northwest of Area II.

(3) integration of overburden drilling results with those of previous geotechnical surveys and other drilling performed in the drill area.

...4

Should this additional study disclose gold indications in bedrock or favourable rock-types in the postulated source areas, diamond drilling would be warranted.

Respectfully submitted,

DERRY, MICHENER, BOOTH & WAHL

R. E. Routledge, M.Sc. (Applied), F.G.A.C.

J. A. Dixon, M.A.

Toronto, Canada
March 16, 1984

INTRODUCTION AND PROGRAMME SCOPE

By telex dated October 25, 1983, Derry, Michener, Booth & Wahl (DMBW) was requested by Mr. Michel David of Malartic Hygrade Gold Mines (Canada) Ltd. to carry out a dual tube reverse circulation rotary overburden drilling gold exploration programme on the company's mine property in Malartic Township, Quebec. The 1983 programme was a continuation of the detailed overburden drilling initiated in 1982 to evaluate the gold potential in areas of the property covered by overburden which could not be explored effectively by mapping, prospecting or by conventional soil and rock geochemical sampling surveys on surface. The objective of the drilling was to trace glacially dispersed gold and other indicator and/or pathfinder heavy minerals to subcropping parent mineralization, as well as to aid in mapping buried bedrock and obtain rock chip samples for whole rock and trace element geochemical analysis.

The scope of the 1983 drilling was to involve: -

(i) Drilling about 100 holes on 100 m x 100 m grid pattern;

(ii) Collection of overburden samples at a maximum sample interval of 5 ft. (1.5 m) in till(s) or up to 10 ft. (3.3 m) in sands and gravels;

(iii) Collection of +10 mesh (1777 microns) bedrock chips and -10 mesh fine spalls by drilling approximately 5 ft. (1.5 m) in bedrock.

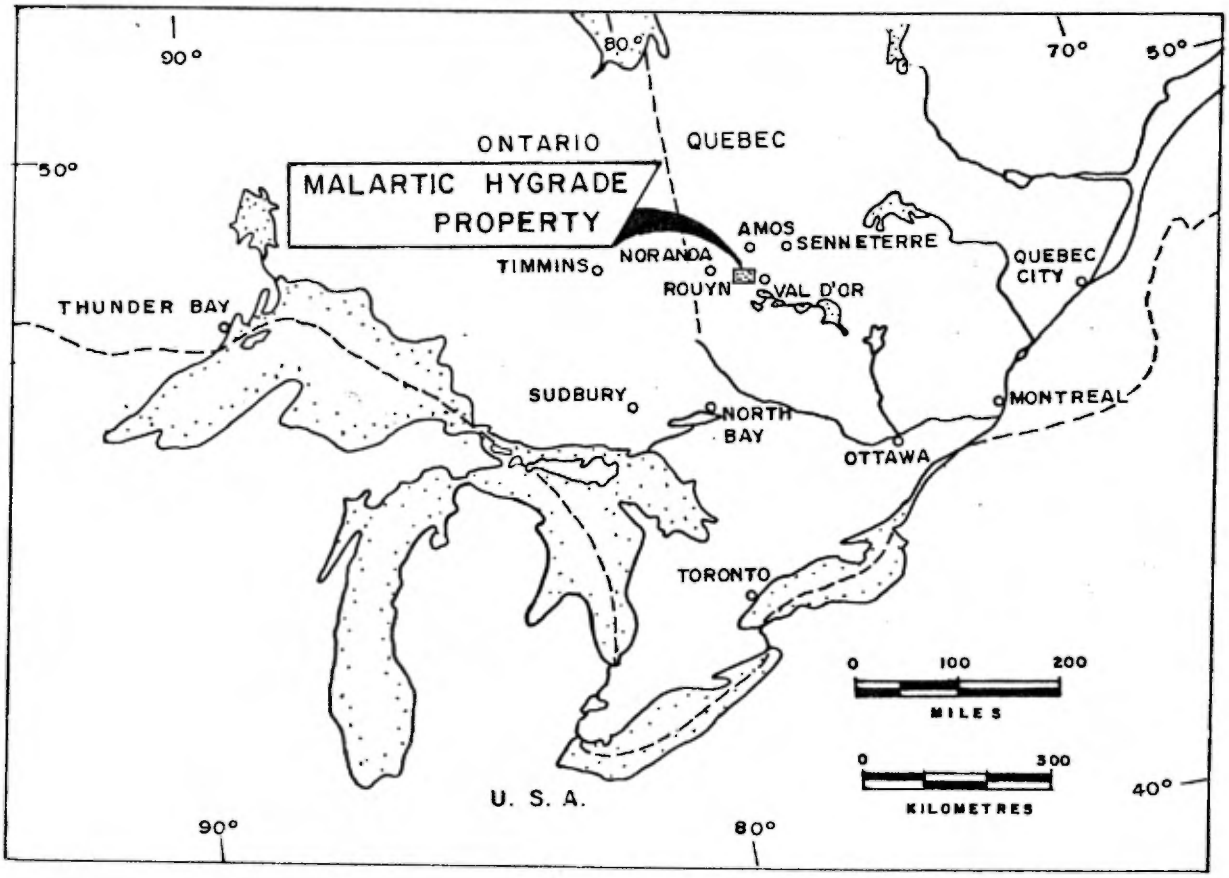
The implementation of the programme by DMBW involved: (i) arranging for subcontracting of drilling operations, for laboratory processing to heavy minerals, and geochemical analysis for gold; (ii) supervising drilling and carrying out overburden logging and sampling in the field; and (iii) binocular microscope identification of heavy minerals, data compilation, interpretation and reporting.

Petrographic study and geochemical analysis of bedrock chips was to be carried out independently by Malartic Hygrade personnel and the DMBW report prepared without the benefit of these bedrock investigations.

LOCATION AND DESCRIPTION OF THE DRILL AREA (Figure 1)

The 1983 drill area adjoins the 1982 area on the east and northeast and covers the south half of Lots 54, 55, 56, 57 and 58 and the central portion of Lot 53 in Range II, Malartic Township, Quebec (Figure 1). Malartic Hygrade holds title to the area drilled under leased mining claims 163926-1 and 2, C-136714-2, C-136767-3, 272520-2 and mining concession CM-486 which encloses the former Malartic Hygrade mine site.

The drill area encompasses part of the "mine grid" and is bounded between the east-west base line and the tie line at 8+13S, and by lines 3W and 6E. A northwest segment of the area continues west to line 6W and to the north of line 4S as far as the base line. The dimensions of the area are about 1,100 m by 800 m. Survey control of the drill sites was provided by the intersections of north-south and east-west picket lines cut at 100 m intervals.



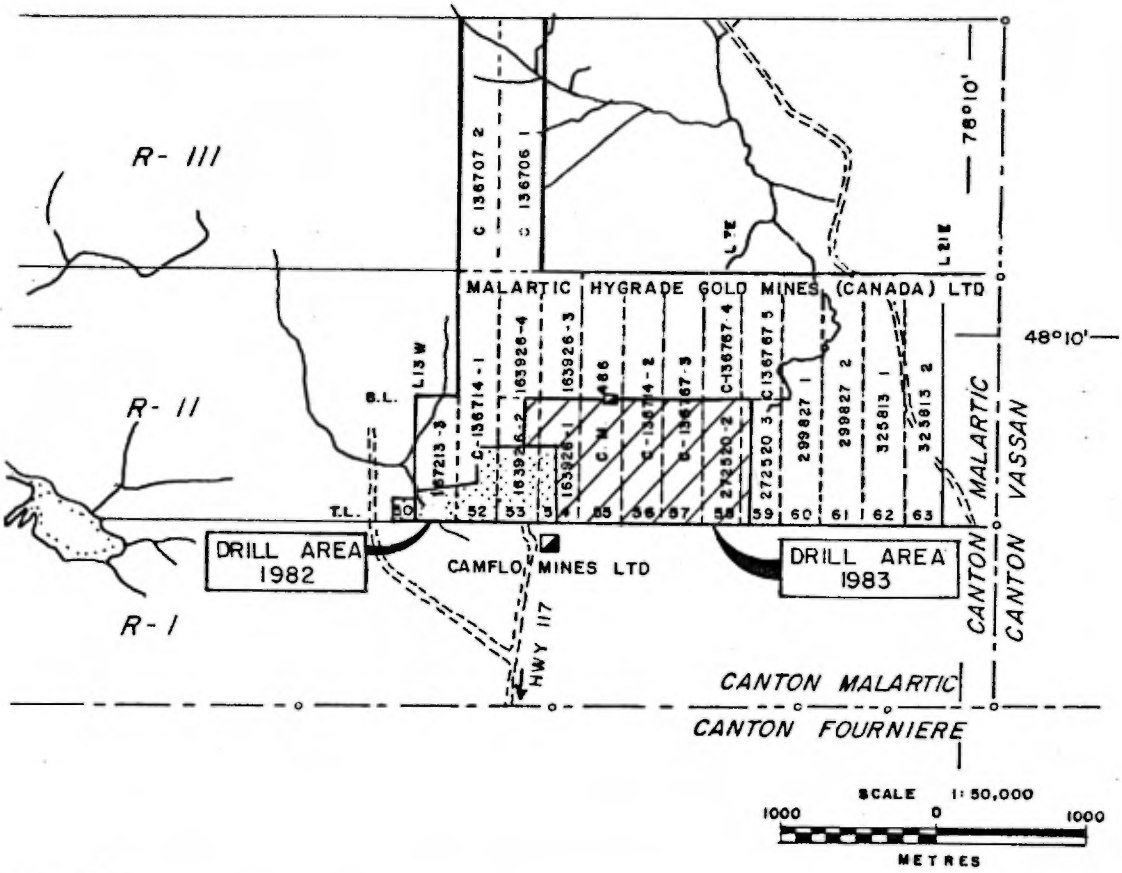


Figure 1 LOCATION OF PROPERTY AND DRILL AREAS
( )

Physiography of the 1983 Drill Area

The Malartic Hygrade property lies within the Abitibi Upland Physiographic Region about 16 km (10 miles) north of the James Bay-St. Lawrence River watershed. The Abitibi Upland is typified by subdued relief and poorly developed drainage.

Positive glacial landforms are absent in the drill area which is underlain for the most part by a plain of glaciolacustrine clay. Forestation is predominantly mature spruce with interspersed birch and local alder undergrowth. Windfallen and standing deceased balsam occupy the southeast corner of the drill area whereas the northwestern portion is mostly spruce swamp. There are two topographic highs consisting of exposed bedrock and shallow overburden in the drill area. One lies in the north-central area between Lines 1W and 2E and to the north of Line 3S and the other trends northwest-southeast to cross the south tie line (8+13S) between Lines 1W and 3W. Maximum relief in the drill area is only about 5 m (15 ft.). Except for the areas of outcrop, where the low relief may change abruptly, elevation rises gradually from the southwest to the northeast.

The only evidence of external drainage is three easterly-trending intermittant discharge channels somewhat down-cut in clay and silt in the east half of the area.

REVERSE CIRCULATION ROTARY OVERBURDEN DRILLING

The theory behind overburden geochemical exploration using dual tube reverse circulation drilling and the associated procedures of logging and sampling, sample

processing and binocular microscope identification of heavy minerals are described in the 1982 report and hence will not be repeated herein.

The subcontractors used in the 1982 programme offered competitive prices for drilling, sample processing and chemical analysis for gold in concentrates and these were re-engaged in 1983. Respectively, these were Heath and Sherwood Drilling Ltd., Overburden Drilling Management Ltd. and Bondar-Clegg & Co. Continuing with the same contractors and hence with the same techniques and procedures, ensured compatibility of results and enabled data from the two programmes to be merged. Working with a broader data base enhances the reliability of both the interpretation of glacial stratigraphy and history and the statistical parameters obtained from data processing of geochemical results. Drill logs, laboratory sample processing logs, tabulation of results of binocular microscope identification of heavy minerals and geochemical analyses for gold content of nonmagnetic heavy mineral concentrates are provided in Appendices A through D, respectively.

During 1983, there were several departures from the programme of 1982 which involved drilling equipment and sampling. Initial mobilization and test use of an International Model 500 flex-track bulldozer to haul a 500 gallon water tank on a sloop proved successful as an alternative to the more costly GT-1000 flex-track muskeg tractor water hauler used in 1982. The "500" and sloop were therefore retained throughout the 1983 programme. Duplicate samples from overburden drilled and two samples cut from till in a trench on line 6W/4+25S were collected, processed and analyzed. Review and statistical treatment of the analytical data from duplicate sampling provides a measure of the within-site variability and analytical

reproducibility of values, i.e. sampling precision, which must be considered when interpreting the significance of results.

DRILLING LOGISTICS AND OPERATIONS

Heath and Sherwood Drilling Ltd. overburden drilling equipment was mobilized from Kirkland Lake on November 16th and drilling operations carried out from the evening of the 16th to the evening of December 2nd, 1983 under the on site supervision of Mr. J. A. Dixon, M.A. and assistant/samplers, D. Richardson (Geotech) and J. Boxell, B.Sc. Progress was monitored by the writer during two visits to the property during which trenches, bulldozed in overburden during the summer of 1983, were examined and sampled.

Drilling operations were carried out on a 10 hr. per shift, one shift per day, seven days per week basis. A total of 2,960 ft. (902 m) of drilling in 86 holes was completed in 17 days or 135 3/4 operational hours. This is a daily average of five holes or 174 ft. (53 m). Hole depths ranged from 5 ft. (1.5 m) to 88 ft. (27 m) and averaged 34.4 ft. (10.5 m). One hundred and eighty-eight samples were collected from the 2,614 ft. (797 m) (cumulative) of overburden drilled. Eighty-eight samples were collected from the 346 ft. (105 m) (cumulative) of bedrock drilled at the bottom of holes and these samples were delivered to the Company office on site.

Water used in drilling was obtained from the Camflo Mill reservoir, a dammed creek located immediately south of the property boundary at the mine site, and from a flooded raise opening at the old Malartic Hygrade mine site.

The demobilization of the drill rig from the last hole to the float-truck road end at the Camflo mine site was completed by 16:30 hours on December 2nd. Rig clean-up and preparation for transport and demobilization of the drilling equipment to Kirkland Lake was undertaken on December 3rd, 1983.

Table 1 summarizes drilling operations. Drill hole locations are shown on Map 1 in pocket.

With the exception of a half day delay to effect mechanical repairs, the field programme proceeded smoothly and drilling operations were completed for $34,708.70 or $11.73/ft. ($38.46/m). This is considerably under the budget estimate of $46,235. This "under run" is explained by the fewer - than - planned drill holes completed, 86 rather than 100, and the low cost for consumed down-hole tooling.

Drilling was not undertaken in the areas of shallow overburden and this foreshortened the number of holes drilled. The use of a less expensive water hauler also resulted in savings.

Tricone bit life at 296 ft. (90 m) per bit was considerably improved over the 1982 drilling. Knowledge of the overburden character gained in the 1982 drilling enabled prolonging the use of worn bits at sites where shallow overburden was predicted. Under usual circumstances, worn bits are retired somewhat earlier to ensure a hole is not "lost" in deep overburden because of bit failure. Whereas bit and subadapter consumption was markedly reduced over 1982, considerably more (eight) drill rods were either lost down-hole, broken or damaged during drilling. Adjustment was made in the Heath & Sherwood billing for the advanced state of

TABLE 1

MALARTIC HYGRADE GOLD MINES (CANADA) LTD.

Summary of Overburden Drilling Programme

Hole No. (MH-83-X)	Date X/11/83	Location	Elevation (Ft)	Footage Drilled O.B.	Bedrock	Depth	Samples Collected O.B.	Bedrock	Consumables Bit No. & Footage		Sub. No. & Footage		Rods
01	16	3W8+00S	+2	8	5	13	1	1	65413	0- 13	1	0- 13	
02	17	3W7+00S	+4	8	3	11	1	1	65413	13- 24	1	13- 24	
03	17	3W6+00S	+3	18	6	24	1	1	65413	24- 48	1	24- 48	
04	17	3W5+00S	+2	44	4	48	4	1	65413	48- 96	1	48- 96	
05	17	3W4+00S	+2	51	5	56	6	1	65413	96-152	1	96-152	
06	17	3W3+00S	+2	33	5	38	2	1	65413	152-190	1	152-190	
07	17	3W2+00S	+2	17	5	22	1	1	65413	190-212	1	190-212	
08	17	3W0+95S	+2	54	4	58	4	1	65413	212-270	1	212-270	
09	18	3W0+00	+1	36	4	40	3	1	65413	270-310	1	270-310	
10	18	4W0+00	+1	15	5	20	1	1	65413	310-330	1	310-330	
11	18	4W1+00S	+1	4	3	7	1	1	66058	0- 7	1	330-337	
12	18	4W2+00S	+1	16	6	22	2	1	66058	7- 29	1	337-366	
13	18	4W3+00S	+1	37	5	42	3	1	66058	29- 71	1	366-408	
14	19	5W4+00S	+1	12	5	17	1	1	66058	71- 88	1	408-425	
15	19	5W3+00S	+1	32	6	38	1	1	66058	88-126	1	425-463	
16	19	6W2+00S	+1	37	4	41	2	1	66058	126-167	1	463-504	
17	19	5W2+00S	+1	49	5	54	7	1	66058	167-221	1	504-558	
18	19	5W1+00S	+1	27	5	32	2	1	66058	221-253	1	558-590	
19	20	6W1+00S	+1	27	6	33	1	1	66058	253-286	1	590-623	
20	20	6W0+00	+1	29	6	35	1	1	66056	0- 35	1	623-658	
21	20	5W0+00	+1	36	4	40	3	1	66056	35- 75	1	658-698	
22	20	2W0+00	+2	3	2	5	0	1	66056	75- 80	1	698-703	
23	20	2W1+00S	+2	26	4	30	2	1	66056	80-110	1	703-733	
24	20	2W2+00S	+2	17	3	20	2	1	66056	110-130	1	733-763	
25	20	2W3+00S	+2	12	3	15	1	1	66056	130-145	1	763-778	
26	21	2W4+00S	+1	48	4	52	7	1	66056	145-197	1	778-830	
27	21	2W5+00S	+1	66	3	69	9	1	66056	197-266	1	830-899	
28	21	2W6+00S	+1	41	4	45	4	1	66056	266-311	1	899-944	
29	22	2W7+00S	+1	17	3	20	1	1	66056	311-331	1	944-964	
30	22	1W7+00S	+4	35	4	39	1	1	66056	331-370	1	964-1003	1
31	23	1W6+00S	+3	37	0	37	0	0	6550[illegible]	0- 0	1	1003-1003	
									66057	0- 37	2	0- 37	
31A	23	1W5+95S	+3	69	6	75	6	1	65973	0- 75	3	0- 75	
32	23	1W5+00S	+2	49	6	55	5	1	65973	75-130	3	75-130	
33	23	1W4+00S	+2	31	4	35	1	1	65973	130-165	3	130-165	
34	23	1W3+00S	+1	9	5	14	1	1	65973	165-179	3	165-179	
35	23	BL3+00S	+2	10	5	15	1	1	65973	179-194	3	179-194	

TABLE 1

MALARTIC HYGRADE GOLD MINES (CANADA) LTD.

Summary of Overburden Drilling Programme

Hole No. (MH-83-X)	Date X/11/83	Location	Elevation (Ft.)	Footage Drilled O.B.	Bedrock	Depth	Samples Collected O.B.	Bedrock	Consumables Bit No. & Footage		Sub. No. & Footage		Rods
36	24	BL4+00S	+2	12	3	15	1	1	65973	194-209	3	194-209	
37	24	BL5+00S	+2	27	5	32	2	1	65973	209-241	3	209-241	
38	24	BL6+00S	+2	38	5	43	1	1	65973	241-284	3	241-284	
39	24	BL7+00S	+3	83	5	88	6	1	65973	284-372	3	284-372	
40	24	BL8+00S	+2	27	4	31	1	1	65973	372-403	3	372-403	1
41	24	1E8+00S	+3	38	7	45	1	1	65973	403-448	3	403-448	
42	25	1E7+00S	+3	73	5	78	6	1	65973	448-526	3	448-526	
43	25	1E6+00S	+3	30	5	35	1	1	65973	526-561	3	526-561	
44	25	1E5+00S	+3	17	4	21	2	1	65973	561-582	3	561-582	
45	25	1E4+00S	+3	11	4	15	1	1	65973	582-597	3	582-597	
46	25	2E4+00S	+3	18	5	23	2	1	65973	597-620	3	597-620	
47	25	2E3+00S	+3	6	2	8	1	1	65973	620-628	3	620-628	
48	25	2E5+00S	+3	16	2	18	2	1	65973	628-646	3	628-646	
49	25	2E6+00S	+3	28	5	33	2	2	65973	646-679	3	646-679	
50	26	2E7+00S	+3	47	4	51	3	1	65973	679-730	3	679-730	
51	26	2E8+00S	+3	38	4	42	1	1	65973	730-772	3	730-772	
52	26	3E8+00S	+4	38	3	41	1	1	65973	772-813	3	772-813	
53	26	2+90E 7+00S	+4	26	3	29	1	1	65973	813-842	3	813-842	
54	26	3E6+00S	+4	19	3	22	2	1	65973	842-864	3	842-864	
55	26	3E5+00S	+4	12	2	14	1	1	65973	864-878	3	864-878	
56	26	3E4+00S	+4	8	1	9	1	0	65973	878-887	3	878-887	4
					1	10	1	1	65416	0- 1	3	887-888	
57	27	3E3+00S	+4	21	3	24	1	1	65416	1- 25	3	888-912	
58	27	3E2+00S	+3	22	3	25	2	1	65416	25- 50	3	912-937	
59	27	3E1+00S	+3	21	4	25	2	1	65416	50- 75	3	937-1012	
60	27	3E0+00	+3	12	3	15	1	1	65416	75- 90	3	1012-1027	
61	28	4E1+00S	+4	14	2	16	3	2	65416	90-106	3	1027-1043	
62	28	4E2+00S	+4	26	3	29	6	1	65416	106-135	3	1043-1072	
63	28	4E3+00S	+4	44	4	48	2	1	65416	135-183	3	1072-1120	
64	28	4E4+00S	+4	26	2	28	3	1	65416	183-211	3	1120-1148	
65	29	3+92E 5+00S	+4	21	3	24	1	1	65416	0- 24	3	1148-1172	
66	29	4E6+00S	+5	12	3	15	2	1	66045	24- 39	3	1172-1211	
67	29	4E7+00S	+5	41	4	45	3	1	66045	39- 84	3	1211-1256	
68	29	4E8+00S	+6	47	3	50	2		66045	84-134	3	1256-1306	
69	29	5E8+00S	+5	19	0	19	0	1	66045	134-153	3	1306-1325	2
69A	29	5E8+02S	+5	16	3	19	5	0	66048	0- 19	4	0- 19	
70	29	5E7+00S	+4	40	0	-	4	1	66048	19- 59	4	19- 59	
70	30	5E7+00S	+4	40-55	4	59	0	1	66048	59- 78	4	59- 78	
71	30	5E6+00S	+5	5	5	10	0	1	66048	78- 88	4	78- 88	
72	30	5E5+00S	+6	3	5	8	1	1	66048	88- 96	4	88- 96	
73	30	5E4+00S	+4	25	3	28	3	1	66048	96-104	4	96-104	

TABLE 1

MALARTIC HYGRADE GOLD MINES (CANADA) LTD.

Summary of Overburden Drilling Programme

Hole No. (MH-83-X)	Date X/12/83	Location	Elevation (Ft.)	Footage Drilled O.B.	Bedrock	Depth	Samples Collected O.B.	Bedrock	Consumables Bit No. & Footage		Sub. No. & Footage		Rods
74	1	5E3+00S	+4	53	6	59	3	1	66048	104-163	4	104-163	
75	1	5E2+00S	+3	32	3	35	1	1	66048	163-198	4	163-198	
76	1	5E1+00S	+3	29	5	34	1	1	65501	0- 34	4	198-232	
77	1	5E0+00	+3	23	2	25	3	1	65501	34- 59	4	232-257	
78	1	6E0+00	+3	71	4	75	3	1	65501	59-134	4	257-332	
79	2	6E1+00S	+3	46	4	50	1	1	65501	134-184	4	332-382	
80	2	6E2+00S	+3	46	4	50	1	1	65501	184-234	4	382-432	
81	2	6E3+00S	+3	31	4	35	0	1	65501	234-269	4	432-467	
82	2	6E4+00S	+5	64	6	70	1	1	65501	269-339	4	467-537	
83	2	6E5+00S	+7	13	2	15	1	1	65501	339-354	4	537-552	
84	2	6E6+00S	+7	20	2	22	1	1	65501	354-376	4	552-574	
85	2	6E7+00S	+7	27	5	32	1	1	65501	376-408	4	574-606	
86	2	6E8+00S	+7	57	3	60	1	1	65501	408-468	4	606-666	
86	17			2614	346	2960	188	88	10 bits		4		8

wear of one rod. The saving from low bit consumption more than offset the cost of the lost rods.

Because of the fewer holes drilled and somewhat shallower average depth of overburden than anticipated, fewer overburden samples were collected and this resulted in a lower expenditure for sample processing and analysis.

GEOLOGY

Regional Quaternary Geology - Abitibi Upland

The major continental advance of the Laurentide Glacier proceeded in a southerly direction from the polar region during the Early Wisconsin Stage (Pleistocene Epoch - 100,000 BP). Glaciation and later recession were accompanied by a series of major ice front oscillations, in addition to surges by minor lobes, during which tills and deglacial sediments were alternatively deposited and eroded. Drift from earlier Nebraskan, Kansan and Illinoian Glacial Stages, which may have survived erosion in the Sangamon Interglaciation, has not been recognized in the Abitibi Upland and was apparently removed by the Wisconsinan advance.

Glacial and periglacial sediments now evident as glacial land forms, and ice flow direction indicators, are for the most part chronologically related to waning and recessional Wisconsinan glacial phases which occurred in the early Holocene Epoch from about 9,900 to 8,000 years BP in the Malartic-Val d'Or area. At this time, the Laurentide Ice Mass divided along a NS juncture coinciding to James Bay and retreated to the NNW as the Keewatin segment to a final wastage site west

of Hudson Bay, and to the NE as the Labrador segment to central New Quebec. Directions of ice flow pertaining to the significant halts and re-advances of both these lobes are recorded as striae on outcrop in the vicinity of the drill area. It is conceivable therefore, that surges from both these lobes affected the drill area, each depositing till, even though only the record of the last advance at 155° is observed from striae within the drill area.

As the continental glacier receded, isostatic rebound occurred in the area freed of ice. This resulted in a northwards tilting of the periglacial terrain and the consequent northward rerouting of drainage. The paleoheight of land at that time was somewhat south of the present day Arctic continental watershed. North-flowing Arctic drainage was impeded by the ice and this, combined with southward flushing of melt waters off the glacier, produced proglacial ponding against the ice front. Lake Barlow and subsequently Lake Ojibway inundated the region locally to depths in excess of 300 ft. from about 10,300 to 8,100 years B.P. However, in the Malartic-Val d'Or area, the proglacial lake does not appear to have attained the considerable depths recorded by the glacial stratigraphy of the Timmins area to the west. The lake may have withdrawn at an earlier date in the Malartic area.

At the wasting margin of the retreating glacier, melt-out debris was flushed from the ice surface and dropped from the base of lifting ice into the lake as ablationary flows resembling poorly-sorted, immature gravels. Deglaciation outwash products were left as stratified and hummocky ice contact deposits such as eskers, kames and crevasse fillings.

Periglacial sedimentation in the proglacial lake was the final phase of glacial deposition for each oscillation and is represented by deep water varved silt and

clays and shallow water fine sands which were laid down over earlier outwash and till. These clay-silt deposits now occupy an area of about 165,000 km^2 (64,000 $mi.^2$) in NW Quebec and NE Ontario called the Abitibi Clay Belt. The Cochrane readvance c.a. 8,400-7,900 B.P., during which ice overrode lacustrine and earlier glacial sediments and was responsible for clay till and additional lacustrine deposition in northeastern Ontario, did not reach the drill area.

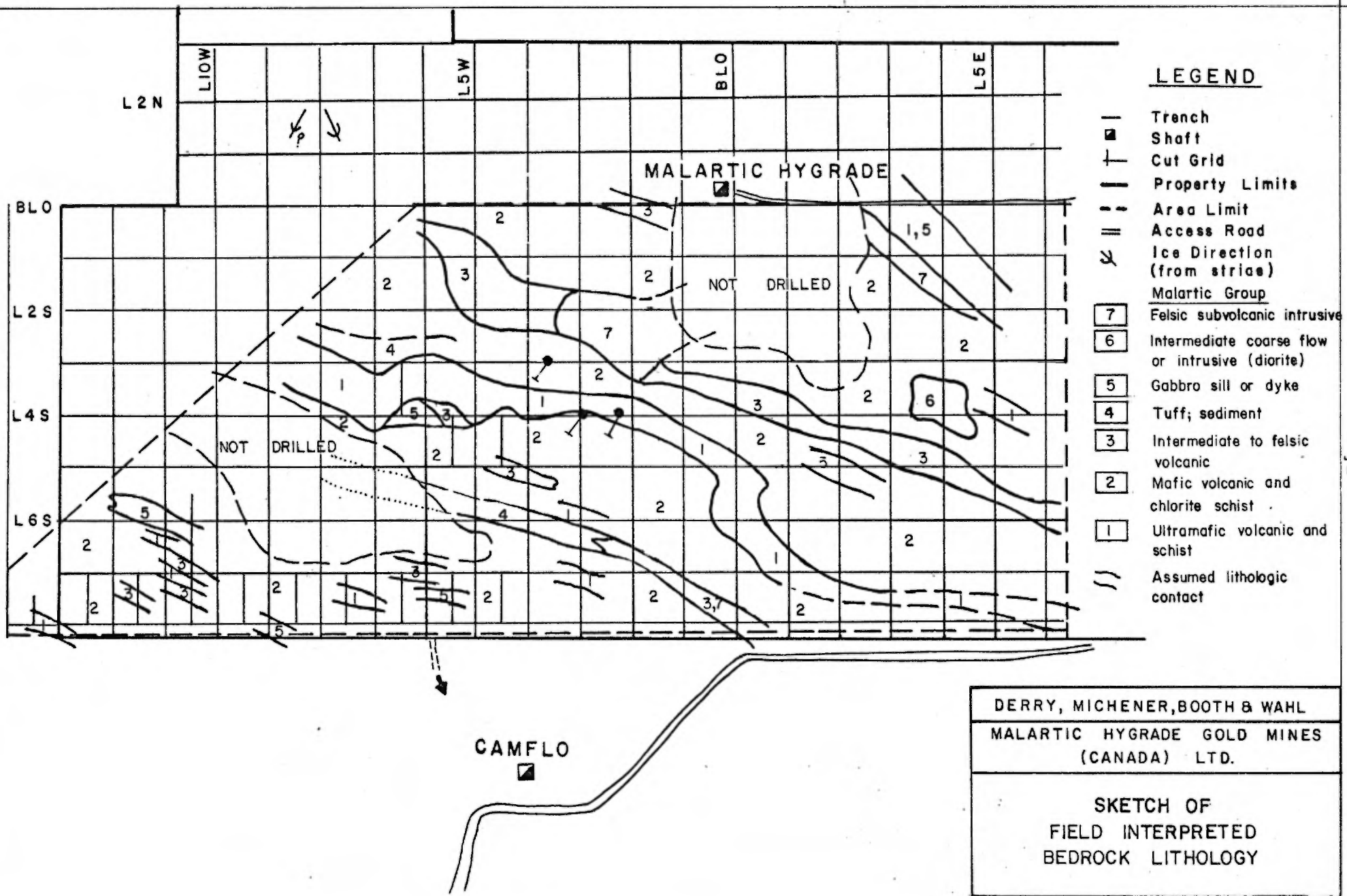
Bedrock Geology

The Malartic Hygrade property is underlain by the south limb of an overturned regional anticline composed of west-northwest trending, steeply north-dipping, metamorphosed Archean volcanics and sediments belonging to the Malartic and Kewagama Groups, respectively. This assemblage represents the middle formations of the stratigraphic sequence established for the northwestern Quebec portion of the Abitibi Greenstone Belt, Superior Tectonic Province. Lower Malartic ultramafic and basaltic flows and upper Malartic basalts to siliceous lavas and pyroclastics occupy most of the Malartic Hygrade property. Their contact with younger Kewagama conglomerate, magnetite iron formation and greywacke is believed to trend across the southwest corner of the 1982 drill area. Sills of gabbro to diorite composition have been identified in underground workings at the Camflo-Malartic Hygrade Mine and at surface by overburden drilling and geophysical surveys. Three bodies of intermediate (diorite) to felsic (subvolcanic?) intrusives were intersected during the 1983 programme. Rock fabric varies from fine-grained recrystallized granoblastic to increasingly well-foliated to schistose towards the southwest. This gradational increase in schistosity may represent differential movement along the Malartic-Kewagama contact as well as pronounced axial-plane cleavage near the nose of the

regional fold. Lithology and structural trend of bedrock in the 1982-1983 drill area, interpreted from field identification of bedrock chips, is presented in Figure 2.

Gold mineralization in the Camflo-Malartic Hygrade deposit, located south of the 1982-1983 drill area, is associated with cherty quartz-stringers, disseminated pyrite, and minor scheelite and tellurides hosted in a pipe-like body of porphyrtic monzonite. The monzonite has conformably intruded Kewagama sediments near their contact with the Malartic Group volcanics. Gold also occurs in altered, silicified and pyritized fault zones within a diorite (gabbro) sill emplaced at the top of the Malartic Group succession. This latter type of mineralization may be present in other sills within the drill area and the former type may be repeated along the Malartic-Kewagama contact around the nose of the regional fold and thus may lie north of the drill area. Potentially, these are sources for gold dispersion in overburden.

The shaft and buildings of the old Malartic Hygrade mine site lie directly up-ice of the central and east portions of the 1983 drill area at BL/L0. Gold, associated with several quartz vein structures which cut Malartic Group volcanics in the central part of a drag fold, was produced from small, high grade zones from 1962 to 1963.



DERRY, MICHENER, BOOTH & WAHL

MALARTIC HYGRADE GOLD MINES (CANADA) LTD.

SKETCH OF FIELD INTERPRETED BEDROCK LITHOLOGY

Scale 1:10,000	R. Routledge	FIG. 2

IMPLICATIONS FOR INTERPRETATION OF GOLD ANOMALIES IN THE 1983 DRILL AREA

The location of the Malartic Hygrade gold mine up-ice from the 1983 drill area has several theoretical implications. Since the last ice advance direction is 155°, hypothetically a strong primary dispersal train originating from gold mineralization at surface at the old mine site should be present on the east half of the drill area. The continuation of the mine mineralization or additional occurrences along strike to the west would also be up-ice and would contribute gold to the overburden in the central portion of the area. Since at least one ice surge or minor re-advance from the northeast may have preceeded the south-southeasterly ice flow direction, it is conceivable that the gold in an earlier primary train would be redistributed in a broad, second generation train and be deposited along with the newly derived gold component of the final episode. The resulting complex dispersion patterns could potentially introduce considerable difficulty in determining the direction to the parent source. Since the objective of the programme was to outline new gold-bearing zones within the drill area down-ice from the mine, such zones would have to supply sufficient gold to the overburden to be distinguishable from the "over-printing" by dispersal trains from the mine site. The above theroretical implications must be considered during the interpretation of gold anomalies in overburden and it must be acknowledged that, because of this more or less unique situation, for each interpretation there may be a number of equally plausible alternatives.

RESULTS OF THE PROGRAMME

Quaternary Geology and Stratigraphy of the 1983 Drill Area

In general, the gross sedimentological characteristics of disturbed overburden samples retrieved during drilling are readily recognizable and permit reliable identification of stratigraphic units. However, the subtle distinguishing between compositionally and morphologically similar, but genetically distinct, stratigraphic units cannot be achieved definitively and their classification is determined as much by location and stratigraphic position as by sedimentological features. On the Malartic Hygrade property, for example, the distinction between sandy or gravelly ablation till or perhaps clay-silt poor lodgment till, and immature glaciofluvial clay-silt-rich turbidite or thinnly bedded clay-sand-gravel rhythmites, is attempted within the framework of known regional glacial events. Within this context, the sequence of glacial events within the drill area, as interpreted from the stratigraphy in the 1983 drill area, remains unchanged from the interpretation presented in the 1982 report on drilling.

The four basic stratigraphic units recognized in ascending stratigraphic order are: (1) basal lodgment till overlain by a sandy ablation till or glaciofluvial sand or lacustrine clay unit; (2) upper lodgment till; (3) glaciofluvial sediments consisting of interstratified bouldery to cobbly gravels, pebble gravels and coarse sands and poorly stratified immature bouldery to cobbly gravels locally with a silt-clay matrix signifying either turbidite-rhythmite or possibly ablation till origin; and (4) glaciolacustrine fine sand, silt and varved clay-silt, and clay topping the succession at surface.

Bulldozer trenching by Malartic Hygrade in 1983 exposed the upper till unit in three areas at L6W/4 to 6S, L1W/BL to 1S and L1E/0+75S. Unoxidized till is grey and consists of about 10-20% silt and clay, 40% sand and a coarse component of subangular to rounded clasts varying from pebbles to boulders of volcanic and gneissic lithologies. Basal fissility verifies a lodgment origin. This till, exposed to surface at L6W, is underlain by glaciofluvial sandy gravel whereas at the old mine site, L1W, a 2 ft. (0.6 m) section is underlain by beige medium sand and overlain by glaciolacustrine fine sand and silt. Observations of overburden sections in these trenches support the stratigraphic interpretation based on drill logging.

The ranges of thickness of overburden units drilled in 1983 are as follows: lower till (lt) 1 ft. to 25 ft. (0.3 - 8 m); ablation-glaciofluvial unit between tills - 3 ft. to 5 ft. (1 - 1.5 m); upper till (ut) 7 ft. to 30 ft. (2 - 9 m); glaciofluvial sands and gravels (gf) 1 ft. to 30 ft. (0.3 - 9 m) and glaciolacustrine fine sands and clays (gl) up to 63 ft. (19 m).

Characteristics such as colour, clast distribution, size and sorting as well as the glacial history, depositional mechanisms and preservation of overburden units in the 1983 drill area are interpreted to be the same as for the 1982 area. Hence, a description of the overburden units will not be repeated. Reference may be made to the 1982 report for details. Figure 3 illustrates the idealized overburden profile and interpreted sequence of glacial events. Drill hole overburden profiles and stratigraphic correlation are presented on Map 2.

Contoured depth to bedrock, and distribution of basal sediments with emphasis on the location of till, is presented on Map 3. Approximately two-thirds (by area) of the basal coarse clastics are composed either of bedded glaciofluvial sands and

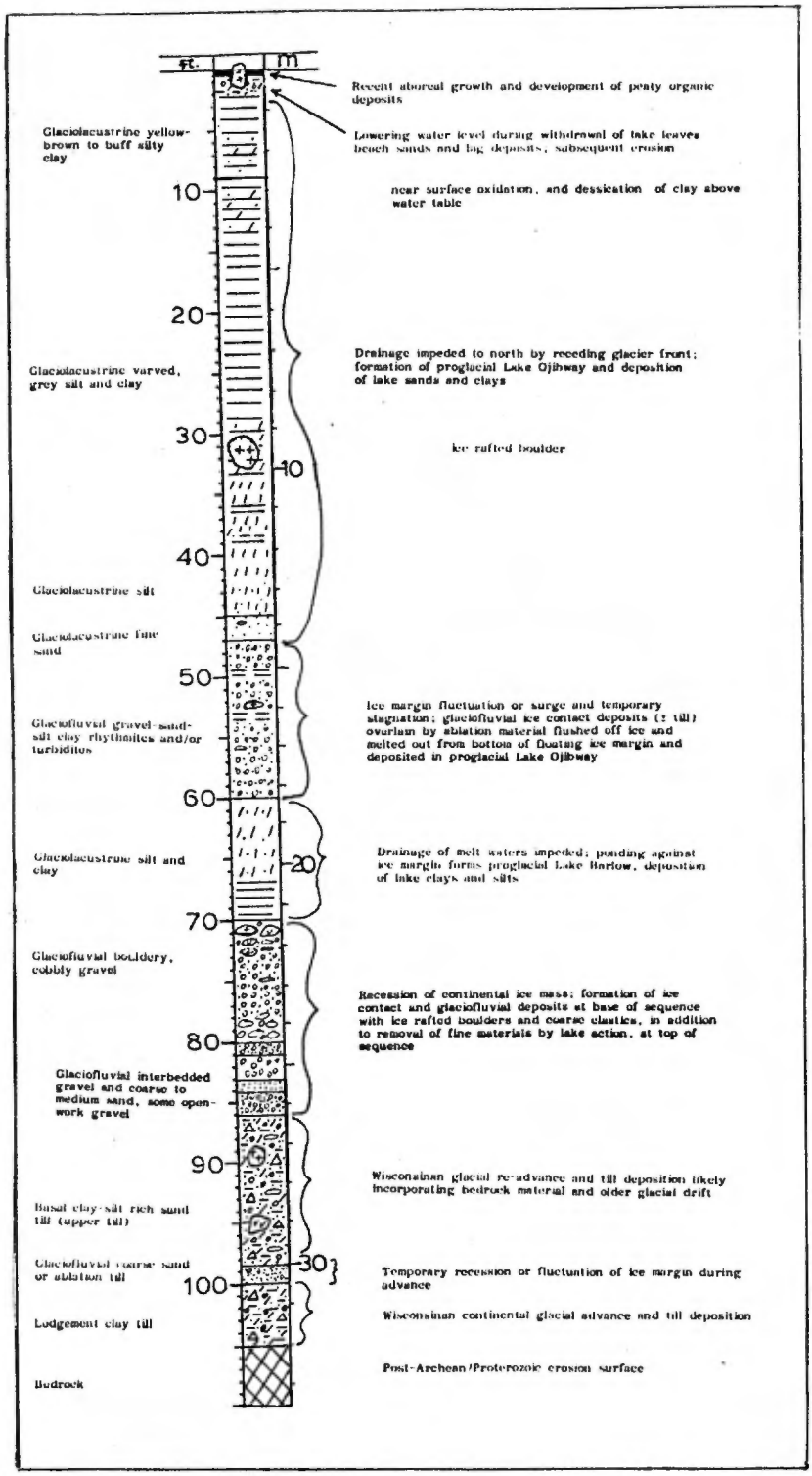


Figure 3: Idealized overburden profile and interpreted sequence of glacial events in the drill area.

gravels or of a hetrogeneous immature gravel which may be in part directly derived from ablated till. The two till units underlie about one-third of the area. They are generally overlain by glaciofluvial gravels and all basal sediments are entirely masked by glaciolacustrine clays. Glaciolacustrine units extend to bedrock surface in three small areas (less than 100 m^2) outlined by single drill holes 2, 71 and 81 at L3W/7S, L5E/6S and L6E/3S. Glacial dispersal trains would not be present in these areas.

Basal lodgment till is only preserved, or was only deposited, in two bedrock depressions which exceed 45 ft. (14 m) below surface. These bedrock depressions are outlined by holes 8 and 9 on the northwest portion of the grid at L3W/1S and by holes 26, 27, 28, 31, 32, 36, 39 and 42 in the southwest quadrant centred at L1W/6S. The upper till is patchilly distributed in eight small areas (exclusive of trench exposures). In addition to its preservation with lower till in bedrock troughs, it is also found in shallow depressions, 20 ft. to 45 ft. (6 m to 14 m) deep at L4+50W/2+50S and L4E/2S. The formation of bedrock depressions is attributed to glacial scouring and/or faulting as their orientation is transverse to lithologic trend. The remaining isolated upper till "outliers" were intersected by single drill holes at depths to bedrock of less than 12 ft. (4 m).

The prevalence of gravel as the basal overburden unit and limited areal distribution of till in the 1982 and 1983 drill areas does not necessarily preclude the usefulness of the "micro-boulder" dispersal train tracing method as a prospecting tool on the Malartic Hygrade property. In a similar geomorphological setting in the Matheson area of Ontario, a dispersal train from copper mineralization was detected in gravels and was successfully traced to source by pattern overburden drilling. Dispersion trains in ablation till, and short-transported gravel almost directly

derived from ablating englacial material are expectedly broader in plan with gold more erratically distributed in the overburden column, and are not necessarily directly down-ice of parent source.

Mineralogy of Heavy Mineral Separates

The mineral constituents and the relative percentages in the heavy mineral separates obtained from overburden in the 1983 programme are very similar to those of the 1982 programme. The mineralogic suite consists primarily of chemically stable and physically resistant rock forming minerals and metamorphic derivatives with specific gravities of 3.3 or greater. In order of abundance, these minerals are epidote, pyroxene, garnet, ilmenite, sphene and ziron.

These heavy minerals are a suite characteristic of green schist to lower amphibolite regional metamorphism of volcano-sedimentation terrain and typical of other greenstone areas in the Abitibi Belt. Epidote content averages slightly higher in the 1983 area, evidently at the expense of garnet, and this may reflect a decreasing metamorphic gradient to the east away from the nose of the regional fold. Pyrite in concentrates ranges up to 14%, chalcopyrite up to 2% and arsenopyrite up to 1%. Traces of chalcopyrite, arsenopyrite, hematite, cobaltite (skutterudite series) and molybdenite were observed in 2 to 14 samples. Arsenopyrite appears to be more widespread in the 1983 area. Although gold was observed in some 68 samples during shaker table processing and extra care was exercised in searching for gold grains during binocular microscope study of these samples, no gold was sighted while examining any of the $\frac{1}{4}$ splits of the separates. This is not unexpected since gold may have reported, all or in part, in the 3/4 splits sent for analysis and

the remaining gold particles are easily missed when sorting through the 100,000 or more mineral grains in individual samples. Mineralogy of the nonmagnetic heavy mineral concentrates is summarized in Table 2.

The average proportion of the various heavy minerals in till samples does not differ significantly from the average for all samples which should reflect more strongly the composition of glaciofluvial sands and gravels. Epidote, pyrite and magnetite contents of till are slightly less than average whereas pyroxene and zircon are slightly higher. From this one may conclude glaciofluvial washing and reworking of melt out tills following ablation has not been extensive. Resistant minerals such as garnet, ilmenite, pyrite and zircon are enriched in the upper till with respect to the lower till and this may indicate two cycles of deposition for these minerals and/or a longer transport distance for the upper till.

Gold particles were observed in 68 samples during shaker table processing. Of these, 26 required additional panning to ensure that all gold in samples bearing a number of observable grains was recovered. This high number of gold-bearing samples would ordinarily be considered unusual and anomalous, however this was not unexpected and almost certainly is a result of gold dispersion from the Malartic Hygrade mine. Gold particles are scaly, abraded, very fine to powder size with dimensions generally less than 200 microns. Only occasional "irregular" and "delicate" particles (see Appendix B) indicative of short transport or liberation from rock clasts by drilling, respectively, were counted in the west portion of the drill area, however in the east portion of the grid (from hole 65 onward) in excess of 50% of the gold grains reflect relatively shorter transport and the likely presence of a primary dispersal train. The mix of particles exhibiting both advanced and moderate abrasion, i.e.

TABLE 2

MALARTIC HYGRADE GOLD MINES (CANADA) LIMITED - 1983 OVERBURDEN DRILLING PROGRAMME

MINERALOGY OF NONMAGNETITIC HEAVY MINERAL CONCENTRATES

Rock Forming Minerals	Range %	Mean %
Garnet	6 - 27	14
Pyroxene	8 - 42	22
Epidote (Pistacite ± Zoisite)	30 - 61	50
Ilmenite	0 - 11	3
Sphene	0 - 12	2
Zircon	0 - 5	1
Colourless Vitreous Mineral (extremely fine quartz; zircon, spene)	0 - 10	2

Pathfinder/Indicator and Gangue Minerals	Range %	Mean %
Pyrite	0 - 14	4
Specular Hematite	0 - 1	-
Pyrrhotite	traces	-
Chalcopyrite	0 - 2	-
Arsenopyrite	0 - 1	-

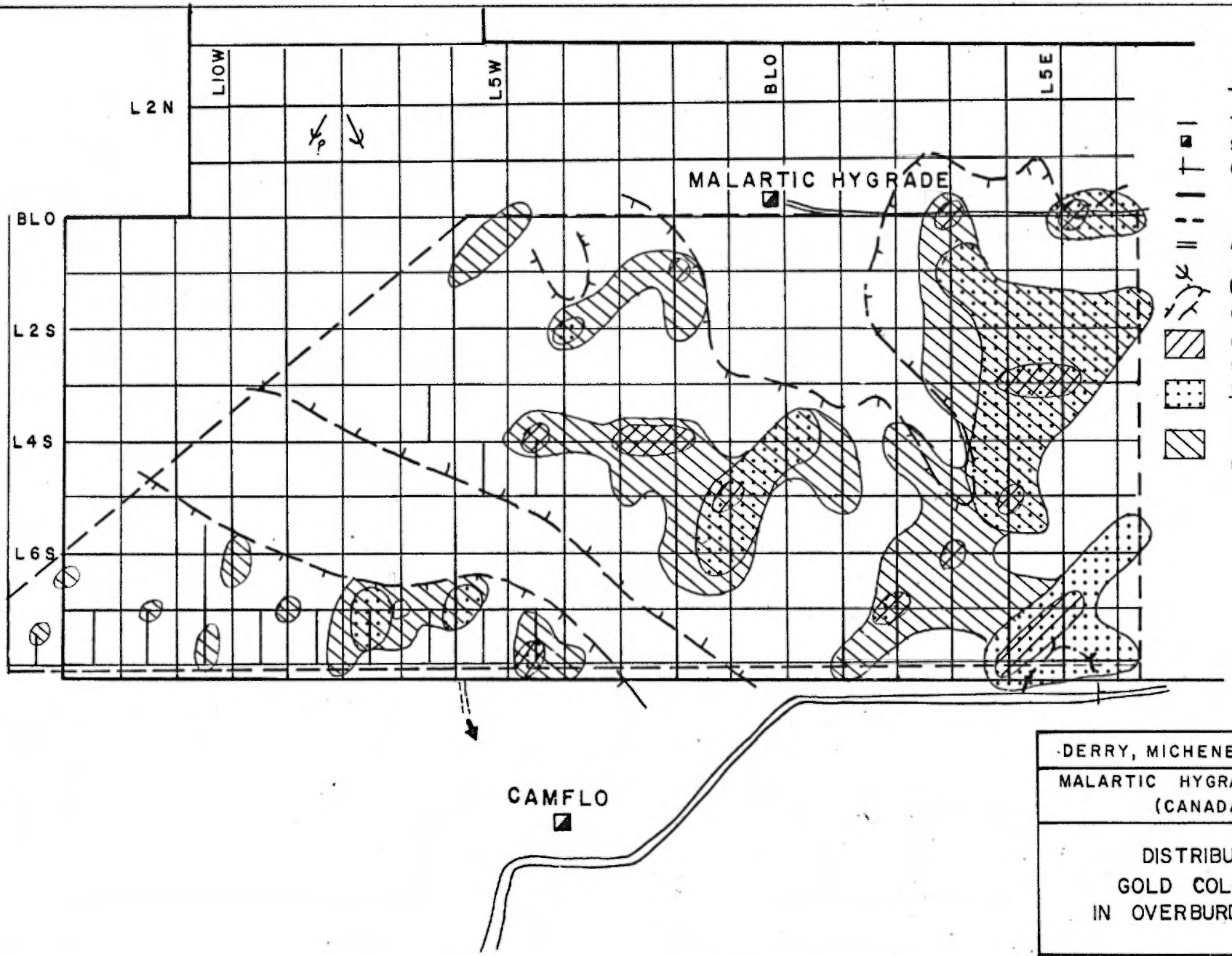
Pathfinder/Indicator Minerals	Sample Nos. with Trace Contents				
Chalcopyrite	17 - 07	42 - 02			
	18 - 02	62 - 01			
	25 - 01				
	27 - 05				
	31 - 01				
Arsenopyrite	04 - 04	42 - 02	68 - 01	70 - 09	
	32 - 02	62 - 01	69 - 01	75 - 01	
	36 - 01	64 - 01	70 - 04		
Hematite	18 - 01	49 - 02	70 - 01	70 - 07	79 - 01
	24 - 01	54 - 01	70 - 02	70 - 09	84 - 01
	64 - 01	63 - 05	70 - 05	76 - 01	
Cobaltite	36 - 01	62 - 01	70 - 04	70 - 09	75 - 01
Molybdenite	27 - 01	83 - 01			
Native Copper	77 - 02				
Graphite	70 - 02				

transport, is not unexpected in a dispersal train within immature gravels interpreted to be more or less directly derived from ablated till dumped off the ice margin into a proglacial lake.

Figure 4 outlines the distribution of gold colours observed in overburden in both the 1982 and 1983 drill areas. Three principal patterns are discernable and these correspond well to anomalous gold analyzed in heavy mineral separates.

Statistical Treatment of Gold Analyses and Basis for Selection of Anomalies

Gold content analyzed from the 190 heavy mineral separates collected in 1983 ranges from less than 25 ppb to greater than 15,000 ppb (Appendix D). Exclusive of the 10 duplicate samples, gold in 17 separates (16 holes) exceeded 2,500 ppb and of these five, in four holes, are greater than 5,000 ppb. In view of the considerable range of values and evident high variance, a scatter plot was prepared based on the 10 samples for which duplicate sampling was undertaken (Figure 5). The percentage difference between the sample and duplicate values is a measure of both the analytical precision and within - site variability for gold. The plot shows a range from 10% to in excess of 100%. Because of the considerable scatter and since for the higher, potentially anomalous values the differences are apparently escalated, it may be concluded that while the presence of gold is confirmed by high analytical values it is not necessarily ruled out by low values. This strongly implies that the delineation of the areal extent of gold anomalies in the drill area should not necessarily be restricted to the immediate cluster of obviously anomalous values and that broader patterns of somewhat lower gold values are important from the stand point of anomaly discrimination.



DERRY, MICHENER, BOOTH & WAHL

MALARTIC HYGRADE GOLD MINES (CANADA) LTD.

DISTRIBUTION OF GOLD COLOURS SEEN IN OVERBURDEN SAMPLES

Scale 1:10,000	R. Routledge	FIG. 4

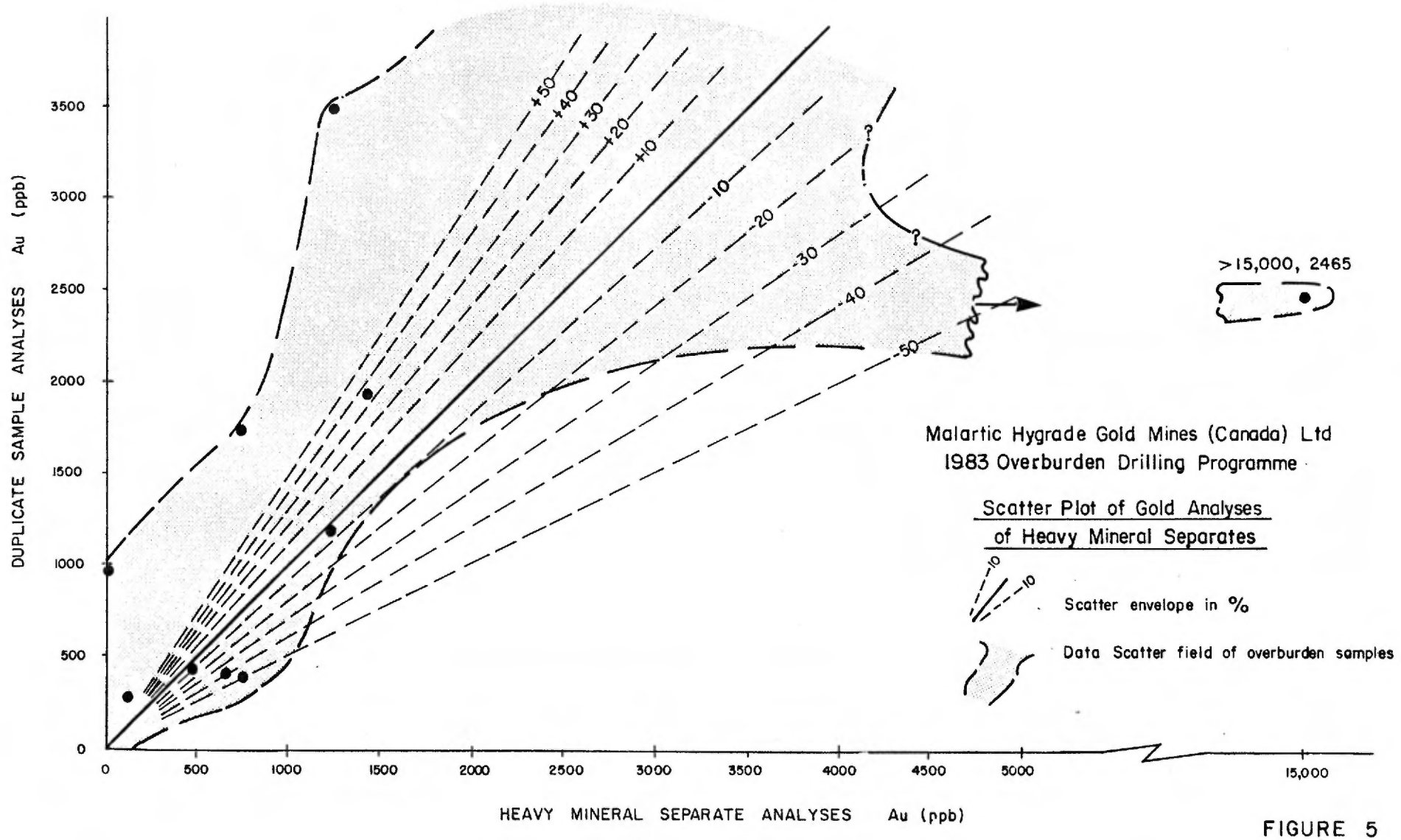


FIGURE 5

DMBW, 1984

Statistical treatment of individual sets of gold analyses for the 1982 and 1983 programmes was performed using the computer at the University of Toronto. Because of a slightly greater number of high values, the mean and standard deviation of the 1983 analyses are somewhat higher than those of 1982. Statistical "t" and "F" tests indicated no significant difference between these two data sets. Histograms of the 1982 and 1983 arithmetic and log10 transformed analytical values were prepared along with log-probability plots. The remarkable similarity between plots of the 1982 and 1983 data confirmed the "t" and "F" tests. The 1982 and 1983 data sets were therefore combined and further statistical analysis performed. In theory, the larger number of samples increases the degree of confidence in the estimate of statistical parameters. Histograms for the 1983 data and combined 1982-1983 data are shown in Figure 6a to d, respectively.

The histogram of log-transformed analyses for combined data (Figure 6d) approximates normal (Gaussian) distribution indicating that gold analysis are distributed log-normally. The four apparent modes in the histogram suggest four sub-populations compose the data set. The log-probability plot of the combined data (Figure 7) approximates a straight line and has three inflections marking the overlap areas between these four sub-populations. Sub-populations appear to be non-intersecting with extensive overlap. Approximate ranges of these populations are:

(A) less than 10 to 65 ppb;

(B) 40 to 500 ppb:

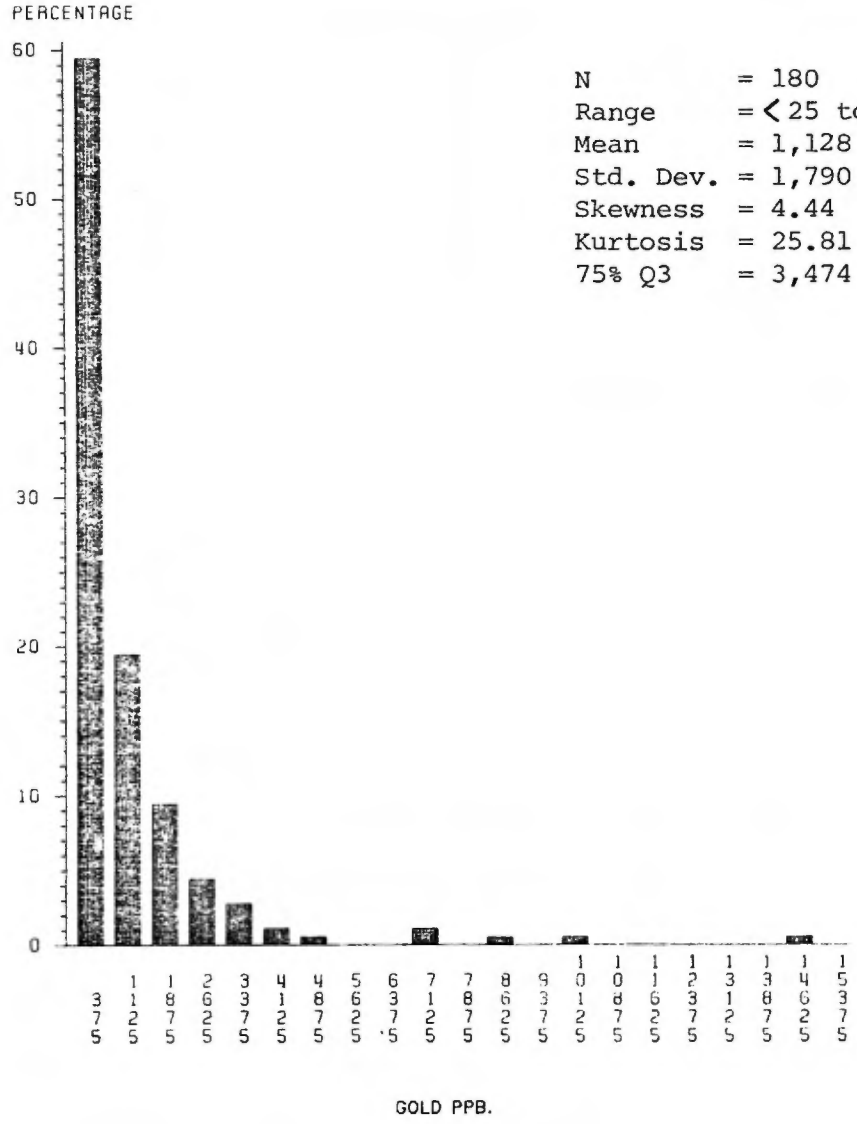
(C) 400 to 4,500 ppb;

(D) 2,350 to greater than 15,000 ppb

MALARTIC HYGRADE GOLD MINES (CANADA) LTD.

OVERBURDEN DRILLING PROGRAMME

HISTOGRAM - ARITHMETIC VALUES
YEAR 1983



N = 180
Range = < 25 to > 15,000 ppb
Mean = 1,128 ppb
Std. Dev. = 1,790 ppb
Skewness = 4.44
Kurtosis = 25.81
75% Q3 = 3,474 ppb (95% interval)

FIGURE 6a

MALARTIC HYGRADE GOLD MINES (CANADA) LTD.

OVERBURDEN DRILLING PROGRAMME

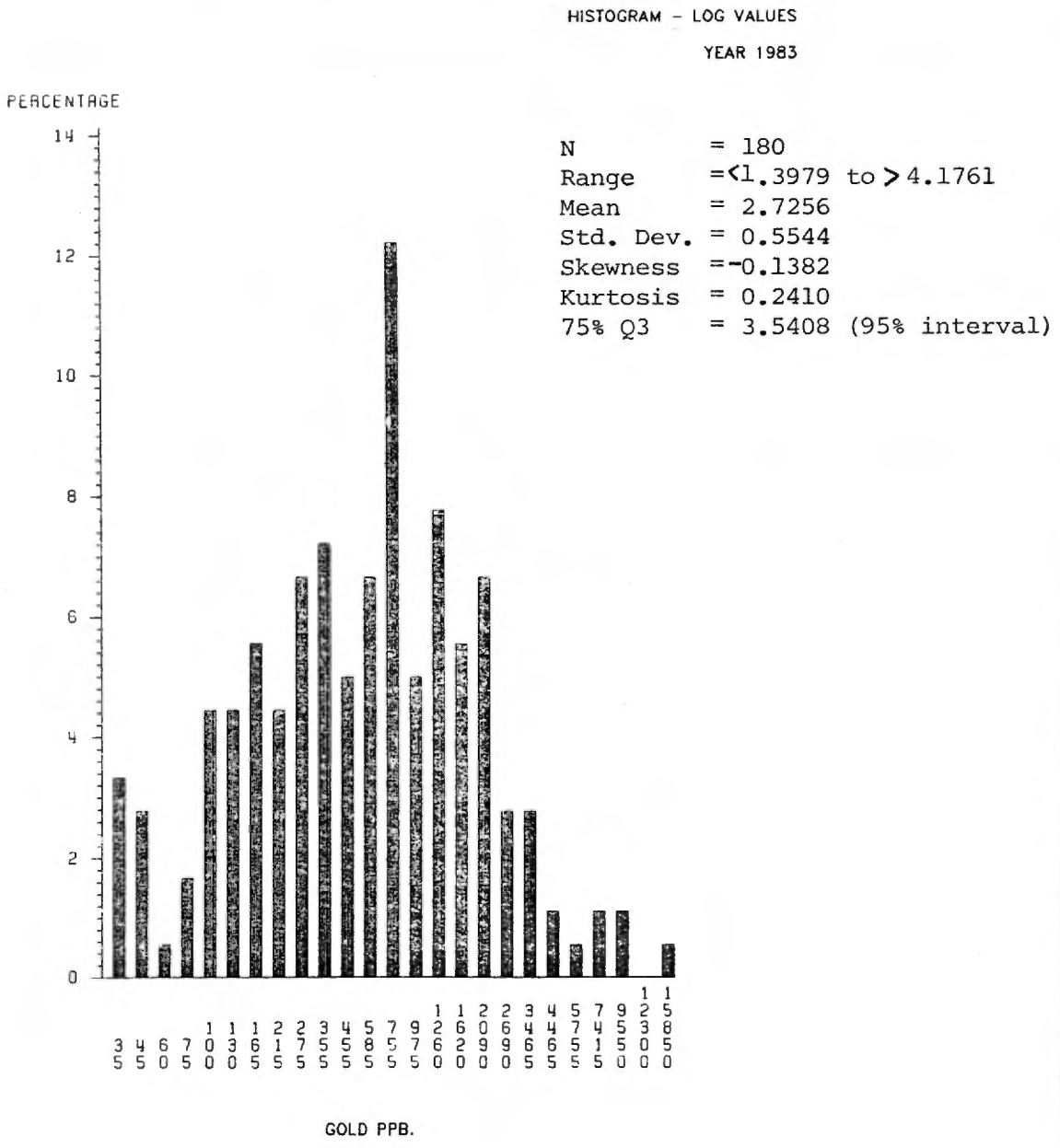
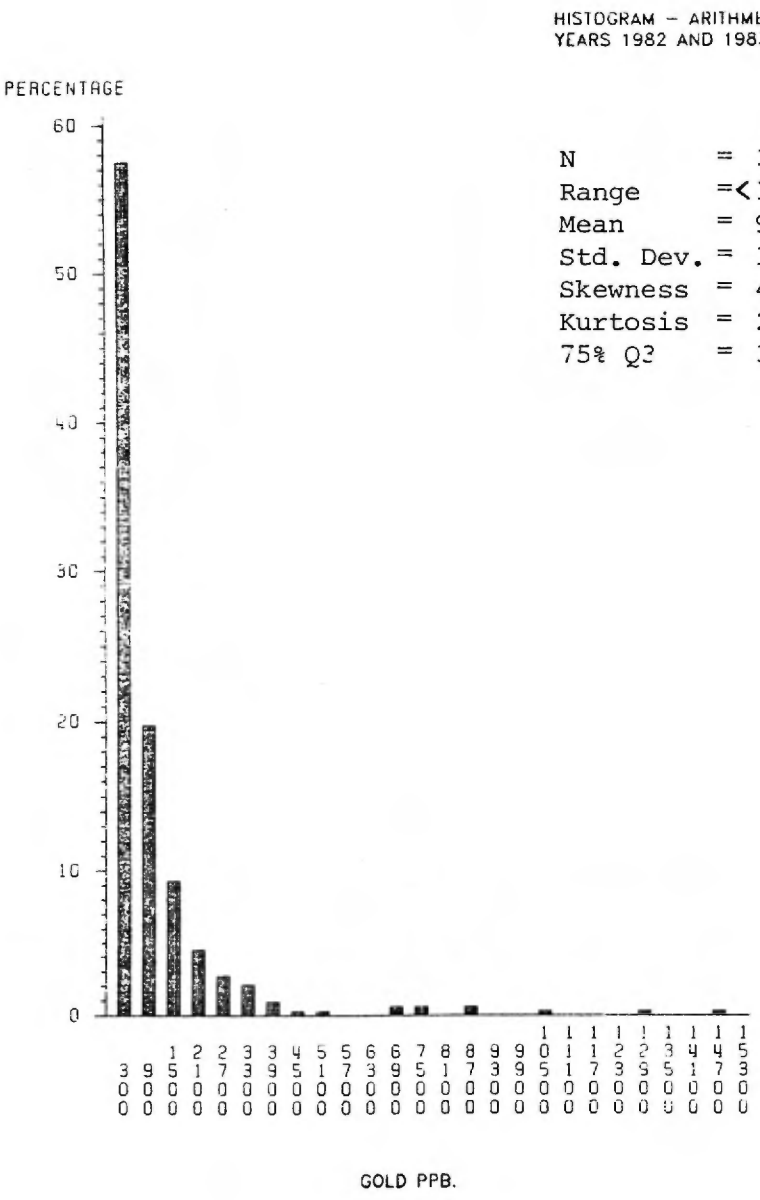


FIGURE 6b

MALARTIC HYGRADE GOLD MINES (CANADA) LTD.

OVERBURDEN DRILLING PROGRAMME



N	= 334
Range	=<10 to >15,000 ppb
Mean	= 987 ppb
Std. Dev.	= 1,697 ppb
Skewness	= 4.55
Kurtosis	= 26.34
75% Q3	= 3,304 ppb (95% interval)

FIGURE 6c

MALARTIC HYGRADE GOLD MINES (CANADA) LTD.

OVERBURDEN DRILLING PROGRAMME

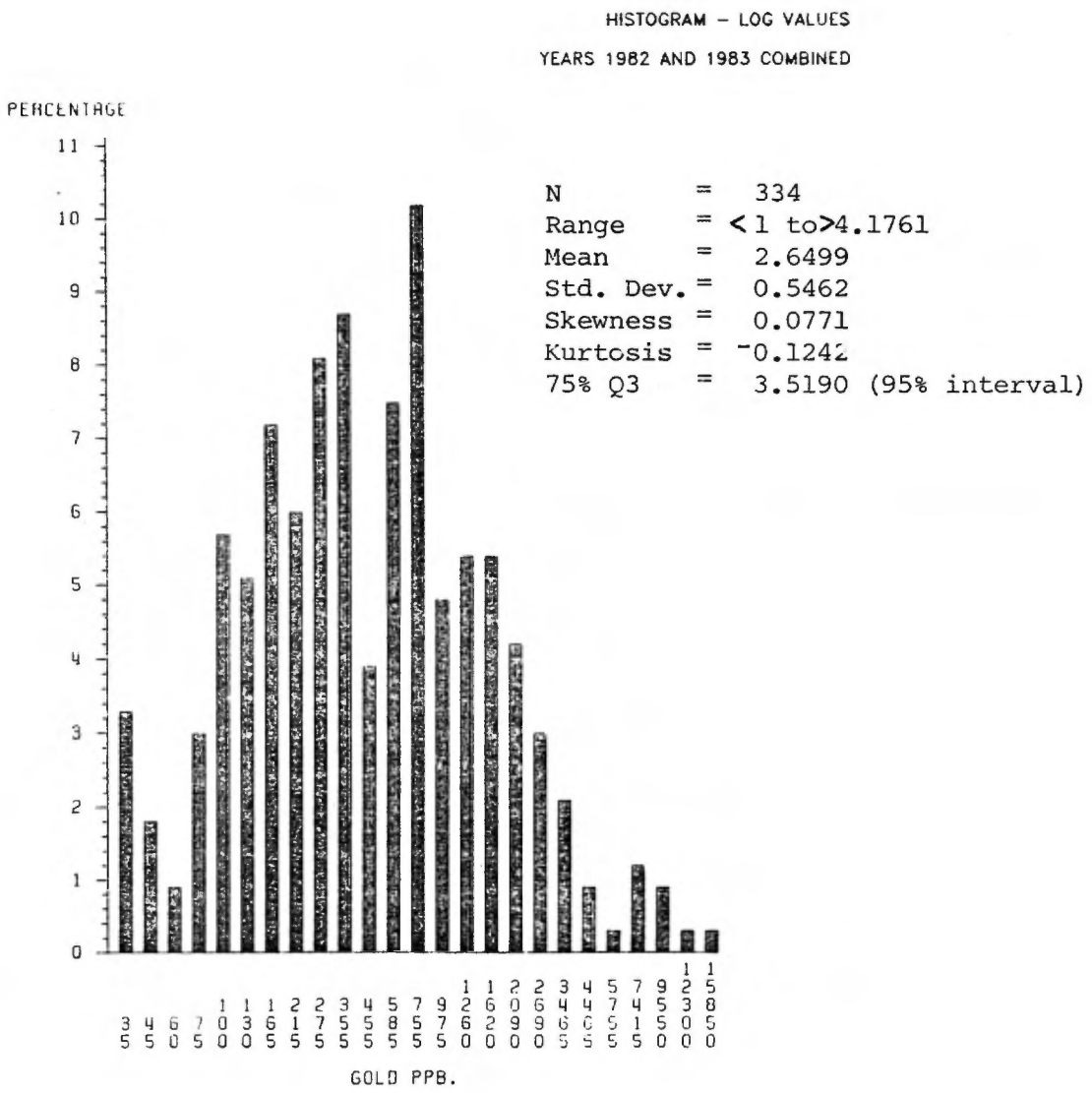
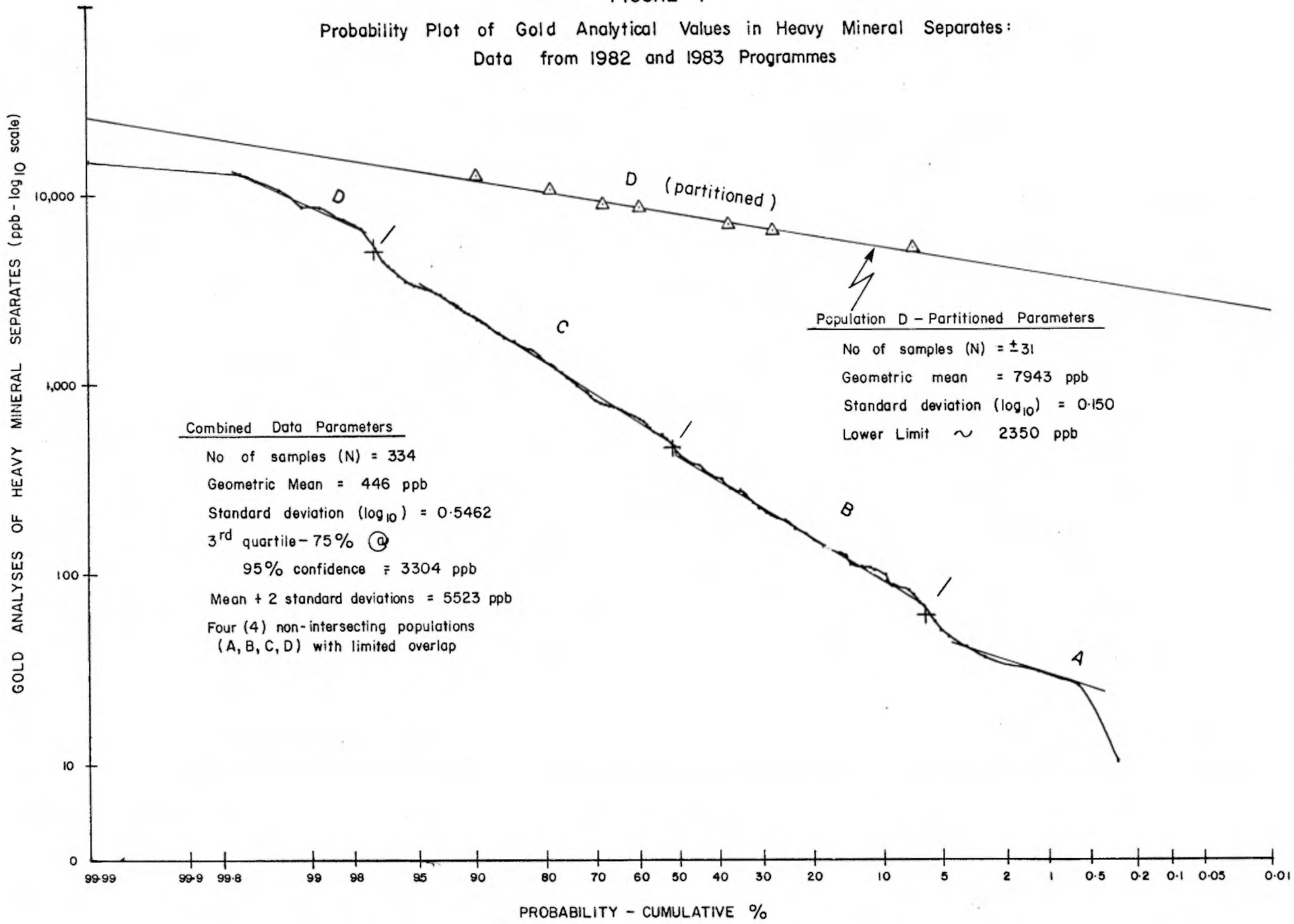


FIGURE 6d

FIGURE 7

Probability Plot of Gold Analytical Values in Heavy Mineral Separates: Data from 1982 and 1983 Programmes



Population A is attributable to gold found in the lattices of common rock-forming heavy minerals such as pyroxene, ilmenite, magnetite, amphibole and hematite. The second range (B) likely reflects very fine gold found in cleavages of resistant sulphide minerals such as pyrite which is common in the separates. Dispersion of trace amounts and erratic small occurrences of gold associated for example with the widespread quartz and carbonate veining in Archean volcanic rocks is likely responsible for the higher background values in population C. A small inflection in the probability plot denotes almost complete overlap between populations B and C and in fact they may be a single, nearly continuous population. Population D is considered to be definitely anomalous. Since the pattern of gold distribution in the overburden, rather than the absolute level of values, is of critical importance in recognizing significant anomalies, population A was partitioned graphically to determine the lower limit of values which overlap and are masked in population C. The lower limit is about 2,350 ppb (Figure 7). In order to delineate gold anomalies in the overburden based on the statistical analysis, a contour plan (Map 4) of analytical values exceeding 2,000 ppb gold was prepared using the highest value yielded in any particular overburden drill hole. The resulting contoured pattern of anomalous values conforms well (particularly those exceeding 3,000 ppb) to the higher core areas of the visible gold distribution in overburden as previously illustrated in Figure 4.

The mass of an anomalous concentrate in relation to the original -10 mesh sample mass has a bearing on the significance of an anomaly inasmuch as high values in a proportionately larger concentrate mass will be a more reliable indication of anomalous gold than a smaller concentrate of similar tenor (i.e. a single small particle of gold will have proportionately greater effect in a small concentrate). Anomalous samples were therefore weighted to relate concentrate analytical values

to the total sample size. Significant anomalies recognized from this perspective are considered to be equal or greater than 10 micrograms per kilogram (ppb). This arbitrary threshold value is comparable to what is generally accepted as anomalous levels for gold analyzed in soils prepared for analysis using conventional laboratory procedures.

Some of the gold observed during shaker tabling of the concentrates may not report in the 10 gram concentrate splits destined for geochemical analysis, particularly after two sample splits have been carried out in the laboratory. Therefore, for samples with visible gold having concentrate tenors which are seemingly too low, an estimate of the gold content of the total sample in micrograms/kilograms (ppb) is made using calculated masses of the observed gold grains in proportion to the total sample mass. This kind of estimation is commonly practised in grade estimation of placer gold deposits and is a valuable semi-quantitative tool DMBW uses for gold exploration in overburden.

The above manipulation of analytical values generally aids in "fleshing out" or extending anomalous areas delineated initially by the basic analytical data and ensures that in certain cases a weak anomaly does not go undetected.

The following criteria has been employed to outline and rank gold anomalies in the 1982 and 1983 drill areas:

(1) heavy mineral separate analyses exceeding the threshold value of 3,000 ppb Au. This threshold is slightly higher than the lower limit of the partitioned definitely anomalous population (D) and is approximately the 3rd Quartile boundary at the 95% confidence interval.

(2) the arbitrary value of 10 micrograms Au/kg (ppb) as discussed above.

(3) presence and abundance of gold grains wherein the calculated value of observed gold exceeds 10 micrograms/kg (ppb).

(4) physical properties of gold particles such as degree of rounding, sphericity, size and abrasion characteristics indicative of transport distances.

(5) presence of pathfinder, indicator or gangue minerals in concentrates.

(6) sample classification, e.g. till or glaciofluvial clastics and the stratigraphic position of the anomaly.

Table 3 summarizes anomalous samples selected under the above criteria. The location, and position of these anomalies within the overburden profile, is shown on Map 2.

TABLE 3

MALARTIC HYGRADE GOLD MINES (CANADA) LTD.

November 16-December 2, 1983 Overburden Drilling Programme

Summary of Gold Anomalies in Overburden

Hole and Sample No.	Non-mag Concentrate Analysis (3/4 Split) (ppb)	Micrograms Au/kg of -10m Sample (ppb)*	Visible Au Grains	Au Grain Character***	Remarks Pathfinder/Indicator Minerals in Heavy Concentrate (¼ Split)	Overburden Unit/ft. Above Bedrock
MH-83-04-02	445	2.8(27)**	1	A	slightly increased % py	sandy gravel/till (turbidite)/8
05-02	80	0.53(34)	1	IR	-	med. to coarse sand /22
12-01	2230	9.8(25)	6	4A, 2IR	slightly increased % mt & il + colourless vitreous mineral (qtz?)	coarse sand & gravel /3
19-01	1540	9.3(13)	1	IR	(small sample volume) -tr po	gravelly coarse sand /0
23-01	35	0.18(10)	1	A	slightly increased % mt & il, tr po	cobbly, bouldery coarse sand/8
26-03	3480	14(2.3)	1	A	colourless vitreous mineral (qtz?)	cobble gravel /till /21
28-02	4060	22(22)	2	A	slightly increased py	coarse sand & sandy gravel/10
31-01	730	8.5(16)	8	7A, 1D	tr apy	coarse sandy gravel /27

TABLE 3

MALARTIC HYGRADE GOLD MINES (CANADA) LTD.

November 16-December 2, 1983 Overburden Drilling Programme

Summary of Gold Anomalies in Overburden

Hole and Sample No.	Non-mag Concentrate Analysis (3/4 Split) (ppb)	Micrograms Au/kg of -10m Sample (ppb)*	Visible Au Grains	Au Grain Character***	Remarks Pathfinder/Indicator Minerals in Heavy Concentrate (¼ Split)	Overburden Unit/ft. Above Bedrock
MH-83-31-03	7380	47(2.2)	1	A	increased py content	coarse sandy gravel/ till?/16
32-01	635	4.6(15)	1	IR	-	sandy gravel/22
-02	4190	2.8(44)	5	2A, 2IR, 1D	tr apy	gravelly sand/16
36-01	8740	38(30)	5	A	tr apy & cblt.	sandy gravel/till/0
44-02(c)	1740	12(3.1)	2	A, IR	-	sandy gravel/0
45-01	1500	(7.9)(10)	1	A	py content low	sandy gravel/0
49-01	3000	14(19)	1	A	py% slightly increased	silt & sandy gravel/7
50-02	2000	11(4.1)	5	4A, 1IR	py, il & mt% increased	cobbly, sandy gravel/0
54-02	495	2.7(14)	2	A	-	bedded gravel/0
59-01	2440	9.6(18)	3	2A, 1IR	py content low, mt% increased	sandy gravel/4
60-01	3270	11(43)	2	1A, 1D	py content low, mt% increased	cobbly gravel/5

TABLE 3

MALARTIC HYGRADE GOLD MINES (CANADA) LTD.

November 16-December 2, 1983 Overburden Drilling Programme

Summary of Gold Anomalies in Overburden

Hole and Sample No.	Non-mag Concentrate Analysis (3/4 Split) (ppb)	Micrograms Au/kg of -10m Sample (ppb)*	Visible Au Grains	Au Grain Character***	Remarks Pathfinder/Indicator Minerals in Heavy Concentrate (¼ Split)	Overburden Unit/ft. Above Bedrock
MH-83-62-01	1880	12(12)	9	7A, 1IR, 1D	tr apy & cblt; mt & il increased	sandy gravel /7
63-01	2150	9.0(37)	11	8A, 1IR, 1D	tr Apy & cblt, mt% slightly increased, tr po	coarse sandy gravel/24
-02	1190	13(27)	1	A	-	clayey gravel/till/19
-04	6980	22 (-)	0	-	mt & py% slightly increased	lower till/12
64-01	3180	16(26)	11	9A, 2IR	tr apy & hematite	sandy gravel/9
65-01	10455	49(27)	4	3A, 1IR	mt & il% slightly increased	sandy gravel/9
-02	>15000	>72(4.2)	7	6A, 1IR	tr apy, mt% slightly increased	coarse gravel/0
-04(c)	2465	14 -	-	-	-	coarse gravel/0
68-02	370	1.7(10)	1	A	mt & py% slightly increased	sandy gravel/0
69-01	2900	18(18)	12	2A, 9IR, 1D	tr apy, mt% slightly increased	upper till? /0

TABLE 3

MALAKTIC HYGRADE GOLD MINES (CANADA) LTD.

November 16-December 2, 1983 Overburden Drilling Programme

Summary of Gold Anomalies in Overburden

Hole and Sample No.	Non-mag Concentrate Analysis (3/4 Split) (ppb)	Micrograms Au/kg of -10m Sample (ppb)*	Visible Au Grains	Au Grain Character***	Remarks Pathfinder/Indicator Minerals in Heavy Concentrate (¼ Split)	Overburden Unit/ft. Above Bedrock
MH-83-70-02	1240	6.5(12)	8	7A, 1IR	py & mt% slightly increased	bedded gravel/27
-03	3180	17(6.1)	10	7A, 3IR	py & mt% slightly increased	granular gravel/22
-04	910	4.0(27)	6	2A, 3IR, 1D	tr apy & cblt, slightly increased %py & mt	pebbly coarse sand /18
-09	790	3.5(72)	10	4A, 3IR, 3D	tr apy & cblt & hematite	bouldery coarse sand /0
-09(c)	3500	25(46)	14	7A, 3IR, 4D	-	bedded gravel/27
74-02	3360	24(37)	19	7A, 8IR, 4D	py & mt% slightly increased	cobbly gravel/5
-03	1780	11(9.8)	13	7A, 2IR, 4D	high py & mt content tr po	gravel & fine sand/0
77-02	2050	8.0(21)	7	3A, 1IR, 3D	tr native Cu, il & mt % slightly increased	cobble to pebble gravel/5
-03	2225	11(3.0)	1	IR	tr hematite	pebbly coarse sand/0

MALARTIC HYGRADE GOLD MINES (CANADA) LTD.

November 16-December 2, 1983 Overburden Drilling Programme

Summary of Gold Anomalies in Overburden

Hole and Sample No.	Non-mag Concentrate Analysis (3/4 Split) (ppb)	Micrograms Au/kg of -10m Sample (ppb)*	Visible Au Grains	Au Grain Character***	Remarks Pathfinder/Indicator Minerals in Heavy Concentrate (¼ Split)	Overburden Unit/ft. Above Bedrock
MH-83-78-01	2380	18(16)	20	10A, 6IR, 4D	py & mt% slightly increased	sandy gravel/10
79-01	5200	16 -	-	-	-	sandy gravel/0
80-01	2970	10(17)	13	1IR, 12D	py, il & mt% slightly increased	sandy gravel/0

* Calculated by weighting concentrate analytical value by ratio of masses of concentrate and -10 m bulk sample

** Recalculated using estimated mass of gold grain(s) under premise that grain(s) did not report in analyzed portion of 3/4 concentrate split.

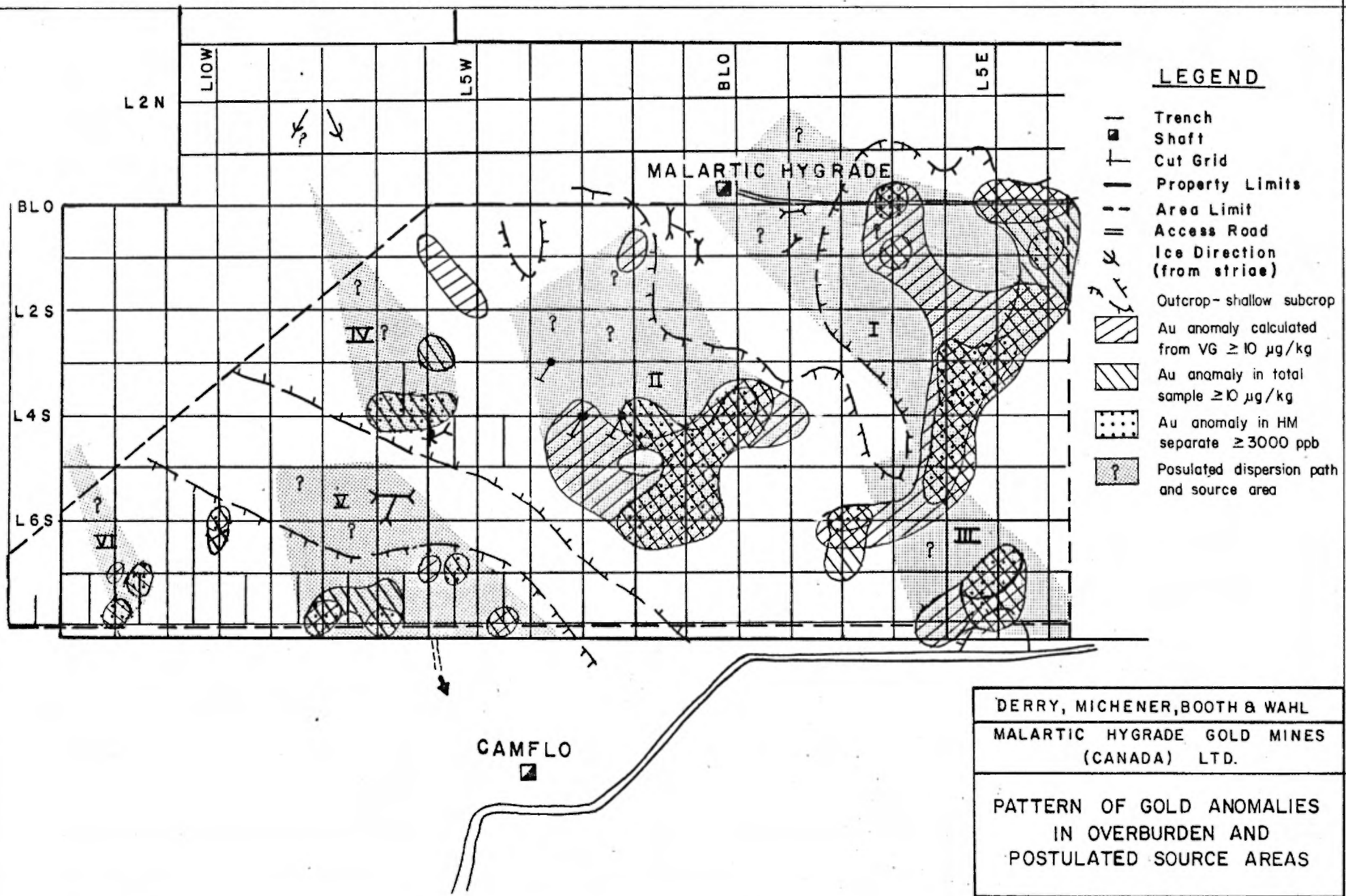
*** A = abraded, IR = irregular (transported), D = delicate (non-transported)

**** Py = pyrite, apy = arsenopyrite cblt = cobaltite, po = pyrrhotite, qtz = quartz, mt = magnetite, il = ilmenite Cu = copper

GOLD ANOMALIES AND RECOMMENDATIONS FOR FURTHER EXPLORATION

Forty-one of the 1983 samples (including three duplicates) in 30 holes are considered anomalous under the above criteria. Most of these holes are clustered in three principal areas designated in order of importance, I, II and III (Figure 8). Areas IV to VI were outlined by the 1982 drilling and are discussed within the context of results from the 1983 program.

Area I: The strongly anomalous core of Area I, centered at L4E/4S, is outlined by holes 63 to 65 and 74. Anomalous gold in heavy mineral separates ranges from 8,270 ppb in hole 60 to greater than 15,000 ppb in hole 65. Stratigraphic position of the anomalous samples varies from basal to 9 ft. (3 m) above bedrock in holes 65 and 74 and 9 ft. to 24 ft. (3 m to 7 m) above bedrock in holes 64 and 63. Most of the anomalous samples are coarse, sandy to cobbly gravels; however, the two lower of three anomalous samples in the latter hole occur at the top of the upper till unit. Trace amounts of arsenopyrite, cobaltite, pyrrhotite and hematite and above average amounts of pyrite, ilmenite and magnetite were noted in heavy mineral separates of these anomalous samples. The north and northeast sector of Area I is outlined by shallow holes 60, 77 and 79 wherein anomalous values occur at or up to 5 ft. above bedrock. Anomalies are stratigraphically lower in the column to the north, i.e. nearer to source and this, together with the location of Area I almost directly down-ice from the Malartic Hygrade mine, indicates that gold mineralization at the mine site is the source. Dispersion from this site, where the width of the anomaly indicates a number of gold zones may occur at surface over a broad area, appears to have been influenced by the bedrock high extending down-ice southeast of the mine. This positive area would have locally redirected the ice



DERRY, MICHENER, BOOTH & WAHL

MALARTIC HYGRADE GOLD MINES (CANADA) LTD.

PATTERN OF GOLD ANOMALIES IN OVERBURDEN AND POSTULATED SOURCE AREAS

Scale 1:10,000 | R. Routledge | FIG. 8

and displaced the deposition of the till, and ablation products carrying dispersed gold, somewhat to the east into the bedrock depression at L5E/3S.

Area II at L1W/6S is delineated by holes 26, 28, 31, 32 and 36 and covers an area of 400 m x 200 m. Upper till in holes 26, 31 and undifferentiated till in hole 36 is anomalous whereas coarse sandy gravel carries the values in holes 28 and 32. Anomalous gold in separates ranges from 3,480 ppb in hole 26 to 8,740 ppb in hole 36. Area II overlies a bedrock trough which has collected and preserved till. Although the anomaly in shallow hole 36 occurs adjacent to bedrock, anomalies in the other four holes are higher in the column from 10 ft. to 22 ft. (3 m - 7 m). This suggests a transport distance of at least 100 m to 300 m and since the anomaly occurs in upper till the direction to source would be related to the last ice advance from the NNW. Possible bedrock sources of gold dispersed in Area II likely lie between the base line and L4S. In order of priority these are:

(1) the easterly continuation of gold-bearing mineralization intersected in the 1983 diamond drilling at L2 to 3W/4S.

(2) the felsic intrusive (porphyry), or its contact with volcanics, centred at L2+50W/2+50S.

(3) the intermediate volcanic unit possibly carrying high background gold similar to that mapped in the central outcrop area of the 1982 drill area.

(4) a continuation of a Malartic Hygrade mine mineralization or satellite occurrences along strike to the west.

(5) a combination of the above.

Area III centered at L5E/7S, is defined by only three holes and is therefore restricted in area. Only one sample at 3,500 ppb in hole 70, exceeds the threshold for gold in separates. However, Area III lies within a broader area defined by gold colours observed in samples (Figure 4). Anomalous sections occur from bedrock up to 27 ft. (8 m) within bouldery coarse sands and gravels of hole 70 and in upper till adjacent to bedrock in hole 69. Pathfinder minerals in separates are chalcopyrite, cobaltite, hematite and above average pyrite content in hole 70, and above average pyrite in hole 69. Area III may represent distal dispersion from either, or both Areas I and II. Alternatively, the bedrock source may be gold in the gabbro sill at L2E/5S, a situation analogous to mineralized, sheared diorite at Camflo, or possibly high background gold in the band of intermediate to felsic volcanics extending through the center of the 1983 drill area.

Areas IV to VI were outlined in the 1982 report. As pointed out by Marlartic Hygrade in 1982, the source for the anomalous gold in gravels and tills of Area V is likely high background gold in dacite exposed in the topographic high at approximately L8W/5S. Anomalous Areas IV and VI, located at L6+50W/4S and L12W/7+50S, respectively, are defined by a cluster of three holes each; however, blank holes between these clustered holes indicate erratic gold dispersion. Anomalies are in basal till or gravel, hence the source may be immediately up-ice although it is likely only a small occurrence. The anomalous values in Area IV are in very shallow overburden and hence, may not be a reliable indication of a dispersal train.

Since the Area I anomaly is postulated to be derived from gold dispersion from the mine, it is not of immediate exploration interest. The 400 m width of the gold dispersion train, particularly its extent to the northeast, may indicate mine site mineralization extends further north (east) than previously realized. Areas II and III appear to be promising and further work should be undertaken to locate the parent mineralization. This exploration should be guided initially by a review of gold analyses of the bedrock chips obtained in the overburden drilling program. Further review of results from the 1983 series diamond drill holes collared up-ice of Area II is also advised. These holes are located somewhat west of the centre of gold dispersal Area II and may prove useful in guiding further work to the east and directly up-ice of this anomaly where the postulated bedrock source is located.

Respectfully submitted,

DERRY, MICHENER, BOOTH & WAHL

R. E. Routledge, M.Sc. (Applied), F.G.A.C.
Associate

J. A. Dixon, M.A.

March 16, 1984
Toronto, Canada

APPENDIX A

REVERSE CIRCULATION

DRILL HOLE LOGS

DERRY, MICHENER, BOOTH & WAHL
CONSULTING GEOLOGISTS AND ENGINEERS

REVERSE CIRCULATION DRILL HOLE LOG

DATE Nov. 16 1983

SHIFT 7.00 TO 5.00

HOLE NO MH-83-01 LOCATION L.30-8+13 S CLIENT: Malartic Hygrade

GEOLOGIST R.E.R./J.A.B. DRILLER J. Howe BIT NO B-65913 BIT FOOTAGE 0-13.

MOVE TO HOLE Mob. 8:00 to 12:00 prep to 13:30 move to hole 13:30-14:55

DRILL 15:25 to 16:30

MECHANICAL DOWN TIME

DRILLING PROBLEM

OTHER Wash water sloop (14:55 to 15:25)

MOVE TO NEXT HOLE

ELEVATION: 0=MH-82-01 +2 rising to N.E.

IN METRES	IN FEET	GRAPHIC LOG	FEATURES	SAMPLE NO	DESCRIPTIVE LOG	Notes & Analyses Au conc. ppb	Au g/kg	VG. g/kg
			P.R.		Boulder at surface - no return			
	05		P.R.	01	poor, intermittant return - oxidized brown fine sand and silt matrix with angular volcanic boulders.	<.25	0.17	—
				02	- clay clad on bedrock			
	15		13'		bedrock - 8' dark green chlorite schist, fine grained disseminated pyrite; fabric layered medium grained amphibolite schists; volcanic layers streaky light grey and siliceous - mafic meta volcanic to "dacite" - sheared!			
	25							

Hole No. 1 | Page No. 1

B.&C. LTD.

DERRY, MICHENER, BOOTH & WAHL
CONSULTING GEOLOGISTS AND ENGINEERS

REVERSE CIRCULATION DRILL HOLE LOG

DATE Nov. 17 1983

SHIFT 07.00 TO 17:00

HOLE NO. M.H.83-02 LOCATION 43W - 7+00S CLIENT: Malartic Hygrade

GEOLOGIST R.E.G./J.A. DRILLER J. Howe BIT NO 6-65413 BIT FOOTAGE 13 - 24

MOVE TO HOLE 7:38 - 7:46

DRILL 8:04 - 8:32 pull rods 8:40.

MECHANICAL DOWN TIME

DRILLING PROBLEMS

OTHER Wait for water @ 7:38

MOVE TO NEXT HOLE 8:40 - 8:47

ELEVATION: +4

IN METRES	IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO	DESCRIPTIVE LOG	Notes & Analyses: Au wmi ppb	Au ppb/kg	V.G. ppb/kg
					clay and silt - light brown silt with some clay			
	5		01*		Bedrock.	45	0.40	...
			02		Gravel seam with light brown sand and silt.			
					dark green, schistose - chloritic schist return dark green to black, possible ultra mafic composition			
	11'							
	15							
	25							

*Note: Sample 01 is the -10 of the bedrock and gravel seam.

Hole No.	Page #
02	01

B.&C. LTD.

DERRY, MICHENER, BOOTH & WAHL
CONSULTING GEOLOGISTS AND ENGINEERS

REVERSE CIRCULATION DRILL HOLE LOG

DATE Nov. 17 19 83

SHIFT
07:00 TO 17:00

HOLE NO. MH-83-03 LOCATION 23W - 6100S CLIENT: Malartic Hygrade
GEOLOGIST S.A.D./R.E.R. DRILLER J. Hong BIT NO B-65413 BIT FOOTAGE 27' - 48'
MOVE TO HOLE 8:40 - 8:47
DRILL 8:47 - 9:25 pull rods to 9:34
MECHANICAL DOWN TIME
DRILLING PROBLEMS
OTHER
MOVE TO NEXT HOLE 9:34 - 9:39
ELEVATION: +3 Spruce Swamp

IN METRES	IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO	DESCRIPTIVE LOG	Notes & Analyses Au Cond. 106	Au µg/g	V.G. µg/g
					N.R. clay, smooth brown to tan			
	5							
					silty with angular to subrounded pebbles			
	15			01	Fine to med. poorly sorted sand 20% sand. 80% granule	260	1.3	–
				02	Fractured bedrock surface with sand in seams.			
	25	24'			dark green chlorite (muscovite) schist. very soft. - mafic metavolcanic			
	35							

Hole No.	Page No.
03	01

B.&C. LTD.

DERRY, MICHENER, BOOTH & WAHL
CONSULTING GEOLOGISTS AND ENGINEERS

REVERSE CIRCULATION DRILL HOLE LOG

DATE Nov. 17 19 83

SHIFT 07.00 TO 17.00

HOLE NO. M.N 83-04 LOCATION 43W - 5+00S CLIENT: Malartic Nygrade

GEOLOGIST J.A.A/R.E.A DRILLER J. Hows BIT NO B-6543 BIT FOOTAGE 48' - 96'

MOVE TO HOLE 9:34 - 9:39

DRILL 9:45 - 10:35 pull to 10:45

MECHANICAL DOWN TIME

DRILLING PROBLEMS Sloop stuck had to be freed Net time lost.

OTHER

MOVE TO NEXT HOLE 10:45 - 10:50

ELEVATION: +2 Spruce swamp.

IN METRES	IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO	DESCRIPTIVE LOG	Notes & Analyses: CU ppb	Au g/t	V.G. g/t
	05				N.R. Brown clay			
					clay becoming greenish grey and silty.			
	15				silty grey clay smooth			
	25				Varved with brown and grey layers alternating: becoming more dense and silty.			
				01	Sandy gravel. coarse and fine layers. from cobble to granule matrix of fine to coarse sand.	110	0.70	-
	35			02	Some clasts have clay. sampled as a till.???	445	2.8	27
				03	Fine to med. Sand. with few cobbles & pebbles	35	0.19	-
				N.S.	mafic volcanic boulder.			
				04	med to coarse sand layer.	110	1.0	-
	45			05	dark green to black mafic volcanic, very fine grained, foliated and chloritic. Carbonate in foliation planes; magetite disseminated to 5%.			
					48'			
	55							

Hole No.	Page No.
04	01

B.& C. LTD.

DERRY, MICHENER, BOOTH & WAHL
CONSULTING GEOLOGISTS AND ENGINEERS

REVERSE CIRCULATION DRILL HOLE LOG

DATE Nov. 17 19 83
SHIFT 07.00 TO 17.00

HOLE NO. MH 83-05 LOCATION 430 - 4+005 CLIENT: Malartic Hygrade
GEOLOGIST L.A.O/R.B.E. DRILLER J. Hows BIT NO. B-65413 BIT FOOTAGE 96' - 152'
MOVE TO HOLE 10:45 - 10:50
DRILL 10:55 - 12:05 pull @ 12:15
MECHANICAL DOWN TIME
DRILLING PROBLEMS
OTHER
MOVE TO NEXT HOLE 12:15 - 12:21
ELEVATION: 12 spruce swamp by D.D.H. 83-10 drill road.

IN METRES	IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO	DESCRIPTIVE LOG	Notes & Analyses Au conc. ppb	Au g/t	V.G. Au g/t
	5				Brown clay some oxidation			
	15				Clay becoming grey green and silty.			
				01	Med. to coarse Sand and gravel 30% granule angular to subrounded clasts.	125	0.73	2.2
	25			02	med to coarse sand. boulder clasts with py in quartz. coarse sand, matrix is fine	80	0.53	34
	35			03	coarse sand and gravel with a few pebbles. layers of coarse and fine sand and gravel.	290	1.6	–
				04	mica Rich granitic boulder Fine sand + boulders.	50	0.20	–
	45			05	granular sand sand and gravel (coarse) interbedded.	85	0.47	–
				06	Sand and gravel with boulders	400	2.6	–
	55			07	dark green chlorite schist. - mafic meta volcanic.			
					56'			
	65							

Hole No.	Page No.
05	01

B.&C. LTD.

DERRY, MICHENER, BOOTH & WAHL
CONSULTING GEOLOGISTS AND ENGINEERS

REVERSE CIRCULATION DRILL HOLE LOG

DATE Nov 17 19 83

SHIFT 07:00 TO 17:00

HOLE NO M.M.-83-06 LOCATION 430 - 3400S CLIENT: Malartic Hygrade

GEOLOGIST J.A.D. / R.E.R. DRILLER J. Hews BIT NO. B-65413 BIT FOOTAGE 152' - 190'

MOVE TO HOLE 12:15 - 12:21

DRILL 12:26 - 13:05 pull - 13:10

MECHANICAL DOWN TIME

DRILLING PROBLEMS

OTHER

MOVE TO NEXT HOLE 13:15 - 13:20

ELEVATION: +2. spruce swamp.

IN METRES	IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO	DESCRIPTIVE LOG	Notes & Analyses: Au conc. ppb	Au g/t	Au oz/t
	05				Brown clay and silt.			
					Brown clay and silt.			
					Grey clay and silt.			
	15				Grey silt.			
					Grey silt + pebbles			
				01	coarse to med sand and gravel.	765	2.3	-
	25			+	angular to subrounded clasts.	*380	1.8	-
				Core of 1	alternate coarse and fine layers of sand & gravel.			
				02	coarse to med sand and gravel.	765	4.0	-
	35			03	green mafic volcanic / chlorite schist?? with quartz veining and large Py crystals on the f/w. / magnetite rich.			
					38'			
	45							
	55							

* C-06-01 is a duplicate sample.

Hole No.	Page No.
06	01

B.& C. LTD.

DERRY, MICHENER, BOOTH & WAHL
CONSULTING GEOLOGISTS AND ENGINEERS

REVERSE CIRCULATION DRILL HOLE LOG

DATE Nov. 17 1983

SHIFT 07:00 TO 17:00

HOLE NO. MH-83-07 LOCATION 2.3W - 2100S CLIENT · Malert-ic Ivygrade

GEOLOGIST J.A.D/R.E.K DRILLER J. Hows BIT NO. B.65413 BIT FOOTAGE 190' - 212'

MOVE TO HOLE 13:15 - 13:20

DRILL 13:35 - 14:10 pull - 14:15

MECHANICAL DOWN TIME

DRILLING PROBLEMS

OTHER

MOVE TO NEXT HOLE 14:15 to 14:25

ELEVATION: +2 Spruce Swamp. Mature trees 100' mixed with younger

IN METRES	IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO	DESCRIPTIVE LOG	Notes & Analyses Au conc. ppb	Au µg/kg	U.S. µg/kg			
	5				brown clay. grey green clay & silt. Varved often small clasts. green mafic volcanic soft.						
	15			01	fine silt. fine sand and silt.	800	2.9	-			
				02	Bedrock @ 17' light apple green muscovite - chlorite schist; few chips with fine grained ½-1mm porphyroblasts - lower portion of hole is light grey fine to medium grained porphyritic intrusive - plagioclase-quartz composition with <1% disseminated pyrite - QFP dyke or sill - schist at top of bedrock may be sheared contact.						
	25				22'						
	35										

Hole No.	Page No.
07	01

B. & C. LTD.

DERRY, MICHENER, BOOTH & WAHL
CONSULTING GEOLOGISTS AND ENGINEERS

REVERSE CIRCULATION DRILL HOLE LOG

DATE Nov. 17 1983
SHIFT 7:00 TO 17:00

HOLE NO. M.H.-83-08 LOCATION L 3W - 0195 S CLIENT: Malartic Highgrade
GEOLOGIST J.A.D/B.F.R DRILLER J. Hous BIT NO. B-65413 BIT FOOTAGE 212' - 270
MOVE TO HOLE 14:15 - 14:25
DRILL 14:30 - 15:45 pull @ 16:00
MECHANICAL DOWN TIME
DRILLING PROBLEMS
OTHER clean water tanks. 16:00 - 16:40
MOVE TO NEXT HOLE 16:40 - 16:50
ELEVATION: +2 Spruce swamp at drill road.

IN METRES	IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG	Notes & Analyses Au Conc. ppb	Au g/t	V.G. g/t
	05				Oxidized dark brown clay. light brown/tan clay.			
	15				grey green clay. varved. Brown + grey clay.			
	25				alternate layers of coarse and fine sand + gravel.	785	3.7	-
				01				
	35				med. sand + gravel. - 60% granitics some boulders.	55	0.30	-
				02	porphery? boulder (granodiorite ??)			
				M.S.	med sand and gravel.			
				02				
	45				fine gravel + coarse sand.	135	0.76	-
				03				
				04	clay on clasts + clay balls possible till.	40	0.23	-
	55				Bedrock @ 54' dark green, soft, chlorite schist / magnetite.			
		58'						
	65							
	75							

Hole No.	Page No.
08	01

B. & C. LTD.

DERRY, MICHENER, BOOTH & WAHL
CONSULTING GEOLOGISTS AND ENGINEERS

REVERSE CIRCULATION DRILL HOLE LOG

DATE Nov. 18 1983

SHIFT 7:00 TO 17:00

HOLE NO. MH-83-09 LOCATION 43W - 0100S CLIENT: Atlantic Hygrade

GEOLOGIST J.A.D./R.E.A. DRILLER J. Hous BIT NO. B-6543 BIT FOOTAGE 270 - 310

MOVE TO HOLE 16:40 - 16:50

DRILL 8:43 - 9:30 pull. 9:55

MECHANICAL DOWN TIME

DRILLING PROBLEMS

OTHER 7:15 - 8:43 walkin + startup.

MOVE TO NEXT HOLE 9:55 - 10:15

ELEVATION: +1 at base line spruce swamp Not as wet as 08

IN METRES	IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO	DESCRIPTIVE LOG	Notes & Analyses: Au conc. ppb	Au g/kg	Au V.C. g/kg
	5				brown to tan clay.			
					grey green lacustrine clay.			
	15				platy clay + silt.			
					silty becoming varved ??			
	25				silt with a few pebbles.			
					sandy gravel			
				01	med sand matrix becoming gravel + sand	160	1.0	2.2
					thin layers of coarse and fine sand			
					coarser gravel drill rate increased.	735	4.1	—
	35			02	boulders or cobbles at 35'.			
				03	silty clay balls / some clasts have clay coats	130	1.8	—
				04	boulders to fine angular clasts.			
					40' Bedrock @ 37'			
					dark green to black chlorite schist			
	45				with magnetite.			
	55							

Hole No.	Page No.
09	01

B. & C. LTD.

DERRY, MICHENER, BOOTH & WAHL
CONSULTING GEOLOGISTS AND ENGINEERS

REVERSE CIRCULATION DRILL HOLE LOG

DATE Nov. 18 1983

SHIFT 07:00 TO 17:00

HOLE NO. M.H-83-10 LOCATION L4W - 01005 CLIENT: Malartic Hygrade

GEOLOGIST J.A.A. DRILLER J. Howe BIT NO B-65413 BIT FOOTAGE 310 - 330

MOVE TO HOLE 9:55 - 10:15

DRILL 10:20 - 11:10 pull to 11:15

MECHANICAL DOWN TIME

DRILLING PROBLEMS

OTHER

MOVE TO NEXT HOLE 11:15 - 11:30

ELEVATION: +1 spruce swamp very wet. large puddle ≈ 1:2' deep

IN METRES	IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO	DESCRIPTIVE LOG	Notes & Analyses Au conc. ppb	Au g/t	V.G. g/t
	05				Brown clay grey creamy clay			
				01	sandy gravel some cobbles. becoming coarser.	45	0.37	-
	15			02	Bedrock @ 15.5' Medium to dark green well foliated, very fine grained to aphanitic mafic metavolcanic.			
			20'					
	25							
	35							

Hole No.	Page No.
10	01

B. & C. LTD.

DERRY, MICHENER, BOOTH & WAHL
CONSULTING GEOLOGISTS AND ENGINEERS

REVERSE CIRCULATION DRILL HOLE LOG

Melartic

DATE Nov 18 1983

SHIFT 7:00 TO 17:00

HOLE NO. M.H-83-11 LOCATION 4W - 1400S CLIENT: Hygrade

GEOLOGIST J.A.B. DRILLER J. Hows BIT NO. B-66058 BIT FOOTAGE 0 - 7'

MOVE TO HOLE 11:15 - 11:30

DRILL 11:34 - 13:30 pull - 13:35

MECHANICAL DOWN TIME

DRILLING PROBLEMS

OTHER

MOVE TO NEXT HOLE 13:35 - 13:40

ELEVATION: +1 Spruce swamp.

IN METRES	IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG	Notes & Analyses Au conc. ppb	Au mg/kg	Au U.G. µg/kg			
	5		7'	01 02	oxidized brown clay. coarse sand + gravel (poor return) Bedrock at 4.' — Foliated dark green meta volcanic with Quartz inclusions; fine grained. Very hard.	245	1.3	-			
	15										

Hole No.	Page No.
11	01

B. & C. LTD.

DERRY, MICHENER, BOOTH & WAHL
CONSULTING GEOLOGISTS AND ENGINEERS

REVERSE CIRCULATION DRILL HOLE LOG

DATE Nov 18 1983

SHIFT 07:00 TO 17:00

HOLE NO. M.H-83-12 LOCATION L4W-2400S. CLIENT: Malartic Hygrade

GEOLOGIST J.A.D. DRILLER J. Howg BIT NO. B-66058 BIT FOOTAGE 7'-24'

MOVE TO HOLE 13:35 - 13:45

DRILL 13:50 - 14:35

MECHANICAL DOWN TIME

DRILLING PROBLEMS

OTHER

MOVE TO NEXT HOLE 14:45 - 14:55

ELEVATION: +1 Spruce swamp.

IN METRES	IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO	DESCRIPTIVE LOG	Notes & Analyses Au conc. ppb	Au mg/kg	V.G. mg/kg
	05				grey brown clay creamy			
					silty clay			
				01	coarse sand and gravel approx. 10% granitics.	2230	9.8	25
	15			02	fines sandy gravel	1040	4.8	-
					Bedrock @ 16'. - Intermediate volcanic - light green, schistose with quartz in chips - thin quartz veining.			
				03				
					22'			
	25							
	35							

Hole No.	Page No.
12	01

B.&C. LTD.

DERRY, MICHENER, BOOTH & WAHL
CONSULTING GEOLOGISTS AND ENGINEERS

REVERSE CIRCULATION DRILL HOLE LOG

DATE Nov 18 19 83

SHIFT 7:00 TO 17:00

HOLE NO. M-H-83-13 LOCATION L4W - 3400S CLIENT: Malartic Hygrade

GEOLOGIST J.A.D. DRILLER J. Howe BIT NO B-66058 BIT FOOTAGE 29' - 71'

MOVE TO HOLE 14:45 - 14:55

DRILL 14:56 - 16:12 pull @ 16:15

MECHANICAL DOWN TIME

DRILLING PROBLEMS

OTHER

MOVE TO NEXT HOLE 16:15 @ 16:25

ELEVATION: +1

IN METRES	IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG	Notes & Analyses Au conc. ppb	Au µg/kg	V.G. µg/kg			
	05				brown/tan clay creamy some silt.						
					grey green clay + silt.						
	15				grey silt with clay.						
					grey silt with occasional pebbles.						
	25				silt with fine sand.						
				01	coarse sand some chips contain Quartz.	110	4.8	-			
				N.S.	Lt green volcanic with quartz vein.						
				01	coarse sand. 60% granitics.						
				N.S.							
	35			02	Sandy gravel coarse. 60% granitics.	145	0.63	-			
				03	till coarse angular clasts with clay smears.	190	0.78	-			
				04	Bedrock @ 37'						
					light green porphyry (upper 2' 37'-39')						
	45				Dark green chlorite (muscovite) schist Fine grained / magnetite < 5% (evaluated) (from 39-42')						
					42'						
	55										

Hole No.	Page No.
13	01

B.&C. LTD.

DERRY, MICHENER, BOOTH & WAHL
CONSULTING GEOLOGISTS AND ENGINEERS

REVERSE CIRCULATION DRILL HOLE LOG

DATE Nov 19 1983
SHIFT
____ TO ____

HOLE NO. M·H· 83-14 LOCATION ~5W - 41005. CLIENT: Malartic Hygrade
GEOLOGIST J.A.D. DRILLER J. Hows BIT NO B.66058 BIT FOOTAGE 71'-88'
MOVE TO HOLE 16:25 - 16:35
DRILL
MECHANICAL DOWN TIME
DRILLING PROBLEMS
OTHER
MOVE TO NEXT HOLE 9:15 - 9:20.
ELEVATION: +1

IN METRE	IN FEET	GRAPHIC LOG	DATUM ELEVATION	SAMPLE NO	DESCRIPTIVE LOG	Notes & Analyses: cont ppb	Au oz/T	U.S. oz/T		
	5			01	Stiff brown oxidized clay becoming silty with some small pebbles. Coarse sand + gravel. 70% sand. 25% gravel 5% cobble - boulder.	180	0.80	-		
	15			02	Bedrock @ 12.5' Black to dark green, fine grained-felty to aphanitic, well foliated to schistose mafic to ultra mafic meta volcanic Slightly magnetic, some carbonate stringers.					
	25				17'					

Hole No.	Page No.
14	01

B. & C. LTD.

DERRY, MICHENER, BOOTH & WAHL
CONSULTING GEOLOGISTS AND ENGINEERS

REVERSE CIRCULATION DRILL HOLE LOG

DATE Nov. 19 1983
SHIFT 07:00 TO 17:00

HOLE NO. MH-83-15 LOCATION 45W - 3400S CLIENT: Molartic Hygrade
GEOLOGIST J.A.A. DRILLER J. Howes BIT NO B-66058 BIT FOOTAGE 88'-126'
MOVE TO HOLE
DRILL 9:20 - 10:10 - 10:12
MECHANICAL DOWN TIME
DRILLING PROBLEMS
OTHER
MOVE TO NEXT HOLE 10:12 - 10:25
ELEVATION: +1

IN METRES	IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO	DESCRIPTIVE LOG	Notes & Analyses: conc. ppb Au	% Mo	wt. kg/t		
	05				Brown oxidized clay grey clay lacustrine?? Grey green clay.					
	15				platy clay silty grey clay					
	25			01	silt with a few pebbles coarse sand and gravel fine sand matrix, some boulders or cobbles. 60% sand 35% granule/pebbles 5% cobbles.	460	1.9	-		
	35			02	alternating layers of coarse and fine sandy gravel. Bedrock @ 31.5' Dark grey to dark green, aphanitic to very fine grained, slightly felty textured, well foliated to schistose mafic meta volcanic. Minor quartz carbonate veining.					
	38'									
	45									
	55									

Hole No.	Page No.
15	01

B. & C. LTD.

DERRY, MICHENER, BOOTH & WAHL
CONSULTING GEOLOGISTS AND ENGINEERS

REVERSE CIRCULATION DRILL HOLE LOG

DATE Nov. 19 1983

SHIFT 07:00 TO 17:00

HOLE NO. MH-83-16 LOCATION 26W - 2400S CLIENT: Malartic Hygrade

GEOLOGIST J.A.D. DRILLER J. Hows BIT NO. B66058 BIT FOOTAGE 126' - 167'

MOVE TO HOLE 10:15 - 10:25

DRILL 10:30 - 11:30 pull to 11:35

MECHANICAL DOWN TIME

DRILLING PROBLEMS

OTHER

MOVE TO NEXT HOLE 11:35 -

ELEVATION: +1 spruce bog (Fen) open scrub spruce.

IN METRES	IN FEET	SAMPLE NO	DESCRIPTIVE LOG	Notes & Analyses: Au conc. ppb	Au mg/kg	V.G. mg/kg		
			brown oxidized clay. grey green lacustrine creamy clay.					
	05							
			clay some silt.					
	15		clay becoming platy.					
			clay + silt 60% clay 40% silt.					
	25		Coarse sand & fine gravel					
		01	immature gravel angular with few fines pebble to cobble gravel openwork?? possible till clay on some clasts.	395	1.5	-		
	35	02	coarse sand and gravel. alternating with fine to med sandy gravel.	370	1.6	-		
		03	Bedrock @ 37' dark green fine grained, chloritic volcanic. some magnetite, well foliated to schistose - slightly felty textured & recrystallized					
	41'							
	45							
	55							

Hole No.	Page No.
16	01

B. & C. LTD.

DERRY, MICHENER, BOOTH & WAHL
CONSULTING GEOLOGISTS AND ENGINEERS

REVERSE CIRCULATION DRILL HOLE LOG

Malartic

DATE Nov. 19 1983

SHIFT 07:00 TO 17:00

HOLE NO. M.H. 83-17 LOCATION 45W - 2+00S CLIENT Hysrade

GEOLOGIST J.A.B DRILLER J. Hows BIT NO B-6605B BIT FOOTAGE 162-321'

MOVE TO HOLE 11:35 - 11:45

DRILL 11:45 - 14:20 pull to 14:30

MECHANICAL DOWN TIME

DRILLING PROBLEMS

OTHER

MOVE TO NEXT HOLE 14:30 - 14:40

ELEVATION: +/

IN METRES	IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO	DESCRIPTIVE LOG	Notes & Analyses: Au cone ppb	Au oz/ton	Au V.G. oz/ton
					Brown oxidized clay			
	5				grey green lacustrine clay.			
	15				grey clay and silt.			
					silty clay.			
	25			01	Sandy gravel with a few cobbles coarse sand. 60% and. 40% granule. 20% granitic / coarse and fine layers alternating ± 1-1½ ft. thick.	1180	7.4	-
				02	Same as 01	1140	5.2	-
	35			03	Very silty Some clasts have clay smears in deep cracks & scratches. possible immature till??	190	0.73	-
				04	sandy gravel with med to coarse sand matrix	30	0.21	-
				05	clay on some clasts & pebbles possible till.	40	0.81	-
	45			N.S.	light green mafic volcanic boulder py in Quartz carbonate.	370	2.0	-
				06	sandy gravel aquifer - (very hard slow drilling)	375	1.9	-
				07	angular gravel with fine sand matrix			
				08	Bedrock @ 49.5' Pale grey to light greenish, very fine grained to aphanitic, weakly foliated to massive intermediate to felsic (clastic) meta volcanic or sub volcanic intrusive. Sericite phenocrysts (pseudomorphs) & chlorite after biotite. Disseminated pyrite associated with sericite - 2-3%.			
	55			54'				
	65							

Hole No.	Page No.
17	01

B.&C. LTD.

DERRY, MICHENER, BOOTH & WAHL
CONSULTING GEOLOGISTS AND ENGINEERS

REVERSE CIRCULATION DRILL HOLE LOG

Nygrade

DATE Nov. 19 1983
SHIFT 07:00 TO 17:00

HOLE NO MH-83-18 LOCATION L5N - 1100S CLIENT: Malartic
GEOLOGIST J.A.D. DRILLER J. Howe BIT NO B-66058 BIT FOOTAGE 221 - 253
MOVE TO HOLE 14:30 - 14:40
DRILL 14:45 - 16:27
MECHANICAL DOWN TIME
DRILLING PROBLEMS 14:55 - 15:15 pull to replace broken rod coupling
OTHER 16:35 clean tank move 16:50 - 17:00
MOVE TO NEXT HOLE
ELEVATION:

IN METRES	IN FEET	GRAPHIC LOG	SAMPLE NO	DESCRIPTIVE LOG	Notes & Analyses Au cmc ppb	Au µg/kg	Au (Dup.) µg/kg
	05			Brown oxidized clay. becoming platy grey lacustrine clay.			
	15			silty clay.			
	25		01	(plugged. B.H. and r.l.)	50	0.31	–
			02	coarse sand/fine gravel. angular clasts coarse to med sand. matrix very silty clay on clasts. possible till?	400	3.0	–
			03	Bedrock @ 27' Pale grey to light greenish, very fine to fine grained massive to slightly foliated sub-volcanic intrusive - diorite?			
	32'			Similar to hole #17			
	35						
	45						

Hole No.	Page No.
18	01

B.& C. LTD.

DERRY, MICHENER, BOOTH & WAHL
CONSULTING GEOLOGISTS AND ENGINEERS

REVERSE CIRCULATION DRILL HOLE LOG

DATE Nov 20 1983
SHIFT 08:00 TO 17:00
Driller arrived late.

HOLE NO. M.H-83-19 LOCATION 6W - 1100S CLIENT: Malartic Hygrade
GEOLOGIST J.A.D. DRILLER J. Howg BIT NO B-66058 BIT FOOTAGE 253 - 286
MOVE TO HOLE 16:50 - 17.00
DRILL 8:30 - 9:20 pull 9:30
MECHANICAL DOWN TIME
DRILLING PROBLEMS
OTHER
MOVE TO NEXT HOLE 9:30 - 9:40
ELEVATION: +/- open spruce bog

IN METRES	IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO	DESCRIPTIVE LOG	Notes & Analyses Au conc. ppb	Au µg/kg	V.F. Au µg/kg
					tan to brown creamy clay. intermittent return			
	05				grey green clay + silt.			
					silty grey green clay.			
					becoming darker			
	15				dark grey silty clay.			
	25			01	gravelly coarse sand. granular coarse sand and cobbles 80% chips	1540	9.3	13
					Bedrock @ 27' dark green, fine grained, mafic volcanic, some Py bounded by soft light green sheared material.			
	35		33'					
	45							

Hole No.	Page No.
19	01

B.& C. LTD.

DERRY; MICHENER, BOOTH & WAHL
CONSULTING GEOLOGISTS AND ENGINEERS

REVERSE CIRCULATION DRILL HOLE LOG

DATE Nov. 20 1983
SHIFT 08:00 TO 17:00

HOLE NO. MH 83-20 LOCATION L6W - 0400S CLIENT: Malartic Hygrade
GEOLOGIST J.A.D. DRILLER J. Hows BIT NO. B66056 BIT FOOTAGE 0 - 35'
MOVE TO HOLE 9:30 - 9:40
DRILL 9:45 - 10:25 pull to 10:30
MECHANICAL DOWN TIME
DRILLING PROBLEMS
OTHER
MOVE TO NEXT HOLE 10:30 - 10:40
ELEVATION: +1 open fen small spruce

IN METRES	IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO	DESCRIPTIVE LOG	Notes & Analyses: Au conc. ppb	Au ppb	V.G. ppb			
	05				Oxidized Brown clay. creamy.						
					grey green lacustrine clay.						
	15				slimy clay (super-poly ??)						
					silt with very little clay - 2%						
	25			01	Coarse sandy gravel	215	1.4	-			
				02	Bedrock @ 25½'						
	35				dark green, fine grained matic volcanic with minor magnetite - chloritic and well foliated to schistose						
			35'								
	45										

Hole No.	Page No.
20	01

B.& C. LTD.

DERRY, MICHENER, BOOTH & WAHL
CONSULTING GEOLOGISTS AND ENGINEERS

REVERSE CIRCULATION DRILL HOLE LOG

DATE Nov. 20 1983
SHIFT 08:00 TO 17:00

HOLE NO. M.H. 83 - 21 LOCATION L 5W · 0+00 CLIENT: Molartic Hygrade
GEOLOGIST J.A.D. DRILLER J. Hoos BIT NO. B66056 BIT FOOTAGE 35' - 25'
MOVE TO HOLE 10:30 - 10:40
DRILL 10:45 - 11:40 Pull - 11:50
MECHANICAL DOWN TIME
DRILLING PROBLEMS
OTHER
MOVE TO NEXT HOLE 11:50 - 12:10.
ELEVATION: +1

IN METRES	IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO	DESCRIPTIVE LOG	Notes & Analyses: Au cont ppb	Au g/t	V.G. g/t			
					organics Brown oxided clay.						
	05				clay and silt with a few small pebbles						
	15				Sandy gravel						
				01	alternate coarse + fine layers.		785	4.3	–		
					coarse sandy gravel with granitics						
	25				boulders. or cobbles						
				02	alternating coarse and fine layers of sandy gravel.		110	0.44	0.59		
	35			03	some clay on clasts. sand + angular gravel		45	0.33	–		
				04	possible C.U.						
					Bedrock @ 36'						
					dark green to black mafic volcanic chlorite rich, very fine grained fairly recrystallized texture						
	45										
	55										

Hole No.	Page No.
21	01

B. & C. LTD.

DERRY, MICHENER, BOOTH & WAHL
CONSULTING GEOLOGISTS AND ENGINEERS

REVERSE CIRCULATION DRILL HOLE LOG

DATE Nov. 20 1983

SHIFT 08:00 TO 17:00

HOLE NO. M.H. 83-22 LOCATION L 2W - 0+00 CLIENT: Malartic Hygrade

GEOLOGIST J.A.D. DRILLER J. Hows BIT NO. B-66056 BIT FOOTAGE 75'-80'

MOVE TO HOLE 11:50 - 12:10

DRILL 12:15 - 13:00

MECHANICAL DOWN TIME

DRILLING PROBLEMS

OTHER

MOVE TO NEXT HOLE 13:05 - 13:10.

ELEVATION: +2 65m West of trend large spruce.

IN METRES	IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO	DESCRIPTIVE LOG	Notes & Analyses
					organics	
					Low Return small pebbles with clay.	
					Bedrock at 2'	
	05			01	light green to medium grey colour with some surfaces weathered.	
		5'			Fine grained intermediate to felsic intrusive - Kspar phenocrysts set in quartz-plagioclase equigranular ground mass, mafics < 5%. Quartz-carbonate veins. —	

Hole No.	Page No.
22	01

B.& C. LTD.

DERRY, MICHENER, BOOTH & WAHL
CONSULTING GEOLOGISTS AND ENGINEERS

REVERSE CIRCULATION DRILL HOLE LOG

DATE Nov. 20 1983
SHIFT 09:00 TO 17:00

HOLE NO. MH-83-23 LOCATION 22W 1100S CLIENT: Malartic Hygrade
GEOLOGIST J.A.D. DRILLER J. Hong BIT NO. B-66056 BIT FOOTAGE 80-110
MOVE TO HOLE 13:05 - 13:10
DRILL 13:12 - 14:10 pull 14:15
MECHANICAL DOWN TIME
DRILLING PROBLEMS
OTHER
MOVE TO NEXT HOLE 14:20 - 14:30
ELEVATION: +2

IN METRES	IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG	Notes & Analyses Au conc. ppb	Au mg/kg	V.G. mg/kg
	05				organics Brownish clay			
					grey clay.			
	15			01	granule sandy gravel	35	0.18	10
				C-5	cobbles & boulders in coarse sand	4970	5.1	7.8
					alternate layers of coarse & fine gravel 10% granitics			
				02	coarse sand no fines	2090	5.8	4.7
	25				dark mafic sand angular chips on screen			
				03	gravel and coarse sand 5% granitics			
					Bedrock @ 26' Medium grey to dark green mafic volcanic - aphanitic well foliated to schistose; large py crystals ON +10.			
	30'							
	35							
	45							

*Duplicate sample - 83-C-05
@ MH-83-23-01

Hole No.	Page No.
23	01

B. & C. LTD.

DERRY, MICHENER, BOOTH & WAHL
CONSULTING GEOLOGISTS AND ENGINEERS

REVERSE CIRCULATION DRILL HOLE LOG

DATE Nov. 20 1983
SHIFT 08:00 TO 17:00

HOLE NO. M.H-83-24 LOCATION L2W - 2400S CLIENT: Malartic Hygrade
GEOLOGIST J.A.D. DRILLER J. Hows BIT NO. B66056 BIT FOOTAGE 110' - 130'
MOVE TO HOLE 14:20 - 14:30
DRILL 14:35 - 15:10 pull - 15:15
MECHANICAL DOWN TIME
DRILLING PROBLEMS
OTHER
MOVE TO NEXT HOLE 15:20 - 15: o
ELEVATION:

IN METRES	IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG	Notes & Analyses Au emc ppb	Au µg/kg	V.G. µg/kg
	05				brown oxidized clay. Some silt.			
					silt with a few pebbles.			
					sandy gravel angular clasts coarse sand matrix			
				01		635	3.3	3.1
	15				alternate layers of coarse and fine sandy gravel			
				02	Boulder/cobble gravel only 10% matrix	1320	7.8	-
				03	Bedrock @ 17' Medium grained grey to light green, fine grained, foliated intermediate intrusive - sheared in part - pale green muscovite - chlorite schist.			
	20							
	25							
	35							

Hole No.	Page No.
24	01

B. & C. LTD.

DERRY, MICHENER, BOOTH & WAHL
CONSULTING GEOLOGISTS AND ENGINEERS

REVERSE CIRCULATION DRILL HOLE LOG

DATE Nov. 20 19 83
SHIFT 08:00 TO 17:00

HOLE NO. M.H.-83-25 LOCATION 2W - 3400S CLIENT: Molartic Hy grade
GEOLOGIST J.A.D. DRILLER J. Howg BIT NO. 8-66056 BIT FOOTAGE 130'-145'
MOVE TO HOLE 15:20 - 15:26
DRILL 15:30 - 16:00 - pull - 16:05
MECHANICAL DOWN TIME
DRILLING PROBLEMS
OTHER
MOVE TO NEXT HOLE 16:05 - 16:15
ELEVATION:

IN METRES	IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG	Notes & Analyses: Au Conc. ppb	Au ppb	V.G. Au ppb
	05				oxidized Brown clay & organics			
					grey clay.			
					silty grey clay.			
					silt & few pebbles.			
			01		gravely sand.	150	0.79	-
			02		Bedrock @ 12'			
	15				light to medium greenish grey			
		151			foliated to schistose plagioclase			
					- muscovite - biotite - chlorite rock -			
					Intermediate volcanic or sheared			
					intrusive - as in holes 17, 18 and			
	25				22			

Hole No.	Page No.
25	01

B. & C. LTD.

DERRY, MICHENER, BOOTH & WAHL
CONSULTING GEOLOGISTS AND ENGINEERS

REVERSE CIRCULATION DRILL HOLE LOG

DATE Nov. 21 19 83
SHIFT 07:00 TO 17:00

HOLE NO. M.H. 83-26 LOCATION L2W - 4100S CLIENT: Atalartic Upgrade
GEOLOGIST J.A.B. DRILLER J. Hows BIT NO. B-66056 BIT FOOTAGE 145 - 197'
MOVE TO HOLE 16:00 - 16:15
DRILL 8:00 - 10:34 Pull - 10:45
MECHANICAL DOWN TIME 10:50 - 11:25 repair 3 grouser bars on
DRILLING PROBLEMS Mud well.
OTHER
MOVE TO NEXT HOLE 11:25 - 11:35.
ELEVATION: +/ Spruce Swamp.

IN METRES	IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO	DESCRIPTIVE LOG	Notes & Analyses: Au cont. ppb	Au µg/g	Au µg/g			
					thin organics. dark brown oxidized clay.						
	05				tan to light brown creamy clay.						
					grey clay						
					silty grey with a few pebbles.						
	15										
				01	sandy fine gravel 15-20% granitics subangular to rounded clay coatings on some clasts (sampling as for till)	415	2.1	–			
				02		930	4.0	–			
	25				immature angular cobble gravel with coarse to med. sand matrix						
				03	angular cobble fragments of clasts. clay on pebbles & clay balls. sandy silt matrix	3480	14	2.3			
				04	60% of return is silty clay balls on +10. clay on clasts. + clay balls.	515	2.3	–			
					90% of return is silty clay balls & pebbles.						
	35			05	thick clay silt pebble layer 90% clay balls	660	2.1	–			
				C6.	coarse till with boulders or cobbles.	*400	*1.6	–			
				06	coarse boulder & cobble till with sandy silt matrix boulders 5% sand 10% silt & clay 85%	135	0.54	1.6			
	45			07		830	4.4	0.95			
				08	Bedrock @ 48' Medium grey to dark green, soft, very fine grained mafic volcanic 1-2% magnetite.						
					52'						
	55				- somewhat felty recrystallized & foliated - ultra mafic?						
	65				*C-06 is a duplicate sample.						

Hole No.	Page No.
26	1

B. & C. LTD.

DERRY, MICHENER, BOOTH & WAHL
CONSULTING GEOLOGISTS AND ENGINEERS

REVERSE CIRCULATION DRILL HOLE LOG

DATE Nov. 21 1983

SHIFT 07:00 TO 17:00

HOLE NO. M.H. 83-27 LOCATION ~2W - 5+00S CLIENT: Malartic Hygrade

GEOLOGIST J.A.B. DRILLER J. Howes BIT NO. B-66056 BIT FOOTAGE 191 - 266

MOVE TO HOLE 11:25 - 11:35

DRILL 11:35 - 15:00 pull - 15:10.

MECHANICAL DOWN TIME

DRILLING PROBLEMS

OTHER

MOVE TO NEXT HOLE 15:10 - 15:20

ELEVATION: +/- vet, spruce, alder some large Birch.

IN METRES	IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG	Notes & Analyses: Au conc. ppb	Au mg/kg	V.G. mg/kg
					Brown clay + organics			
	05				Gray lacustrine			
					silt with clay and a few pebbles.			
	15				silt + pebbles.			
				NS.	boulder light green fine grained volcanic with quartz carbonate, sheared some py.			
				01	sandy gravel clay on some clasts.	195	0.86	–
	25							
				02	clay on clasts + silty clay balls on +10 gravitics and angular clasts some with clay (sampled as till.).	1865	8.2	1.4
	35			03	clay balls 60% gravitics 40% volcanics mafic	100	0.55	–
				04	sandy silt matrix in cobbles some clasts have clay smears.	700	3.6	–
				05	45-50% clay balls on +10			
	45				coarser granule silty clay + sand.	115	0.15	–
				06	clay on some clasts 20% gravitics pebbles and cobbles matrix of coarse to med. Sand with silt.	300	1.3	–
				07	clay balls on +10. granule sandy silt gravel.	210	0.79	–
	55							
				08	Sandy clay silt layer some boulder and cobbles.	280	1.2	–
				09	gravitics and clay silt balls on +10.			
	65				silt pebble layer py in volcanics.	320	1.5	–
				10	hard clay balls + sand. 50% cobbles.			
					Bedrock @ 65.5'			
	69'				dark green to black mafic volcanic.			
					fine grained to aphanitic and			
	75				somewhat felty recrystallized -			
					chloritic and schistose.			
	85							

Hole No.	Page No.
27	01

B. & C. LTD.

DERRY, MICHENER, BOOTH & WAHL
CONSULTING GEOLOGISTS AND ENGINEERS

REVERSE CIRCULATION DRILL HOLE LOG

DATE Nov. 21 1983

SHIFT 07:00 TO 17:00

HOLE NO. MH-83-28 LOCATION 12W - 6400S CLIENT: Malartic Hygrade

GEOLOGIST J.A.B. DRILLER J. Hous BIT NO. B66056 BIT FOOTAGE 266 - 311

MOVE TO HOLE 15:10 - 15:20

DRILL 15:30 - 16:15 pull - 16:25

MECHANICAL DOWN TIME

DRILLING PROBLEMS

OTHER clean tanks - 16:25 - 16:40

MOVE TO NEXT HOLE 16:40 - 16:50

ELEVATION: +

IN METRES	IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO	DESCRIPTIVE LOG	Notes & Analyses Au conc. ppb	Au µg/kg	V.G. µg/kg			
	05				brown clay. grey silt.						
					grey silt.						
	15				coarse sand and gravel. 10-15% granitics, cobbles & granule						
				01	coarse and fine layers of gravel	550	2.1	—			
	25				rounded to sub angular clasts, coarse sand matrix 15-20% granitics.						
				02	alternating layers of coarse and fine sandy gravel	4060	22	22			
	35				Sandy gravel matrix is quartz rich.	245	0.77	—			
				03	silty clay balls and clay smears on clasts. till??	190	0.80	—			
				04							
				05	Bedrock @ 40.5.						
	45				medium grey, foliated, aphanitic intermediate to mafic metavolcanic (basalt)						
	45										
	55										

Hole No.	Page No.
28	01

B.&C. LTD.

DERRY, MICHENER, BOOTH & WAHL
CONSULTING GEOLOGISTS AND ENGINEERS

REVERSE CIRCULATION DRILL HOLE LOG

DATE Nov. 22 1983

SHIFT 07:00 TO 10:00

HOLE NO. M·H·83-29 LOCATION L 2W - 7+00S. CLIENT: Malartic Highgrade

GEOLOGIST J.A.B. DRILLER J. Howe BIT NO. B66056 BIT FOOTAGE 311 - 33

MOVE TO HOLE 16:40 - 16:50

DRILL 8:00 - 8:35 fuel - 8:40

MECHANICAL DOWN TIME

DRILLING PROBLEMS

OTHER

MOVE TO NEXT HOLE 8:45 - 8:50

ELEVATION:

IN METRES	IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG	Notes & Analyses: Au conc. ppb	Au mg/kg	Au µg/g
	05				light brown to tan silty clay			
					grey silty clay			
				01	Sandy gravel rounded to angular pebbles + granule 10-15% gravitics.	280	1.9	–
	15			02	Bedrock @ 16'			
					dark green to black, chlorite schist – 15% magnetite, few quartz carbonate veinlets, Py in some chips.			
	20'							
	25							
	35							

Hole No.	Page No.
29	01

B.&C.LTD.

DERRY, MICHENER, BOOTH & WAHL
CONSULTING GEOLOGISTS AND ENGINEERS

REVERSE CIRCULATION DRILL HOLE LOG

DATE Nov 22 19 83

SHIFT 07:00 TO 10:00

HOLE NO. M.H. 83-30 LOCATION 21W - 7+00S CLIENT: Malartic Hygrade

GEOLOGIST J.A.B. DRILLER J. Houg BIT NO. B-66056 BIT FOOTAGE 331 - 370

MOVE TO HOLE 8:45 - 8:50

DRILL 8:55 - 9:35 pull - 10:00.

MECHANICAL DOWN TIME

DRILLING PROBLEMS

OTHER Sloop broken : stop to repair - to mine by 11:00.

MOVE TO NEXT HOLE Nov. 23 - 7:45 - 7:55.

ELEVATION: +4

IN METRES	IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG	Notes & Analyses: A_u conc. ppb	mg/kg	va mg/kg			
	06				Brown oxidized clay.						
					grey creamy clay.						
	15				silty grey lacustrine clay						
					platy silty grey green clay.						
					silt with some grey green clay.						
	25				grey silt.						
					silt with a few pebbles.						
				01	sandy gravel subangular to rounded 50% cobble and granule alternate coarse and finer layers.	625	3.8	-			
	35			02	Bedrock @ 35'						
					light green volcanic aphanitic to fine grained and well foliated to schist becoming darker green,						
					light green with blade shaped sp ls (chips) - chlorite-marcovite schist.						
	39'				andesite to basalt composition						
	45										
	55										

Hole No.	Page No.
50	21

B.&C. LTD.

DERRY, MICHENER, BOOTH & WAHL
CONSULTING GEOLOGISTS AND ENGINEERS

REVERSE CIRCULATION DRILL HOLE LOG

DATE Nov. 23 1983
SHIFT
TO

HOLE NO. M.H.83-31 / M.H.83-31A LOCATION 1W - 5+97S
GEOLOGIST J.A.A. DRILLER J. Hoag BIT NO. 65805 0-5 / 66057 5-37 / 65973 0-75
CLIENT: Malartic Hygrade
BIT FOOTAGE 0-75
MOVE TO HOLE 7:45 - 7:55
DRILL 8:00 - 8:05 8:15 - 9:50 - 9:00 - 11:30
MECHANICAL DOWN TIME
DRILLING PROBLEMS 8:50 - broken Bit. Bit broken 2' sub.
OTHER
MOVE TO NEXT HOLE
ELEVATION: +1 dense spruce & alders a lot of dead fall.

IN METRES	IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG	Notes & Analyses: Au conc. ppb	Au µg/kg	Au µg/kg
					oxidized brown clay & organics			
	05				grey clay.			
					platy grey clay & silt.			
	15				silty grey clay.			
					silty grey clay.			
	25				grey silt. 5% clay.			
					silty grey with a few pebbles.			
	35			316	Broken bit. move 3 metres - redrill.			
				01	sandy gravel angular to sub rounded clasts. 30% granitics.	730	8.5	16
					Coarse sandy gravel.			
	45				Coarse sand & gravel silt lense ± 1 ft.			
				02	alternating coarse and fine layers.	455	3.8	—
					Coarse sand and gravel some silty balls			
				03	with rock pebbles. clay smears on clasts	7380	47	2.2
	55			04	boulders or cobbles in sand.			
				N.S.	granitic boulder.	1020	5.1	—
					sandy fine gravel py in some clasts.			
				05	silty clay on some clasts.	620	2.7	—
	65				silt lense			
				06	Granitic boulders/cobbles.			
					silt rich	265	1.1	—
					silty clay on clasts			
				07	Bedrock @ 69.5'			
	75				dark green soft v. fine grained			
		75'			aphanitic schistose mafic to			
					ultramafic volcanic, recrystalized			
					2-3% magnetite.			
	85							

Hole No. 31 | Page 1 of 1

B. & C. LTD.

DERRY, MICHENER, BOOTH & WAHL
CONSULTING GEOLOGISTS AND ENGINEERS

REVERSE CIRCULATION DRILL HOLE LOG

DATE Nov. 23 1983
SHIFT 07:00 TO 17:00

HOLE NO. M.H.-83-32 LOCATION 2W-5100S CLIENT: Metertic Hy Grade
GEOLOGIST J.A.A. DRILLER J. Howe BIT NO. B66973 BIT FOOTAGE 25'-120'
MOVE TO HOLE 11:45 - 11:52
DRILL 11:55 - 13:15 pull @ 13:26
MECHANICAL DOWN TIME
DRILLING PROBLEMS
OTHER
MOVE TO NEXT HOLE 13:30 - 13:40.
ELEVATION: +2

IN METRES	IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG	Notes & Analyses Au conc. ppb	Au µg/kg	Au µg/kg
	06				Brown clay and organics.			
					grey clay and silt, platy			
	15				silty grey clay.			
					silt with ± 5% clay.			
	25				silt with a few pebbles.			
				01	Sandy gravel, coarse to med. sand matrix in granule to cobble gravel.	635	4.6	15
				02	rounded to subangular clasts med.-coarse sand matrix.	4190	28	44
	35			03	rounded to subangular clasts 20% granitics	320	1.3	0.23
				04	granular sandy gravel, silty clay balls and pebbles.	130	0.61	—
					clay coated pebbles and clay balls 5% granitics			
	45			05	clay balls and granule sized silty clay coated pebbles.	2580	4.0	2.4
				06	Bedrock @ 49½' Dark green and soft, schistose mafic volcanic with barren white qtz stringers & some magnetite - 2-5%			
	55				55'			
	65							
	75							

Hole No.	Page No.
32	01

B.A.C. LTD.

DERRY, MICHENER, BOOTH & WAHL
CONSULTING GEOLOGISTS AND ENGINEERS

REVERSE CIRCULATION DRILL HOLE LOG

DATE Nov. 23 1983

SHIFT 07:00 TO 17:00

HOLE NO. M.H. 83-33 LOCATION L1W - 4+00S CLIENT: Molartic Nu Grade

GEOLOGIST J.A.A. DRILLER J. Howes BIT NO. D65973 BIT FOOTAGE 130 - 165'

MOVE TO HOLE 13:20 - 13:30

DRILL 13:35 - 14:05 pull & 14:15

MECHANICAL DOWN TIME

DRILLING PROBLEMS

OTHER

MOVE TO NEXT HOLE 14:15 - 14:25

ELEVATION:

IN METRES	IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG	Notes & Analyses Au conc. ppb	Au g/t	Au g/t
	05				Brown clay and organics Brown clay			
					silty grey clay			
	15				silty grey clay. grey silt.			
					grey silt.			
					Fine sandy gravel			
	25			01	alternating coarse and fine layers of gravel	500	2.3	-
					Bedrock @ 30'			
				02	Top surface light green & very soft. Rest darker green to black, very fine grained to aphanitic, schistose mafic to ultra mafic volcanic. Fabric felty recrystallized with 2-3% magnetite.			
	35				35'			
	45							

Hole No.	Page No.
33	01

B. & C. LTD.

DERRY, MICHENER, BOOTH & WAHL
CONSULTING GEOHAZARDISTS AND ENGINEERS

REVERSE CIRCULATION DRILL HOLE LOG

DATE Nov 23 19 83

SHIFT 07:00 TO 17:00

HOLE NO. M.H. 83-34 LOCATION 21W - 31005 CLIENT: Malartic Hygrade

GEOLOGIST J.A.B. DRILLER J. Hoag BIT NO. 8-65973 BIT FOOTAGE 165'-179'

MOVE TO HOLE 14:15 - 14:25

DRILL 14:30 - 15:00 pull to 15:05

MECHANICAL DOWN TIME

DRILLING PROBLEMS

OTHER

MOVE TO NEXT HOLE 15:05 - 15:15

ELEVATION: ± Spruce + Alder

IN METRES	IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO	DESCRIPTIVE LOG	Notes & Analyses: As conc. ppb	m3/h	Kg Mg/hr
	05			01	clay grey brown silty clay sandy gravel clay on clasts (super poly tail)	35	0.15	–
	14			02	Bedrock @ 9' Grey to light green, fine grained, foliated intermediate to mafic volcanics; lower portion is schistose			
	15							
	25							

Hole No.	Page No.
34	01

B. & C. LTD.

DERRY, MICHENER, BOOTH & WAHL
CONSULTING GEOLOGISTS AND ENGINEERS

REVERSE CIRCULATION DRILL HOLE LOG

DATE Nov 23 1983
SHIFT 07:00 TO 17:00

HOLE NO. M.H 83-35 LOCATION BL-3100 S CLIENT: Malartic Hy Sroda
GEOLOGIST A.A.B. DRILLER J. Nous BIT NO. 665973 BIT FOOTAGE 179'-194
MOVE TO HOLE 15:05 - 15:15
DRILL 15:20 - 15:50.
MECHANICAL DOWN TIME
DRILLING PROBLEMS
OTHER Clean tanks. 16:00 - 16:35.
MOVE TO NEXT HOLE 16:35 - 16:40
ELEVATION: +2 open low spruce + lab. veg.

IN METRES	IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG	Notes & Analyses: Au conc. ppb	Au µg/kg	Au µg/kg
					Silty, clay			
	05				Silt + pebbles.			
				01	gravel, fine to med. sand matrix	300	1.3	—
					fine gravel coarse sand matrix			
				02	Bedrock @ 10'			
	15				Dark green, mafic volcanic, very fine-grained some magnetite present. Lower portions are schistose with quartz vein lets			
		15'						
	25							
	35							

Hole No.	Page No.
35	01

B. & C. LTD.

DERRY, MICHENER, BOOTH & WAHL
CONSULTING GEOLOGISTS AND ENGINEERS

REVERSE CIRCULATION DRILL HOLE LOG

DATE Nov. 24 1983
SHIFT 07:00 TO 17:00.

HOLE NO. M.N. 83 - 36 LOCATION B.L. 4+00S CLIENT: Martic Mystrade
GEOLOGIST J.A.B. DRILLER J. Howe BIT NO. B-65973 BIT FOOTAGE 194'-209'
MOVE TO HOLE 16:35 - 16:40
DRILL 8:00 - 9:10.
MECHANICAL DOWN TIME
DRILLING PROBLEMS
OTHER
MOVE TO NEXT HOLE 9:15 - 9:20
ELEVATION: +2

IN METRES	IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG	Notes & Analyses: Au conc. ppb	Au ppb	V.G. ppb
	05			01	Brown/tan clay. Silty clay. silt with a few Pebbles. sandy gravel clay on some clasts. possible till	8740	38	30
	15			02	Bedrock @ 11' Dark green, fine grained, mafic Volcanic; foliated; upper section Schistose, quartz inclusions + stringers; ~5% magnetite.			
	25							

Hole No.	Page No.
36	01

B. & C. LTD.

DERRY, MICHENER, BOOTH & WAHL
CONSULTING GEOLOGISTS AND ENGINEERS

REVERSE CIRCULATION DRILL HOLE LOG

DATE Nov. 24 1983

SHIFT 07:00 TO 17:00

HOLE NO. M.H. 83-37 LOCATION BL. 5100S. CLIENT: Malartic Hygrade

GEOLOGIST J.A.B. DRILLER J. Hows BIT NO. B65973 BIT FOOTAGE 209'-241'

MOVE TO HOLE 9:15 - 9:20

DRILL 9:25 - 10:10

MECHANICAL DOWN TIME

DRILLING PROBLEMS

OTHER

MOVE TO NEXT HOLE 10:15 - 10:25

ELEVATION: +2 large mature spruce

IN METRES	IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG	Notes & Analyses Au conc. ppb	Au µg/kg	V.G. µg/kg
	05				Brown oxidized clay			
					silty clay.			
	15				silt.			
				01	Sandy gravel. rounded pebbles. rounded gravel, fine to mod. sand. matrix	845	4.0	–
	25			02	rounded to sub-angular fine to med sand	695	2.8	–
				03	Medium green, schistose, very fine grained equigranular gabbroic texture volcanic or intrusive. - sausseritized coarse flow or sill.			
	35		32'					

Hole No.	Page No.
37	01

B. & C. LTD.

DERRY, MICHENER, BOOTH & WAHL
CONSULTING GEOLOGISTS AND ENGINEERS

REVERSE CIRCULATION DRILL HOLE LOG

DATE Nov 24 19 83

SHIFT 07:00 TO 17:00

HOLE NO. MH-83-38 LOCATION B.L. 6400S CLIENT: Malartic Hygrade

GEOLOGIST J.A.D. DRILLER J. Howg BIT NO. B65973 BIT FOOTAGE 241' - 284'

MOVE TO HOLE 10:13 - 10:22

DRILL 10:25 - 10:45 pull to 10:50

MECHANICAL DOWN TIME

DRILLING PROBLEMS

OTHER

MOVE TO NEXT HOLE 10:50 - 10:56.

ELEVATION: ±.

IN METRES	IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG	Notes & Analyses Au conc. ppb	Au oz/ton	Au mg/kg
					Brown oxidized clay			
	05							
					silty grey clay			
	15				silty grey clay			
					silty clay			
					Varved?? brown and grey layers of clay with some silt.			
	25				silt. grey.			
					silt with a few pebbles.			
	35			01	sandy gravel very little matrix.	1130	3.5	–
					Bedrock @ 38'			
				02	dark green to black, fine-grained, felty fabric, brittle, quartz carbonate ± 5% magnetite present in v. fine euhedral crystals. – ultramafic intrusive or flow.			
	45				43'			
	55							

Hole No.	Page No.
38	01

B. & C. LTD.

DERRY, MICHENER, BOOTH & WAHL
CONSULTING GEOLOGISTS AND ENGINEERS

REVERSE CIRCULATION DRILL HOLE LOG

DATE Nov. 24 19 83
SHIFT 07:00 TO 17:00

HOLE NO. M.H.-83-39 LOCATION BL. 7+00S CLIENT: Molartic Hygrade
GEOLOGIST J.A.L. DRILLER J. News BIT NO. 865973 BIT FOOTAGE 284'-372'
MOVE TO HOLE 10:50 - 10:56
DRILL 11:00 - 13:00 pull @ 13:05
MECHANICAL DOWN TIME
DRILLING PROBLEMS
OTHER
MOVE TO NEXT HOLE 13:15 - 13:25
ELEVATION: +3 open large trees spruce + Birch.

IN METRES	IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG	Notes & Analyses Au conc. ppb	Au g/t	V.G. g/t		
					brown oxidized clay and organics.					
	05				silty grey clay.					
					platy silty clay.					
	15				smooth silty clay.					
	25				silty grey clay.					
	35				silty grey clay.					
	45				silty grey clay.					
					silt.					
	55			01	sandy gravel granitic clasts.	700	2.6	–		
				02	clay on some clasts, silty clay balls	150	0.44	–		
					clay coated pebbles.					
				03	silty clay balls + clay on clasts.	80	0.35	–		
	65				rounded pebbles + granitics					
				04	clay on clasts + clay balls on rio.	130	0.58	–		
				N.S.	granitic boulder (weathered) or sandy cobble					
	75			05	sandy gravel					
				N.S.	granitic boulder	195	1.0	–		
				06	sandy with clay on clasts 80% granitics	330	1.7	–		
					Bedrock @ 83' Dark grey to					
	85			07	dark green, aphanitic, foliated, mafic lite.					
					Presented at 2-3% - mafic to ultramafic					
					meta volcanic - similar to #38					
					88'					
	95									

Hole No.	Page No.
39	01

B.&C. LTD.

DERRY, MICHENER, BOOTH & WAHL
CONSULTING GEOLOGISTS AND ENGINEERS

REVERSE CIRCULATION DRILL HOLE LOG

DATE Nov. 24 1983

SHIFT 07:00 TO 17:00

HOLE NO. M.H. 83-40 LOCATION Bl. 8100S. CLIENT: Malartic Hygrade

GEOLOGIST S.A.D. DRILLER J. Howes BIT NO. 65973 BIT FOOTAGE 372'-403'

MOVE TO HOLE 13:15 - 13:25 fill fuel. -13:45

DRILL 13:45 - 15:00 pull - 15:05

MECHANICAL DOWN TIME

DRILLING PROBLEMS

OTHER

MOVE TO NEXT HOLE 15:25 - 15:15.

ELEVATION: +3. large mature spruce + Birch

IN METRES	IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG	Notes & Analyses: Au Conc ppb	Au ppb/kg	Au vis. ppb/kg
	05				brown oxidized clay.			
	15				silty grey clay.			
	25			01	sandy gravel angular some clay possible till??	1270	7.1	-
	31'			02	Bedrock @ 27' Pale to medium green, fresh, slightly foliated - aphanitic to very fine grained intermediate flow or subvolcanic intrusive (diorite). One carbonate-rich chip with 5-8% euhedral pyrite cubes ½-1mm			
	35							

Hole No.	Page No.
40	01

B.& C. LTD.

DERRY, MICHENER, BOOTH & WAHL
CONSULTING GEOLOGISTS AND ENGINEERS

REVERSE CIRCULATION DRILL HOLE LOG

DATE Nov. 24 19 83
SHIFT 07:00 TO 17:00

HOLE NO. MH-83-41 LOCATION 1E 8+00S CLIENT: Malartic Hygrade
GEOLOGIST J.A.D. DRILLER J. Hows BIT NO. B-65973 BIT FOOTAGE 403-448
MOVE TO HOLE 15:05 - 15:15
DRILL 15:30 - 15:55 pull to 16:00
MECHANICAL DOWN TIME
DRILLING PROBLEMS
OTHER clean tanks 16:00 - 16:30
MOVE TO NEXT HOLE
ELEVATION: +3 beg 90% dead spruce.

IN METRES	IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG	Notes & Analyses: Au conc ppb	Au µg/L	Au dup µg/L
	05				Brown oxidized clay.			
					Brown creamy smooth clay			
					silty grey platy clay.			
	15				silty grey lacustrine? clay.			
	25				silty grey with some clay layers.			
					silt with a few pebbles.			
	35			01	sandy gravel	1540	7.1	3.4
				02	Bedrock @ 38' foliated, dark green, fine to very fine-grained soft volcanic; some magnetite present in chips.			
	45				45'			
	55							
	65							

Hole No.	Page No.
41	01

DERRY, MICHENER, BOOTH & WAHL
CONSULTING GEOLOGISTS AND ENGINEERS

REVERSE CIRCULATION DRILL HOLE LOG

DATE Nov. 25 19 83
SHIFT 07:00 TO 17:00

HOLE NO. M.H. 83-42 LOCATION 1E. 7400S CLIENT: Malartic Hygrade
GEOLOGIST J.A.D. DRILLER J. Hovis BIT NO. B-69973 BIT FOOTAGE 448-526
MOVE TO HOLE 16:30 - 16:40
DRILL 7:45 - 9:25 pull - 9:45.
MECHANICAL DOWN TIME
DRILLING PROBLEMS
OTHER
MOVE TO NEXT HOLE 9:45 - 9:50
ELEVATION: +3 large boulders ON North side of small stream.

IN METRES	IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG	Notes & Analyses: Au conc. ppb	Au ppb	U.S. mg/kg		
					Brown oxidized clay and organics					
	05				grey clay silty					
					silty grey clay.					
	15									
					Silty grey clay.					
	25									
					Silty grey clay smooth.					
	35									
					silt, grey.					
					Sandy gravel.					
	45			01	fine gravel, coarse sand matrix Silty clay balls + clay on clasts.	1070	3.5	–		
				02	clay rich till some granitic cobbles. clay balls + clay coated pebbles.	250	0.85	–		
	55			03	Sandy silty till with granitic cobbles and pebbles.	110	0.51	–		
				04	Sandy silt till with boulders + cobbles	205	1.1	–		
	65			05	Angular to subrounded clay coated pebbles. / Sandy clay cobble till.	190	1.2	–		
				06		410	2.0	–		
	75			07	Bedrock @ 73' Chloritic, dark green mafic volcanic, schistose to phyllitic; magnetite present in some chips.					
		78'								
	85									

Hole No.	Page No.
42	01

B. & C. LTD.

DERRY, MICHENER, BOOTH & WAHL
CONSULTING GEOLOGISTS AND ENGINEERS

REVERSE CIRCULATION DRILL HOLE LOG

DATE Nov. 25 1983

SHIFT 07:00 TO 17:00

HOLE NO. M.H. 83-43 LOCATION L1E 6+00S CLIENT: Polaris Mygrade

GEOLOGIST J.A.D. DRILLER J. Howg BIT NO. 8-65973 BIT FOOTAGE 526' - 661'

MOVE TO HOLE 9:45 - 9:50

DRILL 9:55 - 10.25 pull to 10:32

MECHANICAL DOWN TIME

DRILLING PROBLEMS

OTHER

MOVE TO NEXT HOLE 10:35 - 10:45

ELEVATION: +3

IN METRES	IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG	Notes & Analyses Au conc. ppb	Au ppb	U.R. ppb			
	05				dark brown oxidized clay						
					tan clay						
					tan clay smooth						
	15										
					grey silt.						
	25				grey silt. with a few pebbles.						
				01	Sandy gravel, med. to coarse sand matrix.	1290	6.8	-			
				02	Bedrock @ 30' Medium to dark green volcanic some Quartz carbonate, silt. - chloride schist.						
	35				35'						
	45										

Hole No.	Page No.
43	01

B.&C. LTD.

DERRY, MICHENER, BOOTH & WAHL
CONSULTING GEOLOGISTS AND ENGINEERS

REVERSE CIRCULATION DRILL HOLE LOG

DATE Nov. 25 1983

SHIFT 07:00 TO 17:00

HOLE NO. M.H. 83-44 LOCATION L15. 5+00S CLIENT: Malartic Hygrade

GEOLOGIST J.A.D. DRILLER J. Hong BIT NO. B65973 BIT FOOTAGE 561'-582'

MOVE TO HOLE 10:35 - 10:42

DRILL 10:45 - 11:10 pull to 11:15

MECHANICAL DOWN TIME

DRILLING PROBLEMS

OTHER

MOVE TO NEXT HOLE 11:15 - 11:25

ELEVATION: +3 flat large mature spruce + Birch

IN METRES	IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG	Au conc. ppb	Au mg/kg	V.G. mg/kg		
					Silty grey clay					
	05									
				01	silt with a few pebbles	725	4.9	-		
				C-44-02	Sandy gravel rounded to sub-angular 20% granitics					
	15					*1740	12	3.1		
				02	Bedrock @ 17' Med. to dark green, very fine grained. (large py crystals on +10.) - chlorite schist - mafic meta volcanic					
	21'									
	25									
	35									

*Duplicate sample - C-44-02 @ MH-83-44-01

Hole No.	Page No.
44	01

B. & C. LTD.

DERRY, MICHENER, BOOTH & WAHL
CONSULTING GEOLOGISTS AND ENGINEERS

REVERSE CIRCULATION DRILL HOLE LOG

DATE Nov. 25 1983

SHIFT 07:00 TO 17:00

HOLE NO. M.H. 83-45 LOCATION 21E - 41005 CLIENT: Malartic Hygrade

GEOLOGIST J.A.O. DRILLER J. Hows BIT NO. B-65973 BIT FOOTAGE 582 - 597'

MOVE TO HOLE 11:12 - 11:25

DRILL 11:30 - 11:65

MECHANICAL DOWN TIME

DRILLING PROBLEMS

OTHER

MOVE TO NEXT HOLE 12:00 - 12:05

ELEVATION: 43.

IN METRES	IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG	Notes & Analyses Au core ppb	Au m/kg	V.G. m/kg
	05				brown clay silty grey clay silt.			
			01		sandy gravel, med to coarse sand matrix	1500	7.9	10
			02		Bedrock @ 11' Pale to medium green, well foliated to schistose, intermediate to felsic meta volcanic - siliceous with sub-concordial fracturing tuff.			
	15							
	25							

Hole No.	Page No.
45	01

B & C LTD.

DERRY, MICHENER, BOOTH & WAHL
CONSULTING GEOLOGISTS AND ENGINEERS

REVERSE CIRCULATION DRILL HOLE LOG

DATE Nov 25 1983

SHIFT 07:00 TO 17:00

HOLE NO. M.H. 83 - 46 LOCATION 22E 4100S CLIENT: Malartic Hygrade

GEOLOGIST J.A.A. DRILLER J. Howe BIT NO. B65973 BIT FOOTAGE 597' - 620'

MOVE TO HOLE 12:00 - 12:05

DRILL 12:05 - 12:30 - 12:35

MECHANICAL DOWN TIME

DRILLING PROBLEMS

OTHER

MOVE TO NEXT HOLE 12:35 - 12:45

ELEVATION: +3

IN METRES	IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG	Notes & Analyses: Cu ppm	Au µg/kg	V.G. Au µg/kg
	05				reddy brown oxidized clay grey clay silt. brown silt.			
				01	Sandy gravel gravities with infrequent clay on pebbles.	110	0.49	—
	15			02		315	1.7	7.9
				03	Bedrock @ 17' Dark grey to dark green, well foliated to schistose aphanitic mafic meta volcanic			
	25	23'						
	35							

Hole No.	Page No.
46	01

B. & C. LTD.

DERRY, MICHENER, BOOTH & WAHL
CONSULTING GEOLOGISTS AND ENGINEERS

REVERSE CIRCULATION DRILL HOLE LOG

DATE Nov. 25 1983
SHIFT 07:00 TO 17:00

HOLE NO. MN-83-47 LOCATION L25E 3400S CLIENT: Malartic Highgrade
GEOLOGIST J.A.B. DRILLER J. Howe BIT NO. B65973 BIT FOOTAGE 651-659'
MOVE TO HOLE 12:35 - 12:45
DRILL 12:45 - 13:25
MECHANICAL DOWN TIME
DRILLING PROBLEMS
OTHER
MOVE TO NEXT HOLE 13:30 - 13:40
ELEVATION: +3 close to subcrop in spruce Bog. Near road.

IN METRES	IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG	Notes & Analyses Au cons. ppb	Au mg/kg	V2 mg/kg
	05			01	clay brown Sandy gravel poor return	200	1.2	–
				02	Bedrock @ 6' dark green to black, fine grained Meta volcanic schistose; recrystalized.			
	15							
	25							

8'

Hole No.	Page No.
47	01

B.&C. LTD.

DERRY, MICHENER, BOOTH & WAHL
CONSULTING GEOLOGISTS AND ENGINEERS

REVERSE CIRCULATION DRILL HOLE LOG

DATE Nov 25 1983

SHIFT 07:00 TO 17:00

HOLE NO. MN-83-48 LOCATION 42E - 5+00S CLIENT: Metalric Minerals

GEOLOGIST J.A.b. DRILLER J. Howe BIT NO. B65973 BIT FOOTAGE 628-646

MOVE TO HOLE 13:30 - 13:40

DRILL 13:45 - 14:35

MECHANICAL DOWN TIME

DRILLING PROBLEMS

OTHER

MOVE TO NEXT HOLE 14:35 - 14:45

ELEVATION: +2.

IN METRES	IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG	Notes & Analyses: Au conc. ppb	Ag g/t	V.G Mg/kg
	05				brown clay.			
					grey clay and silt.			
				01	sandy gravel	730	3.1	-
	15			02	brown oxidized coarse sand matrix	2330	8.5	-
				03	angular pebbles some with clay smears.			
					18' Bedrock @ 17.' Medium green, fine to very fine grained, apparently massive, equigranular, ophitic textured coarse basalt flow or fine gabbro sill/dyke.			
	25							
	35							

Hole No.	Page No.
48	01

B.&C. LTD.

DERRY, MICHENER, BOOTH & WAHL
CONSULTING GEOLOGISTS AND ENGINEERS

REVERSE CIRCULATION DRILL HOLE LOG

DATE Nov. 25 1983

SHIFT 07:00 TO 17:00

HOLE NO. M.H-83-49 LOCATION L28 - 6+00S CLIENT: Malartic Hygrade

GEOLOGIST J.A.B. DRILLER J. Hows BIT NO. 865973 BIT FOOTAGE 651 - 683

MOVE TO HOLE 14:35 - 14:45

DRILL 14:50 - 16:05 pull @ 16:10

MECHANICAL DOWN TIME

DRILLING PROBLEMS

OTHER 16:10 - 16:30 repair scesser bars on right side truck.

MOVE TO NEXT HOLE 16:30 - 16:45

ELEVATION: ±2.

IN METRES	IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG	Notes & Analyses: Au conc ppb	mg/kg	KG mg/kg
	05				brown clay and organics.			
					brown silty clay.			
					brown silt.			
					silty clay			
					few/brown silty clay.			
	15				grey silty clay.			
					sandy gravel			
				01	silt with pebbles. / fine sand.	3000	14	19
					sandy gravel.			
	25				angular to sub rounded granule			
				02	coarse sand.	545	3.1	-
				03A	A. Pale grey to white, fine-grained equigranular intrusive - plagioclase - K-spar - Biotite - granite to monzonite composition.			
				03B				
	35		32		B. Dark green well foliated to schistose very fine-grained to aphanitic mafic metavolcanic.			
	45							

Hole No.	Page No.
49	01

B.& C. LTD.

DERRY, MICHENER, BOOTH & WAHL
CONSULTING GEOLOGISTS AND ENGINEERS

REVERSE CIRCULATION DRILL HOLE LOG

DATE Nov 26 1983

SHIFT
07:00 TO 17:00

HOLE NO M.H. 83-50 LOCATION 22E 7+00S CLIENT: Malartic Hygrade
GEOLOGIST J.A.A. DRILLER J. Hous BIT NO. B45923 BIT FOOTAGE 679-730'
MOVE TO HOLE 16:30 - 16:45
DRILL 8:00 - 9:00 pull @ 9:05
MECHANICAL DOWN TIME
DRILLING PROBLEMS
OTHER
MOVE TO NEXT HOLE 9:05 - 9:15
ELEVATION: 13 mature trees spruce + Birch.

IN METRES	IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG	Notes & Analyses: Au conc ppb	Au mg/kg	Au check mg/kg
					Brown creamy			
	05				grey silty clay			
	15				grey silty clay smooth.			
					silty grey clay			
	25				grey green silt.			
					silt with pebbles.			
	35				Sandy gravel 50% granitics.	1240	5.4	6.5
				01	Py in some clasts coarse sand matrix.	*1290	9.3	-
				C-50-07	Sandy gravel			
				02	Sandy gravel some cobble.	2000	11	4.1
	45				Bedrock @ 47'			
				03	Dark green fine-grained mafic Volcanic - fabric fully recrystallized magnetite +2%			
	55							
	65							

* Duplicate sample C-50-07 @ MH-83-50-01

Hole No.	Page No.
50	01

B.& C. LTD.

DERRY, MICHENER, BOOTH & WAHL
CONSULTING GEOLOGISTS AND ENGINEERS

REVERSE CIRCULATION DRILL HOLE LOG

DATE Nov 26 1983

SHIFT 07:00 TO 17:00

HOLE NO. M-H-83-51 LOCATION 12E 8+00S CLIENT: Atlantic Hygrade

GEOLOGIST J.A.D DRILLER J Hows BIT NO B65973 BIT FOOTAGE 730 - 772

MOVE TO HOLE 9:05 - 9:15

DRILL 9:20 - 9:50 - 9:55

MECHANICAL DOWN TIME

DRILLING PROBLEMS

OTHER

MOVE TO NEXT HOLE 10:00 - 10:05

ELEVATION: +3 open beside creek slope to south.

IN METRES	IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG	Notes & Analyses: Au conv ppb	Au µg/kg	Au V.G. µg/g			
	05				Oxidized brown clay.						
					grey clay						
					grey silty clay						
	15				grey silty clay						
					green grey silt.						
	25										
					grey green silt.						
	35			01	Sandy gravel rounded to subangular coarse to med. sand matrix and silt.	400	2.6	—			
				02	Bedrock @ 38'						
					dark green ultramafic fine grained some magnetite in chips, schistose. Quartz stringers.						
	42'										
	45										
	55										

Hole No.	Page No.
51	01

B.& C. LTD.

DERRY, MICHENER, BOOTH & WAHL
CONSULTING GEOLOGISTS AND ENGINEERS

REVERSE CIRCULATION DRILL HOLE LOG

DATE Nov. 24 19 83

SHIFT 07:00 TO 17:00

HOLE NO. M.H-83-52 LOCATION L 3E 8+00S CLIENT: Malartic Hygrade

GEOLOGIST J.A.A. DRILLER J. Hows BIT NO 865973 BIT FOOTAGE 772 - 813

MOVE TO HOLE 10:00 - 10:05

DRILL 10:10 - 10:40 ; pull @ 10:45

MECHANICAL DOWN TIME

DRILLING PROBLEMS

OTHER

MOVE TO NEXT HOLE 10:45 - 10:56

ELEVATION: ~4 open spruce and mature alder (a lot of boulders)

IN METRES	IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG	Notes & Analyses: Au conc. ppb	Au µg/kg	V.G. µg/kg			
	05				brown clay.						
	15				grey silty clay.						
	25				grey silty clay.						
	35				silty grey clay.						
					grey green silt.						
				01	silty sandy gravel fine sand matrix	730	3.8	–			
				02	Bedrock @ 36'						
	41				dark green, fine grained, mafic volcanic, very soft. – schistose.						
	45										
	55										

Hole No.	Page No.
52	01

B & C LTD.

DERRY, MICHENER, BOOTH & WAHL
CONSULTING GEOLOGISTS AND ENGINEERS

REVERSE CIRCULATION DRILL HOLE LOG

DATE Nov. 26 19 83

SHIFT 07:00 TO 17:00

HOLE NO. M.H-83-53 LOCATION L 2+90E 7+00S CLIENT: Malartic Hygrade

GEOLOGIST J.A.B. DRILLER J Hoag BIT NO 865973 BIT FOOTAGE 813 - 842

MOVE TO HOLE 10:45 - 10:5

DRILL 11:00 - 11:25 - pull to 11:30

MECHANICAL DOWN TIME

DRILLING PROBLEMS

OTHER

MOVE TO NEXT HOLE 11:30 - 11:40.

ELEVATION: ++ large mature spruce (big stumps)

IN METRES	IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO	DESCRIPTIVE LOG	Notes & Analyses Au conc ppb	Au mg/kg	Au mg/kg			
	05				brown oxidized clay some organics						
					silty clay tan/grey						
	15				grey silt.						
					grey silty.						
				01	sandy gravel, large clasts med to coarse sand matrix.	270	1.8	2.3			
	25			02	Bedrock @ 26' Schistose dark green v. fine grained mafic mela-Volcanic. some quartz veining						
					29'						
	35										

Hole No.	Page No.
53	01

B & C. LTD.

DERRY, MICHENER, BOOTH & WAHL
CONSULTING GEOLOGISTS AND ENGINEERS

REVERSE CIRCULATION DRILL HOLE LOG

DATE Nov. 24 19 83

SHIFT 07:00 TO 17:00

HOLE NO. M.H-83-54 LOCATION 43E 6400S CLIENT: Malartic Highgrade

GEOLOGIST J.A.D. DRILLER J. Howes BIT NO 865973 BIT FOOTAGE 842-864

MOVE TO HOLE 11:30 - 11:40

DRILL 11:45 - 12:55 pull to 13:00

MECHANICAL DOWN TIME

DRILLING PROBLEMS

OTHER

MOVE TO NEXT HOLE 13:05 - 13:15

ELEVATION: +4 Mature Birch & Spruce.

IN METRES	IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO	DESCRIPTIVE LOG	Notes & Analyses Au conc ppb	Au mg/kg	V.G. mg/kg
					oxidized brown clay and organics			
	05				silt grey green some clay.			
					silt.			
	15			01	sandy gravel coarse sand matrix	1250	5.8	–
				02	coarse and fine gravels alternating	495	2.7	14
				03	Bedrock @ 19'			
	22'				dark green chlorite schist - magnetite present in some chips.			
	25							
	35							

Hole No.	Page No.
54	01

B.&C. LTD.

DERRY, MICHENER, BOOTH & WAHL
CONSULTING GEOLOGISTS AND ENGINEERS

REVERSE CIRCULATION DRILL HOLE LOG

DATE Nov. 26 1983

SHIFT 07:00 TO 17:00

HOLE NO. MH-83-55 LOCATION 43E 5100S CLIENT: Westfair Hydrocode

GEOLOGIST J.A.B. DRILLER J. Howes BIT NO. 645573 BIT FOOTAGE 868-882

MOVE TO HOLE 13:02 - 13:10

DRILL 13:15 - 13:49 pull to 13:55

MECHANICAL DOWN TIME

DRILLING PROBLEMS

OTHER

MOVE TO NEXT HOLE 13:57 - 14:00.

ELEVATION:

IN METRES	IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO	DESCRIPTIVE LOG	Notes & Analyses Au conc ppb	Au oz/ton	Au g/t
	05				brown oxidized clay. silty brown clay.			
					Grey silt.			
				01	Sandy gravel	1730	9.1	9.1
	15	14'		02	Bedrock @ 10'			
					Medium green-tinged grey, foliated very fine grained, porphyritic intermediate to mafic metavolcanic flow or hypabyssal sub volcanic intrusive			
	25							

Hole No.	Page No.
55	01

B. & C. LTD.

DERRY, MICHENER, BOOTH & WAHL
CONSULTING GEOLOGISTS AND ENGINEERS

REVERSE CIRCULATION DRILL HOLE LOG

DATE Nov. 26 19 83

SHIFT 07:00 TO 17:00

HOLE NO. M.H. 83-56 LOCATION L3 - 41005 CLIENT: Malartic Hygrade

GEOLOGIST J.A.B. DRILLER J. Mews BIT NO. 866973 BIT FOOTAGE 882 - 892 0 - 1

MOVE TO HOLE 13:55 - 14:00

DRILL 14:05 - 14:39 15:00 - 15:20 broken rods. 15:40 - 15:45

MECHANICAL DOWN TIME

DRILLING PROBLEMS 14:39 broken rod: 15:00.

OTHER 15:20 to 15:40 fish rods 15:45 - 16:30 thaw & repair pump

MOVE TO NEXT HOLE

ELEVATION:

IN METRES	IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG	Notes & Analyses: Au conc.	Au g/t	Au g/t
	05				Brown silt.			
					grey silt.			
				01	sandy gravel angular clasts ≤5%	545	1.9	-
				02	Bedrock @ 9' gravitics			
					dark green mafic volcanic fine grained magnetite rich / some quartz carbonate stringers.			
	15				stopped hole no water from pump.			

Hole No.	Page No.
56	01

B. & C. LTD.

DERRY, MICHENER, BOOTH & WAHL
CONSULTING GEOLOGISTS AND ENGINEERS

REVERSE CIRCULATION DRILL HOLE LOG

DATE Nov. 27 1983

SHIFT 07:00 TO 17:00

HOLE NO. M.H. 83-57 LOCATION 4+38 - 34+00S CLIENT: Malartic Hwy route

GEOLOGIST J.A.B. DRILLER J. Nowy BIT NO. 6.65416 BIT FOOTAGE 1-25

MOVE TO HOLE 16:30 - 16:45

DRILL 9:30 - 10:45

MECHANICAL DOWN TIME 7:30 - 9:30 repair impeller on tank + WOF pump.

DRILLING PROBLEMS

OTHER

MOVE TO NEXT HOLE 10:45 - 11:00

ELEVATION: +4 Spruce box.

IN METRES	IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG	Notes & Analyses Au conc ppb	Au MG/KG	Au KG. MG/KG
					brown clay			
	05				silty grey clay.			
					silty clay.			
					silt with a few pebbles			
	15				dark grey silt.			
				01	sandy gravel ≈ 25% granitics, angular to sub-rounded clasts, med. sand matrix.	710	3.8	2.2
				02	Bedrock @ 23' Schistose dark green, mafic volcanic, quartz chips + thin veinlets, some chips have magnetite.			
	25				24'			
	35							

Hole No.	Page No.
57	01

B. & C. LTD.

DERRY, MICHENER, BOOTH & WAHL
CONSULTING GEOLOGISTS AND ENGINEERS

REVERSE CIRCULATION DRILL HOLE LOG

DATE Nov. 27 1983

SHIFT 07:00 TO 17:00

HOLE NO. M.H-83-58 LOCATION L 35 - 2400S CLIENT: Malartic Upgrade

GEOLOGIST J.A.D. DRILLER J. Houg BIT NO. BG5416 BIT FOOTAGE 25'-50'

MOVE TO HOLE 10:55 - 11:00

DRILL 11:05 - 12:00 — 12:10

MECHANICAL DOWN TIME

DRILLING PROBLEMS

OTHER

MOVE TO NEXT HOLE 12:10 - 12:20.

ELEVATION:

IN METRES	IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG	Notes & Analyses Au conc. ppb	Au oz/ton	Au mg/kg
					Tan/brown clay.			
	05							
					grey clay-silt.			
					grey silt.			
	15				grey silt.			
				01	gravel and sand rounded to sub-angular 1-20% granitics./ coarse to med. sand matrix.	180	0.02	5.0
	25			02	Bedrock @ 22'			
	25				dark green mafic volcanic py'n, chips and py crystals on trio. - Fabric foliated and aphanitic. 1-2% pyrite in disseminated fine cubes.			

Hole No.	Page No.
58	01

B. & C. LTD.

DERRY, MICHENER, BOOTH & WAHL
CONSULTING GEOLOGISTS AND ENGINEERS

REVERSE CIRCULATION DRILL HOLE LOG

DATE May. 27 1983
SHIFT 07:00 TO 17:00

HOLE NO. M.H. 83-59 LOCATION L3E. 1400S CLIENT: Polaris Hygrade
GEOLOGIST J.A.A. DRILLER J. Howe BIT NO. B66416 BIT FOOTAGE 50-75
MOVE TO HOLE 12:10 - 12:20
DRILL 12:20 - 14:30 pull to 14:35
MECHANICAL DOWN TIME
DRILLING PROBLEMS
OTHER
MOVE TO NEXT HOLE 14:35 - 14:45
ELEVATION:

IN METRES	IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG	Notes & Analyses: Cu conc. ppb	Mo ppm	V.G. Mo ppm
	05				brown clay tan clay.			
					grey clay + silt.			
	15				grey silt.			
				01 ALS	sandy gravel 25-30% granitics rounded & sub-angular pebbles.	2440	9.6	18
				02	gravel coarse sand matrix.			
				03	Bedrock @ 21			
	25				Pale grey to white - fine grained equigranular, apparently massive intrusive - (subvolcanic?) - plagioclase - K spar - quartz - chloritic biotite mineralogy			
		25'						
	35							

Hole No.	Page No.
59	01

B. & C. LTD.

DERRY, MICHENER, BOOTH & WAHL
CONSULTING GEOLOGISTS AND ENGINEERS

REVERSE CIRCULATION DRILL HOLE LOG

DATE Nov. 27 1983

SHIFT 07:00 TO 17:00

HOLE NO. M-11-83-60 LOCATION L 3E - B.L.O CLIENT: Malartic Hygrade

GEOLOGIST J.A.B. DRILLER J. Howes BIT NO. 65416 BIT FOOTAGE 75'50"

MOVE TO HOLE 14:35 - 14:45

DRILL 14:50 - 16:45

MECHANICAL DOWN TIME

DRILLING PROBLEMS

OTHER

MOVE TO NEXT HOLE

ELEVATION: +3

IN METRES	IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG	Notes & Analyses Au conc ppb	Au g/t	Au V.Cy g/t
	05				brown s: lt.			
				01	Cobble gravel coarse sand matrix	3270	11	43
				WS	25% granitics. Some clasts are rounded			
				02	to sub angular.	1970	6.4	5.8
	15			03	granitic boulder. / coarse sandy gravel			
					Bedrock @ 12'			
					dark green, very fine grained, recrystallized schistose, mafic to ultramafic volcanic - 2-3% magnetite in matrix & pyrite in quartz chips - dominant			
	25							

Hole No.	Page No.
60	01

B. & C. LTD.

DERRY, MICHENER, BOOTH & WAHL
CONSULTING GEOLOGISTS AND ENGINEERS

REVERSE CIRCULATION DRILL HOLE LOG

DATE Nov. 28 1983
SHIFT 07:00 TO 17:00

HOLE NO. M.H. 83-61 LOCATION 4E 1400S. CLIENT: Malartic 1439 grade.
GEOLOGIST J.A.B. DRILLER J. Howe BIT NO. B.65416 BIT FOOTAGE 90'-106'
MOVE TO HOLE 7:45 - 7:55
DRILL 8:00 - 9:50 pull to 9:55
MECHANICAL DOWN TIME
DRILLING PROBLEMS
OTHER
MOVE TO NEXT HOLE 9:55 10:05
ELEVATION: ±4

IN METRES	IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO	DESCRIPTIVE LOG	Notes & Analyses: Au conc. ppb	Au ppb	V.G. Au g/t
					brown oxidized clay.			
	05				brown/tan silty clay. 60% silt 40% clay.			
					tan brown silt.			
					grey silt.			
				01	clay on clast. / angular cobble to boulder	1460	5.2	–
	15			02	silty sand matrix / few clay balls.			
					Bedrock @ 14' Fine grained, apparently massive, equigranular, pale green colored subvolcanic? intrusive or coarse flow. minor magnetite.			
	16'							

Hole No.	Page No.
61	01

B. & C. LTD.

DERRY, MICHENER, BOOTH & WAHL
CONSULTING GEOLOGISTS AND ENGINEERS

REVERSE CIRCULATION DRILL HOLE LOG

DATE Nov 28 1983

SHIFT 07:00 TO 17:00

HOLE NO. M.H. 83-62 LOCATION NE. 24005. CLIENT: Malartic Highgrade

GEOLOGIST J.A.H. DRILLER J. Hoag BIT NO. 63416 BIT FOOTAGE 106-135

MOVE TO HOLE 9:55 - 10:05

DRILL 10:10 - 11:55 and 6 12:00.

MECHANICAL DOWN TIME

DRILLING PROBLEMS

OTHER

MOVE TO NEXT HOLE 12:05 - 12:15

ELEVATION:

IN METRES	IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO	DESCRIPTIVE LOG	Notes & Analyses: conc. ppb	Au mg/kg	Au duplicate mg/kg
					brown clay some organics			
	05				brown silty clay.			
					brown silt.			
					grey brown silt.			
	15				grey silt with a few small pebbles.			
				C62-01	sandy gravel, rounded clasts 15% granitic coarse to med. sand matrix.	1140	8.7	
				01		1180	12	12
					angular to sub-rounded clast. med. & coarse sand matrix.	1500	3.0	-
	25			02	clay on clasts + clay balls.			
				03A	porphyry - quartz amphibole, + volcanics			
				03B	dark green mafic volcanics fine grained.			
					29'			

*Duplicate sample C-62-01 @ MH-83-62-01

Hole No.	Page No.
62	01

B. & C. LTD.

DERRY, MICHENER, BOOTH & WAHL
CONSULTING GEOLOGISTS AND ENGINEERS

REVERSE CIRCULATION DRILL HOLE LOG

DATE Nov. 28 1983

SHIFT 07:00 TO 17:00

HOLE NO. M.H. 83-63 LOCATION L4E 3+00S CLIENT: Malartic Hygrade

GEOLOGIST J.A.B. DRILLER J. Howes BIT NO. 865416 BIT FOOTAGE 135' - 183'

MOVE TO HOLE 12:05 - 12:15

DRILL 12:25 - 14:46 - pull & 14:50

MECHANICAL DOWN TIME 14:20 - 14:35 change swivel

DRILLING PROBLEMS

OTHER

MOVE TO NEXT HOLE 14:55 - 15:05

ELEVATION: +4.

IN METRES	IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO	DESCRIPTIVE LOG	Notes & Analyses Au conc ppb	Au mg/kg	V.G. mg/kg
					Tan / brown clay.			
	05				brown silt. clay.			
					brown silt.			
					grey silt.			
	15				grey silt.			
					Coarse sandy gravel, med to coarse sand matrix.			
				01	angular to sub rounded clasts.	2150	9.0	37
	25			02	clay on clasts some clay balls.	1190	13	27
				03	Sandy gravel	360	1.3	–
					clay balls + clay on clasts. till?			
				04	clay silt till with cobbles. clay balls on +10.	6980	22	–
	35							
				05	clay on pebbles + clay balls on +10.	1220	3.8	1.7
				06	clay on pebbles + clay balls. sandy matrix	580	2.4	–
	45			07	Bedrock @ 44' Medium to dark green chlorite schist chips are brittle, quartz veining 5mm veinlets – minor carbonate alteration.			
				48				
	55							

Hole No.	Page No.
63	01

B. & C. LTD.

DERRY, MICHENER, BOOTH & WAHL
CONSULTING GEOLOGISTS AND ENGINEERS

REVERSE CIRCULATION DRILL HOLE LOG

DATE Nov 28 1983

SHIFT 07:00 TO 17:00

HOLE NO. MH-83-64 LOCATION 64E 41005 CLIENT: Malartic Hygrade

GEOLOGIST J.A.A. DRILLER J. Howg BIT NO. B65416 BIT FOOTAGE 183 - 211

MOVE TO HOLE 14:55 - 15:05

DRILL 15:10 - 16:37 - 16:41

MECHANICAL DOWN TIME

DRILLING PROBLEMS

OTHER

MOVE TO NEXT HOLE 16:41 - 16:50

ELEVATION: +4

IN METRES	IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG	Notes & Analyses: cmc. Au ppb	Au µg/kg	V.G. µg/kg
					brown silty clay.			
	05				brown silt.			
					grey silt.			
	15			01	sandy gravel med. sand matrix. angular to subrounded clasts 10% granitics	3180	16	26
				02	sandy gravel. granitic cobbles & pebbles.	925	5.8	–
	25			03	sandy coarse gravel 90% clips			
					Bedrock @ 26'. Sausaurit,zed pale green, very fine grained porphyritic, apparently massive and fresh, intermediate intrusive (diorite) - subvolcanic or coarser flow.			
	28							
	35							

Hole No.	Page No.
64	01

B. & C. LTD.

DERRY, MICHENER, BOOTH & WAHL
CONSULTING GEOLOGISTS AND ENGINEERS

REVERSE CIRCULATION DRILL HOLE LOG

DATE Nov. 29 1983
SHIFT 07:00 TO 17:00

HOLE NO. MH-83-65 LOCATION 3492E 5+00S CLIENT: Malartic Hygrad.
GEOLOGIST J.A.A. DRILLER J. Hows BIT NO. 66045 BIT FOOTAGE 0 - 24'
MOVE TO HOLE 16:41 - 16:50
DRILL 7:45 - 8:55 - pull to 9:05
MECHANICAL DOWN TIME
DRILLING PROBLEMS
OTHER
MOVE TO NEXT HOLE 9:05 - 9:15
ELEVATION:

IN METRES	IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG	Notes & Analyses: cont. ppb	Mg/kg	Wt. Mg/kg
	05				brown clay + organics silty tan/brown clay. brown silt. grey brown silt.			
				01	sandy gravel with cobbles. matrix is coarse sand.	10455	49	27
	15			02		>15000	>72	42
				* C65-04	compact gravel 25-30% granitics. angular clasts.	*2465	14	-
				03	Bedrock @ 21' Medium to light green, very fine grained to aphanitic - equigranular and apparently massive intermediate meta volcanic. - relatively siliceous and access. phenocrysts - andesite or dacite.			
	25	24'						
	35							

* C-65-04 is a duplicate sample @ MH-83-65-02.

Hole No.	Page No.
65	01

B. & C. LTD.

DERRY, MICHENER, BOOTH & WAHL
CONSULTING GEOLOGISTS AND ENGINEERS

REVERSE CIRCULATION DRILL HOLE LOG

DATE Nov. 29 1983
SHIFT 07:00 TO 17:00

HOLE NO. M.H. 83-66 LOCATION 4E 6+00S CLIENT: Malartic Hydrade
GEOLOGIST J.A.D DRILLER J. Howe BIT NO. 866045 BIT FOOTAGE 24'-37'
MOVE TO HOLE 9:05 - 9:15
DRILL 9:20 - 9:45 pull @ 9:50
MECHANICAL DOWN TIME
DRILLING PROBLEMS
OTHER
MOVE TO NEXT HOLE 9:50 - 10:00.
ELEVATION:

IN METRES	IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG	Notes & Analyses Au ppb	Au oz/ton	Au oz/ton			
	05				brown clay + organics tan/brown clay & silt.						
				01	low return open work gravel ?? gravel, med sand matrix 30-40%	250	1.3	—			
	15			02	Bedrock @ 11' Chlorite schist- dark green, aphanitic mafic meta- -volcanic,						
		15'									
	25										

Hole No.	Page No.
66	01

B.& C. LTD.

DERRY, MICHENER, BOOTH & WAHL
CONSULTING GEOLOGISTS AND ENGINEERS

REVERSE CIRCULATION DRILL HOLE LOG

DATE Nov. 29 1983
SHIFT 07:00 TO 17:00

HOLE NO. M.H. 83-67 LOCATION L4E. 7400S CLIENT: Malartic Hygrade
GEOLOGIST J.A.A. DRILLER J. Hows BIT NO. 366045 BIT FOOTAGE 39'-84'
MOVE TO HOLE 9:50 - 9:57.
DRILL 10:00 - 10:35 pull to 10:40.
MECHANICAL DOWN TIME
DRILLING PROBLEMS
OTHER
MOVE TO NEXT HOLE 10:40 - 10:50
ELEVATION: +5

IN METRES	IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG	Notes & Analyses: Au conc. ppb	Au ppb	Au oz/ton	Au mg/kg
	0				organics and oxidized brown clay				
					brown/tan clay.				
	5				tan clay & silt.				
					grey silt with clay.				
	15				grey silt.				
	25				grey silt.				
					sandy gravel				
				01	grey/tan gravel & med. to coarse sand. 25-30% granitics.	1425	7.2	—	
	35								
				02	gravel in med. to coarse sand.	640	2.4	4.1	
				03	Bedrock @ 41'				
	45				dark green, chlorite rich-schist.				
					upper surface fractured. Few				
					pyrite hedrons disseminated in fine				
					grains. — 1-4 mm white quartz veins				
	45'				parallel to foliation.				
	55								

Hole No.	Page No.
67	01

B. & C. LTD.

DERRY, MICHENER, BOOTH & WAHL
CONSULTING GEOLOGISTS AND ENGINEERS

REVERSE CIRCULATION DRILL HOLE LOG

DATE Nov. 29 1983

SHIFT
07:00 TO 17:00

HOLE NO. M.H. 83-68 LOCATION 44E 84005 CLIENT: Malartic Hy grade
GEOLOGIST J.A.B. DRILLER J. Howe BIT NO. 866045 BIT FOOTAGE 841'-1341'
MOVE TO HOLE 10:45 - 10:55
DRILL 11:00 - 11:50 pull to 11:55
MECHANICAL DOWN TIME
DRILLING PROBLEMS
OTHER
MOVE TO NEXT HOLE 11:55 - 12:05
ELEVATION: +6.

IN METRES	IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG	Notes & Analyses: cont. gpt	Au oz/ton	V.G. Mg/kg
	05				Organics and oxidized clay			
					brown clay.			
					brown clay & silt.			
					silty grey brown clay.			
	15							
					silty grey clay			
	25				grey silt.			
					grey silt.			
	35				grey silt.			
				C-68 09	Sandy gravel med sand matrix	#425	2.3	–
					30% granitics			
	45'			01	less than 50% matrix (open work?)	485	2.8	9.2
				02				
					Bedrock @ 47'	370	1.7	10
				03	dark green chlorite schist, quartz			
	50'				fragments - veinlets.			
	55							

* Duplicate sample C-68-09
@ M11-83-61-01

Hole No.	Page No.
68	01

B.&C. LTD.

DERRY, MICHENER, BOOTH & WAHL
CONSULTING GEOLOGISTS AND ENGINEERS

REVERSE CIRCULATION DRILL HOLE LOG

DATE Nov. 29 1983
SHIFT 07:00 TO 17:00

HOLE NO. M.H. 83-69 LOCATION L5E - 81005 CLIENT: Malartic Highgrade
GEOLOGIST J.A.B. DRILLER J. Howes BIT NO. 866045 BIT FOOTAGE 134 - 153
MOVE TO HOLE 11:55 - 12:05
DRILL 12:10 - 12:35
MECHANICAL DOWN TIME
DRILLING PROBLEMS 12:35 broken rod. Lost Rod, sub + Bit, rod caps
OTHER
MOVE TO NEXT HOLE 12:50 - 13:52.
ELEVATION:

IN METRES	IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG	Notes & Analyses Au conc ppb	Au µg/kg	V.G. mg/kg
					oxidized brown clay.			
					grey clay.			
	05				grey clay + silt.			
					grey clay + silt.			
					grey silt.			
	15							
				01	sandy gravel fine sand matrix.	2980	18	18
				02	coarse sandy gravel, clay balls + clay on some clasts. silty fine sand matrix.	645	4.8	–
		19'						
	25				19'- rod sheared off down hole & hole abandoned.			

Hole No.	Page No.
69	01

B.&C. LTD.

DERRY, MICHENER, BOOTH & WAHL
CONSULTING GEOLOGISTS AND ENGINEERS

REVERSE CIRCULATION DRILL HOLE LOG

DATE Nov. 29 1983

SHIFT
07:00 TO 17:00

HOLE NO. MH-83-69A LOCATION 25E 8+09S CLIENT: Malgrat c Hygrade
GEOLOGIST J.A.B. DRILLER J. Howes BIT NO. B-66048 BIT FOOTAGE 0-19
MOVE TO HOLE 12:40 - 12:53
DRILL 12:55 - 15:30
MECHANICAL DOWN TIME
DRILLING PROBLEMS
OTHER
MOVE TO NEXT HOLE 15:40 - 15:59
ELEVATION:

IN METRES	IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG	Notes & Analyses
	05				brown oxidized clay + orgnics brown clay. brown/tan clay silt.	
					grey silt.	
	15			09	grey silt with a few pebbles.	
					dark green to black, schistose mafic metavolcanic. - clay in fractures.	
	19					
	25					

Hole No.	Page No.
69A	01

B.& C. LTD.

DERRY, MICHENER, BOOTH & WAHL
CONSULTING GEOLOGISTS AND ENGINEERS

REVERSE CIRCULATION DRILL HOLE LOG

DATE Nov 29 / 30 19 83
SHIFT 07:00 TO 17:00

HOLE NO. M.H-83-70 LOCATION 155 7+00S CLIENT: Malartic Highgrade
GEOLOGIST J.A.B./PEL DRILLER J. Houg BIT NO. 66048 BIT FOOTAGE 19 - 78
MOVE TO HOLE 15:40 - 15:59
DRILL 16:00 - 17:05 - 8:00 - 11:55.
MECHANICAL DOWN TIME
DRILLING PROBLEMS
OTHER clean tanks at 11:55 - 12:05
MOVE TO NEXT HOLE 12:05 - 12:15
ELEVATION:

IN METRES	IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG	Notes & Analyses Au conc. ppb	Au g/t	Au Dup. g/t			
	05				brown clay.						
					brown silty clay						
	15				grey silt.						
				01	sandy gravel	2330	9.7	–			
	25			02	25% granitics rounded to sub angular pebbles.						
			XC-70	09	alternate coarse and fine gravel	1240	6.5	12			
				03	granule, coarse sand matrix 10-20% granitics	x3570	25	46			
	35			04		3180	17	6.1			
				05	coarse sand matrix 20-50%	910	4.0	27			
				06	sand matrix 10% – pebbles 90%.	305	1.5	9.0			
	45			07	pebbley granular fine sand – matrix 80% beige-grey sand	935	7.4	–			
				08	mafic volcanic boulders in fine to medium beige sand matrix up to 70% – boulders weathered chlorite schist. matrix grades to medium coarse sand to pebbley, granular sand at base.	845	5.4	–			
				09		400	2.7	1.2			
				32		790	3.5	72			
	65			10	Bedrock @ 54.5'						
				39	dark green, fine grained, mafic volcanic, quartz-carbonate veinlets with pyrite.						
	65										

* Duplicate sample - C-70-09 - @ MH-83-70-02.

Hole No.	Page No.
70	01

B. & C. LTD.

DERRY, MICHENER, BOOTH & WAHL
CONSULTING GEOLOGISTS AND ENGINEERS

REVERSE CIRCULATION DRILL HOLE LOG

DATE Nov. 30 19__
SHIFT 07:00 TO 17:00

HOLE NO. M.H. 83-71 LOCATION 45E. 6400S CLIENT: Malartic Highgrade
GEOLOGIST J.A.B. DRILLER J. Howes BIT NO. 66048 BIT FOOTAGE 78 - 89
MOVE TO HOLE 12:05 - 12:15
DRILL 12:20 - 14:15
MECHANICAL DOWN TIME
DRILLING PROBLEMS
OTHER
MOVE TO NEXT HOLE 14:20 - 14:30
ELEVATION:

IN METRES	IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG	Notes & Analyses
					brown oxidized clay.	
	5				brown silt.	
				01	Bedrock @ 6'	
					dark green, chlorite schist tephyllite; qz veining in fractures at surface.	
	10					
	15					

Hole No.	Page No.
71	01

B. & C. LTD.

DERRY, MICHENER, BOOTH & WAHL
CONSULTING GEOLOGISTS AND ENGINEERS

REVERSE CIRCULATION DRILL HOLE LOG

DATE Nov 30 1983
SHIFT
____ TO ____

HOLE NO. M.H. 83-72 LOCATION 25E 5+00S CLIENT: Molartic 1+95 Node
GEOLOGIST J.A.B. DRILLER J. Hows BIT NO. 66048 BIT FOOTAGE 88-96
MOVE TO HOLE 14:20 - 14:30
DRILL 14:40 - 15:20
MECHANICAL DOWN TIME
DRILLING PROBLEMS
OTHER
MOVE TO NEXT HOLE 15:25 - 15-35
ELEVATION:

IN METRES	IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG	Notes & Analyses
	05			01	brown oxidized clay. sandy gravel	
					Bedrock @ 3' dark green to black chloritic schist - mafic to ultramafic meta volcanic - tracer of chalcopyrite	
	8					
	15					

Hole No.	Page No.
72	01

B. & C. LTD.

DERRY, MICHENER, BOOTH & WAHL
CONSULTING GEOLOGISTS AND ENGINEERS

REVERSE CIRCULATION DRILL HOLE LOG

DATE Nov. 30 19 83

SHIFT 17:00 TO 17:00

HOLE NO. M.H-83-73 LOCATION 45E - 4400S. CLIENT: Plotart.ic Hyscode

GEOLOGIST J.A.D. DRILLER J. Hows BIT NO B-66048 BIT FOOTAGE 96' - 104'

MOVE TO HOLE 15:25 - 15:35

DRILL 15:40 - 16:15

MECHANICAL DOWN TIME

DRILLING PROBLEMS

OTHER

MOVE TO NEXT HOLE 16:25 - 16:30

ELEVATION: +4

IN METRES	IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG	Notes & Analyses Au ppb	Au g/t	Mo g/t
	05				clay silt.			
					grey silt.			
	15				grey silt.			
					grey silt.			
	25			01	Sandy gravel, rounded to sub angular clasts, med. sand matrix ≈ 10% gravels	695	2.8	-
				02	Bedrock @ 25'			
					28' Dark green, very fine-grained, mafic volcanic, chlorite rich, 5% magnetite in some chips. (water is greenish (colour) - ultra mafic composition?			
	35							

Hole No.	Page No.
73	01

DERRY, MICHENER, BOOTH & WAHL
CONSULTING GEOLOGISTS AND ENGINEERS

REVERSE CIRCULATION DRILL HOLE LOG

DATE Dec. 1 19 93
SHIFT 07:00 TO 17:00

HOLE NO. M.H-83-74 LOCATION 45E - 3400S CLIENT: Atlantic Nygrade
GEOLOGIST J.A.B. DRILLER J. Hows BIT NO. 866048 BIT FOOTAGE 104'-163'
MOVE TO HOLE 16:25 - 16:30
DRILL 8:00 - 9:35 pull 9:45
MECHANICAL DOWN TIME
DRILLING PROBLEMS
OTHER
MOVE TO NEXT HOLE 9:50 - 10:00
ELEVATION:

IN METRES	IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG	Notes & Analyses: Au ppb	Au ppb	V.G. ppb
	05				Brown clay and organics.			
					Brown clay, creamy			
					silty grey clay			
	15				silty grey clay smooth.			
	25				silty clay.			
					grey silt.			
	35							
				01	Sandy gravel 20% granitics angular to sub-rounded pebbles, coarse sand matrix.	665	2.3	-
	45			02	30% gravel + cobble gravel	3360	24	37
				03	Fine sand matrix, soft chlorite pebbles + mafic volcanics. Py - chips + as crystals on +10	1780	"	9.8
	55			04	Bedrock @ 53'			
					Dark green chlorite-rich mafic to ultramafic volcanic - very fine grained felty, foliated fabric, - 1-2% magnetite.			
					pyrite crystals in +10 chips.			
	65							

Hole No.	Page No.
74	01

B.& C. LTD.

DERRY, MICHENER, BOOTH & WAHL
CONSULTING GEOLOGISTS AND ENGINEERS

REVERSE CIRCULATION DRILL HOLE LOG

DATE Dec 1 1983
SHIFT 07:00 TO 17:00

HOLE NO. M.H-83-75 LOCATION 15E - 2400S. CLIENT: Metallic Hygrade
GEOLOGIST J.A.B. DRILLER J. Hous BIT NO. 66045 BIT FOOTAGE 163 - 198
MOVE TO HOLE 9:50 - 10:00
DRILL 10:05 - 11:55 pull to 12:00
MECHANICAL DOWN TIME
DRILLING PROBLEMS
OTHER
MOVE TO NEXT HOLE 12:05 - 12:15
ELEVATION: +3

IN METRES	IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG	Notes & Analyses: conc. ppb Au	oz/ton	Ag oz/ton
	05				brown clay			
					brown clay and silt.			
					tan clay + silt.			
					grey clay + silt.			
	15				grey silt + clay			
					grey silt.			
	25				sandy gravel, matrix mod. to fine sand, py in some clasts. 25-30% granitics., rounded to sub-angular pebbles.	1030	5.2	7.9
				01				
				02				
	35				Bedrock @32' Fresh, edium to light green, fine grained equigranular ophitic coarse mafic flow or gabbro sill/dyke.			
					35'			
	45							

Hole No.	Page No.
75	01

B.& C. LTD.

DERRY, MICHENER, BOOTH & WAHL
CONSULTING GEOLOGISTS AND ENGINEERS

REVERSE CIRCULATION DRILL HOLE LOG

DATE Dec. 1 1983

SHIFT 07:00 TO 17:00

HOLE NO. M.H. 83-76 LOCATION L5E. 1+00S CLIENT: Malartic Hygrade

GEOLOGIST J.A.B. DRILLER J. Howes BIT NO. B-65501 BIT FOOTAGE 0-34'

MOVE TO HOLE 12:05 - 12:15

DRILL 12:15 - 12:41 pull 6 12:45

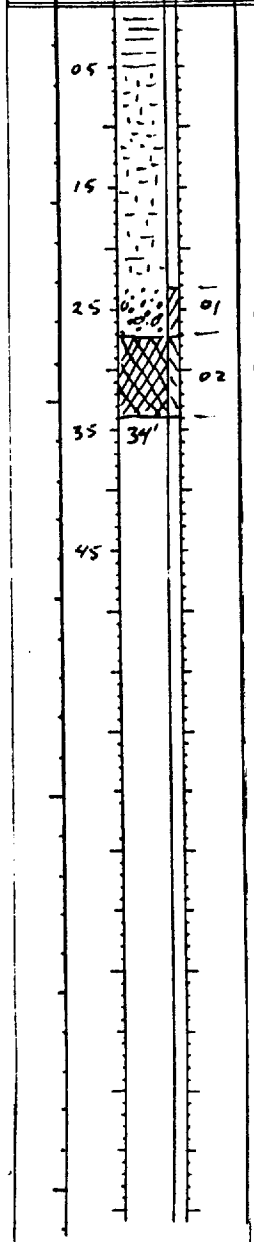
MECHANICAL DOWN TIME

DRILLING PROBLEMS

OTHER

MOVE TO NEXT HOLE 12:45 - 12:55

ELEVATION:



DESCRIPTIVE LOG

brown clay

Low/brown clay.

Low silty clay

grey silty clay.

grey silty clay.

sandy gravel oxidized (yellow brown colour) mafic volcanic pebbles.

dark green weathered upper surface chlorite-rich soft, mafic volcanic.

- fabric very fine grained to aphanitic and schistose

Notes & Analyses

Au core ppb	Au g/t	V.G. Mg/kg
1050	4.2	—

Hole No.	Page No.
76	01

B.&C. LTD.

DERRY, MICHENER, BOOTH & WAHL
CONSULTING GEOLOGISTS AND ENGINEERS

REVERSE CIRCULATION DRILL HOLE LOG

DATE Dec 1 1983

SHIFT 07:00 TO 17:00.

HOLE NO. M.H. 83-77 LOCATION B.L.O. - 5400E CLIENT: Molartic Nygrade

GEOLOGIST J.A.O. DRILLER J. Howes BIT NO. 865501 BIT FOOTAGE 24-59'

MOVE TO HOLE 12:45 - 12:55

DRILL 13:00 - 14:25

MECHANICAL DOWN TIME

DRILLING PROBLEMS

OTHER

MOVE TO NEXT HOLE 14:30 - 14:40

ELEVATION:

IN METRES	IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG	Notes & Analyses Au conc. ppb	Au oz/t	Au V.E. oz/t
	05				brown clay & organics tan/brown clay + silt. grey silt.			
					grey silt.			
	15			01	Sandy gravel, med. sand matrix. oxidized, yellow brown sand matrix possible till.	1265	4.9	6.8
				02	Cobble to pebble gravel, coarse domed. sand matrix.	2050	8.0	21
				03	Coarse sand some pebbles, 80% sand.	2225	"	3.0
	25			04	pebble gravel very little matrix. open work?			
		25'			Bedrock @ 23' - Schistose, dark green mafic volcanic, upper surface weathered, chlorite-rich. Quartz-feldspar veining - chips 10% of total.			
	35							

Hole No.	Page No.
77	01

DERRY, MICHENER, BOOTH & WAHL
CONSULTING GEOLOGISTS AND ENGINEERS

REVERSE CIRCULATION DRILL HOLE LOG

DATE Dec 1 1983
SHIFT 07:00 TO 17:00

HOLE NO. M.H-83-78 LOCATION B.L.O. - 6400E CLIENT: Malartic Hygrade
GEOLOGIST J.A.B. DRILLER J. Howe BIT NO. B66501 BIT FOOTAGE 59 - 134
MOVE TO HOLE 14:30 - 14:40
DRILL 14:45 - 16:05 pull & 16:10
MECHANICAL DOWN TIME
DRILLING PROBLEMS
OTHER
MOVE TO NEXT HOLE 16:10 - 16:20
ELEVATION:

IN METRES	IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO	DESCRIPTIVE LOG	Notes & Analyses: Au cont. ppb	Au ppb/kg	Au ppb/kg
	05				tan clay			
					tan clay.			
					grey clay + silt.			
	15				grey clay + silt.			
					grey clay + silt.			
	25				grey clay + silt			
					grey clay + silt.			
	35							
					grey clay + silt.			
					grey silt + clay			
	45							
					grey silt.			
	55							
				01	sandy gravel, grey fine sand matrix 5-10% granitics, rounded to subangular pebbles, fine gravel.	2380	18	16
	65			02	coarse sand matrix, med to fine gravel.	1310	7.2	2.0
				03		710	3.1	-
				04	Bedrock @ 71' Soft, green mafic volcanic, chlorite-rich, py in 60% of chips			
	75							
		75'						
	85							

Hole No.	Page No.
78	01

B.&C. LTD.

DERRY, MICHENER, BOOTH & WAHL
CONSULTING GEOLOGISTS AND ENGINEERS

REVERSE CIRCULATION DRILL HOLE LOG

DATE Dec 2 19 83
SHIFT 07:00 TO 17:00

HOLE NO. M.H. 83-79 LOCATION 6E 1400S CLIENT: Molardic Hygrade
GEOLOGIST J.A.A. DRILLER J. Howe BIT NO R65501 BIT FOOTAGE 134-184
MOVE TO HOLE 16:10 - 16:20
DRILL 8:00 - 9:15 pull & 9:20.
MECHANICAL DOWN TIME
DRILLING PROBLEMS
OTHER
MOVE TO NEXT HOLE 9:20 - 9:25
ELEVATION:

IN METRES	IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG	Notes & Analyses: Au conc. ppb	Au g/t	V.E. g/t			
	05				tan brown clay-silt.						
					grey clay-silt.						
	15				grey clay-silt.						
					grey clay-silt.						
	25										
					grey clay-silt.						
	35										
					silty grey clay.						
	46			01	sandy gravel, mod sand matrix.	5200	16	-			
				02	Bedrock @ 46'						
			50'		soft, dark green mafic volcanic. very fine grained and well foliated to schistose py + magnetite in chips, minor quartz						
	55										
	65.										

Hole No.	Page No.
79	01

B. & C. LTD.

DERRY, MICHENER, BOOTH & WAHL
CONSULTING GEOLOGISTS AND ENGINEERS

REVERSE CIRCULATION DRILL HOLE LOG

DATE Dec 2 1983
SHIFT 07:00 TO 17:00

HOLE NO. M.H. 83-80 LOCATION L6E - 2400S. CLIENT: Malartic Hygrade
GEOLOGIST J.A.D. DRILLER J. HOWE BIT NO. 8.65501 BIT FOOTAGE 184 - 234
MOVE TO HOLE 9:20 - 9:25
DRILL 9:30 - 10:00 pull to 10:05
MECHANICAL DOWN TIME
DRILLING PROBLEMS
OTHER
MOVE TO NEXT HOLE 10:05 - 10:15
ELEVATION:

IN METRES	IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO	DESCRIPTIVE LOG	Notes & Analyses Au conc. ppb	Au m/m	V.G. m/m
	05				brown clay brown silty clay. grey silty clay			
	15				grey silty clay.			
	25							
	35				grey silty clay. one 6" spade of brown clay.?? grey silty clay.			
	45			01	sandy gravel mod sand matrix. larger clasts are mafic volcanics.	2970	10	17
				02	Bedrock @ 46' dark green weathered surface Soft, felty & chlorite rich, mafic volcanic schist 1-4mm barren white qtz veins; pyrite ∯ 3% magnetite in chips.			
	50'							
	55							
	65.							

Hole No.	Page No.
80	01

B. & C. LTD.

DERRY, MICHENER, BOOTH & WAHL
CONSULTING GEOLOGISTS AND ENGINEERS

REVERSE CIRCULATION DRILL HOLE LOG

DATE Dec 2 1983
SHIFT 07:00 TO 17:00

HOLE NO. M.W. 83-81 LOCATION < 6E. 34008 CLIENT: Malartic Hygrade
GEOLOGIST J.A.D. DRILLER J. Houg. BIT NO B 65501 BIT FOOTAGE 234'-269'
MOVE TO HOLE 10:05 - 10:15
DRILL 10:18 - 10:50 pull to 10:55
MECHANICAL DOWN TIME
DRILLING PROBLEMS
OTHER
MOVE TO NEXT HOLE 10:55 - 11:05
ELEVATION:

IN METRES	IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG	Notes & Analyses: cmc. ppb Au	oz/ton Au	o.z. oz/ton Au			
	0				tan brown clay.						
	5				grey silty clay.						
	15				grey silty clay.						
	25				grey silty clay.						
					grey silty clay.						
	31			01	Bedrock @ 31'						
	35				dark green mafic volcanic, fine to very fine grained, felty textured. Coarse flow or sill - ophitic. Gabbroic texture.						
	35'										
	46										

Hole No.	Page No.
81	01.

B.& C. LTD.

DERRY, MICHENER, BOOTH & WAHL
CONSULTING GEOLOGISTS AND ENGINEERS

REVERSE CIRCULATION DRILL HOLE LOG

DATE Dec 2 1983

SHIFT
07:00 TO 17:00

HOLE NO. M.N. 83-82 LOCATION 26E. 4400S CLIENT: Molatric Hydrode
GEOLOGIST J.A.A/J.B. DRILLER J. Hows BIT NO. 865501 BIT FOOTAGE 269'-339'
MOVE TO HOLE 10:35 - 11:05
DRILL 11:10 - 11:45 fuel & 11:50
MECHANICAL DOWN TIME
DRILLING PROBLEMS
OTHER
MOVE TO NEXT HOLE 11:55 - 12:00
ELEVATION: +5

IN METRES	IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG	Notes & Analyses Au conc. ppb	Au oz/ton	V.G. oz/ton
	05				brown/yellow oxidized silty clay			
	15				grey silty clay			
	25				grey silty clay			
	35				grey silty clay.			
	45				grey silty clay.			
	55				grey silt with a few pebbles.			
	65			01	sandy gravel, med. sand matrix pyr in some chips.	1670	.10	
				02	Bedrock @ 64' soft, dark green, harder at depth. Some pyr in chips; very fine grained foliated felty recrystallized mafic meta volcanic.			
	70'							
	75							
	85							

Hole No.	Page No.
82	01

B.A.C. LTD.

DERRY, MICHENER, BOOTH & WAHL
CONSULTING GEOLOGISTS AND ENGINEERS

REVERSE CIRCULATION DRILL HOLE LOG

DATE Dec 2 1983
SHIFT 07:00 TO 17:00

HOLE NO. MH. 83-83 LOCATION 46E · 5400S CLIENT: Malartic Hygrade
GEOLOGIST J.A.A. DRILLER J. Howe BIT NO. 866501 BIT FOOTAGE 339'-354'
MOVE TO HOLE 11:50 - 12:00
DRILL 12:05 - 12:55 - pull to 13:58
MECHANICAL DOWN TIME
DRILLING PROBLEMS
OTHER
MOVE TO NEXT HOLE 13:00 - 13:10
ELEVATION:

IN METRES	IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO	DESCRIPTIVE LOG	Notes & Analyses: Au comp ppb	Au ppb	VG ppb
	05				silty brown clay			
					silty brown clay.			
				01	sandy gravel, fine to med sand matrix py crystals on +10.	1610	6.1	-
	15				Bedrock @ 13' Relatively fresh, dark green mafic volcanic or aphanitic diabase.			
	15'							
	25							

Hole No.	Page No.
83	01

B.&C. LTD.

DERRY, MICHENER, BOOTH & WAHL
CONSULTING GEOLOGISTS AND ENGINEERS

REVERSE CIRCULATION DRILL HOLE LOG

DATE Dec 2 19 83

SHIFT
07:00 TO 17:00

HOLE NO. M.H. 83-84 LOCATION 46E 61+55 CLIENT: Mclardic Nygrade
GEOLOGIST J.A.B. DRILLER J. Haug BIT NO. 865501 BIT FOOTAGE 354 - 376'
MOVE TO HOLE 13:00 - 13:10
DRILL 13:15 - 14:10 pull to 14:15
MECHANICAL DOWN TIME
DRILLING PROBLEMS
OTHER
MOVE TO NEXT HOLE 14:20 - 14:30
ELEVATION: South side of creek logs here.

IN METRES	IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO	DESCRIPTIVE LOG	Notes & Analyses: Conc. ppb Au	Au oz/ton	Au g/kg
					oxidized yellow brown clay & silt.			
	05				grey silty clay.			
	15				grey silty clay grey silt.			
				01	sandy gravel, rounded to subangular clasts, med. to coarse sand matrix.	710	2.2	6.2
				02				
	22'				Bedrock @ 19.8' - hard drilling. Medium greenish grey, intermediate volcanic or sub volcanic intrusive with concoidal fracture and weak foliation.			
	25							
	35							

Hole No.	Page No.
84	01

B. & C. LTD.

DERRY, MICHENER, BOOTH & WAHL
CONSULTING GEOLOGISTS AND ENGINEERS

REVERSE CIRCULATION DRILL HOLE LOG

DATE Dec 2 1983

SHIFT
07:00 TO 17:00

HOLE NO. M.H. 83-85 LOCATION L6E - 7400S. CLIENT: Malartic Hygrade
GEOLOGIST J.A.B. DRILLER J. Howe BIT NO. B65501 BIT FOOTAGE 376 - 408
MOVE TO HOLE 14:30 - 14:30
DRILL 14:35 - 15:00
MECHANICAL DOWN TIME
DRILLING PROBLEMS
OTHER
MOVE TO NEXT HOLE 15:05 - 15:15
ELEVATION:

IN METRES	IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO	DESCRIPTIVE LOG	Notes & Analyses Au conc. ppb	Au g/t	Au V.G. g/t
	05				brown clay + s.i.M. some organics.			
					brown clay + s.i.M.			
					grey clay + s.i.M.			
	15				grey clay + s.i.M.			
					grey clay + s.i.M.			
	25			01	sandy gravel	?		
				02	Bedrock @ 27' dark green to black, well foliated to schistose, chloritic mafic to ultra mafic meta volcanic			
	32'							
	35							
	45							

Hole No.	Page No.
85	01

B. & C. LTD.

DERRY, MICHENER, BOOTH & WAHL
CONSULTING GEOLOGISTS AND ENGINEERS

REVERSE CIRCULATION DRILL HOLE LOG

DATE Dec 3 1983

SHIFT 07:00 TO 17:00

HOLE NO. M.H. 83-86 LOCATION L6E - 8100S CLIENT: Melardic Ventures

GEOLOGIST J.A.D. DRILLER J. Hoey BIT NO. B65501 BIT FOOTAGE 408 - 468

MOVE TO HOLE 15:05 - 15:15

DRILL 15:20 - 15:55 - pull to 16:00

MECHANICAL DOWN TIME

DRILLING PROBLEMS

OTHER

MOVE TO NEXT HOLE Remote to core shack by 16:50. (Near camp)

ELEVATION:

IN METRES	IN FEET	GRAPHIC LOG	INTERVAL	SAMPLE NO	DESCRIPTIVE LOG	Notes & Analyses: Core ppt	Fm mg/kg	V.G. mg/kg
	05				brown clay & silt.			
					grey clay & silt.			
	15				grey clay & silt.			
	25				grey clay & silt.			
	35				grey clay & silt.			
	45				grey clay & silt. a few pebbles.			
				01	Sandy gravel 20% granitics coarse to med. sand matrix	145	0.83	3.1
	55			02	Sandy granule coarse to med. sand matrix			
					Bedrock @ 57'			
	60'				dark green matic volcanic, very fine grained, felty recrystallized and waxy - talc alteration			
	65							
	75							

Hole No.	Page No.
86	01

B. & C. LTD.

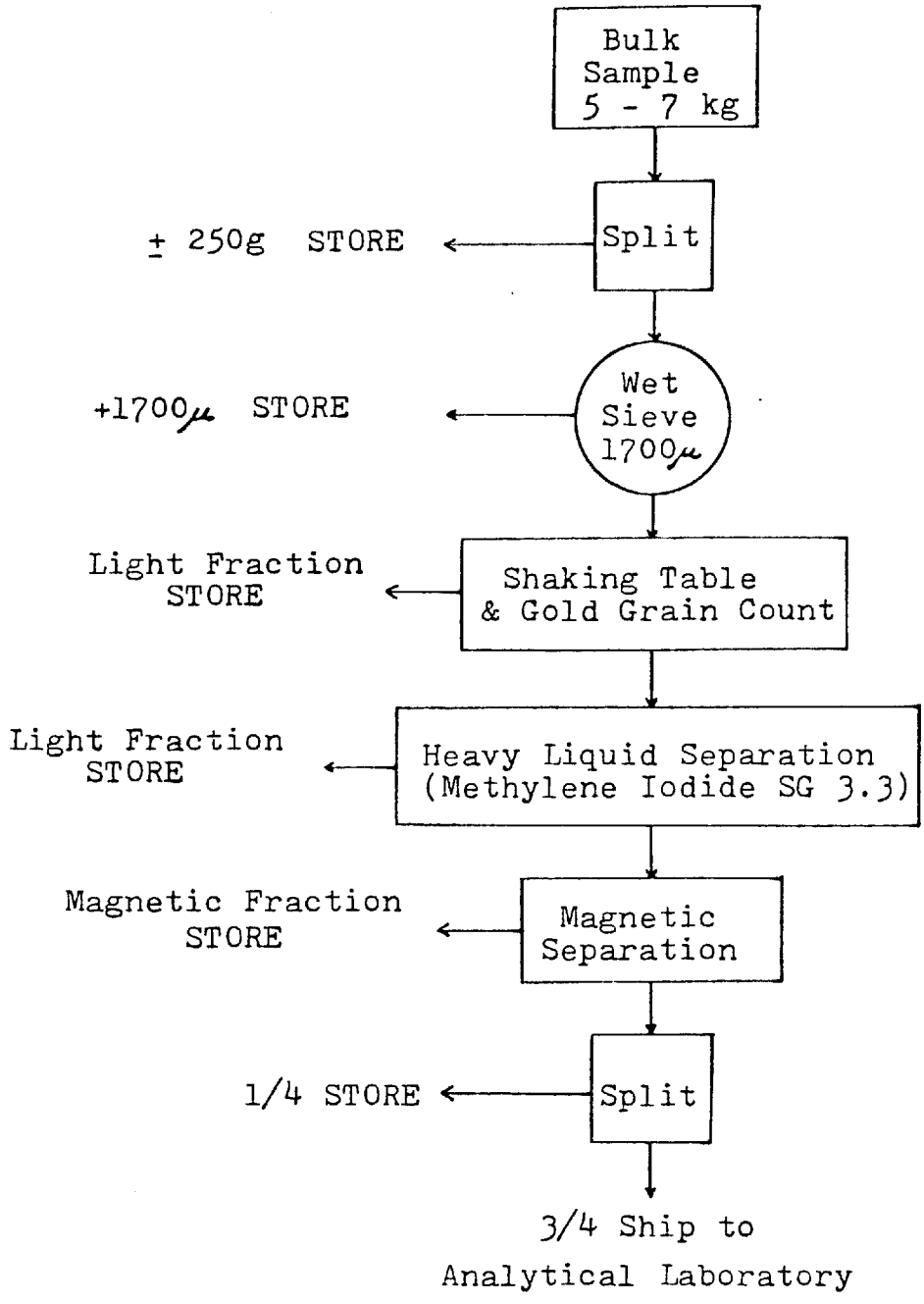
APPENDIX B

LABORATORY SAMPLE

PROCESSING LOGS

OVERBURDEN DRILLING MANAGEMENT LIMITED

SAMPLE PROCESSING FLOW SHEET



OVERBURDEN DRILLING MANAGEMENT LIMITED
LABORATORY SAMPLE LOG

Column		Description
Sample Number		Number assigned to sample in the field
Weight (kg. wet)	Table Split	Weight of whole sample as received from the field less a 250 gram representative split (geochem)
	+10 Rock Chips	Weight of sample greater than 10 mesh
	-10 Table Feed	Weight of sample less than 10 mesh. This portion is fed across the shaking table.
Weight (grams dry)	Table Conc	Dry weight of heavy mineral split recovered from the shaking table
	M.I. Lights	Weight of shaking table concentrate less than 3.3 specific gravity.
	Non-mag	Weight of table concentrate heavier than 3.3 specific gravity with magnetic fraction removed
	Mag	Magnetic fraction of heavy mineral concentrate
Grains	V.G.	Description and size (in microns) of gold grains visible on the shaking table
Description	+10	Description of texture: e.g. granules, cobbles, pebbles Clast percentages Presence of other materials: e.g. pure clay clumps, wood chips
	Matrix	Description: e.g. sorted, unsorted, colour, texture
Classification		Description: Till, Gravel, Sand

List of abbreviations used on lab data sheets.

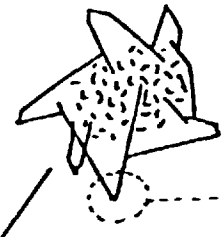
Tr	Trace
Cobs	Cobbles
Pebs	Pebbles
GCls	Gritty clay balls
SCls	Smooth clay balls
V/S	Volcanic and/or sedimentary rocks
Gr	Granitic rocks
Lime	Limestone

Abbreviations used for Gold description.

A	Abraded
R	Rounded
D	Delicate
IR	Irregular
SD	Simple delicate

DELICATE

Bedrock gold crystallizes as pitted granular masses with smooth protruding crystals



simple delicate

IRREGULAR

After short ice transport, crystals are removed leaving smaller pitted grain with several protrusions

IRREGULAR

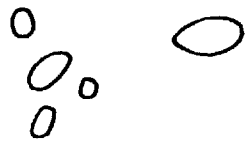
Some flat irregular grains may become curled

ABRADED

With increasing transport, protrusions break off irregular grain, producing several smaller leaf-shaped grains. Pitted surfaces become smooth.

ABRADED

Curled irregular grains become spindled abraded grains



ROUNDED

After long transport, especially in streams, continued abrasion produces small, polished, spherical or ellipsoidal grains

0 1000

Microns

Effects of Glacial Transport on Gold Particle Size and Shape
(Developed by OVERBURDEN DRILLING MANAGEMENT LTD.)

VISIBLE GOLD FROM SHAKING TABLE AND PANNING

SAMPLE NUMBER	SIZE OF GOLD BY SHAPE A	IR	D	REMARKS
1H-83 12-01	150x200 150x250 100x250 150x200	100x350 150x350		
31-01	100x150 150x300 50x50 50x100 100x100 (x2) 150x200		100x100	Plus Trace Arsenopyrite
32-02	200x600 50x100	150x200 50x100	50x150	Plus TRACE ARSENOPYRITE
36-01	50x100 250x450 50x100 50x50 <50x50			Plus TRACE ARSENOPYRITE AND COBALTITE
50-02	100x200 100x100 <50x50 100x100	<50x50		
62-01	150x150 100x100(x2) 100x150 50x150 50x200 100x200	150x150	50x100	Plus same as 36-01
23-01	50x100(x3) 50x50(x3) 100x100 200x550	100x100(x2) 150x200		As above
74-01	50x50(x2) 100x100(x2) <50x50(x2) 100x150 150x200 200x300	100x100 200x250		Plus Trace Arsenopyrite
55-01	A200x200 50x50 150x150	200x400		
55-02	100x100 150x150 50x50 <50x50 100x150 100x100	50x50		Plus Trace Arsenopyrite

SAMPLE NUMBER	SIZE OF GOLD BY SHAPE A	IR	D	REMARKS
68-01	100x100 100x150 100x200 150x250	100x150	100x100	Plus TRACE ARSENO- -PYRITE
69-01	150x150 200x250	<50x50 50x50(x3) 50x100(x4) 150x350	50x50	AS ABOVE
70-02	<50x50 50x50(x2) 100x100 100x150 150x150 200x250	100x150		
70-03	50x50(x4) 100x100(x2) 150x200	<50x50 100x100 100x150		
70-04	100x150 250x450	50x50(x2) 100x150	<50x50	Plus TRACE Arsenopyrite Cobaltite
70-05	100x150 100x200	200x200	50x50(x2) 50x100	
70-09(1/2)	<50x50 100x100 100x200 450x550	100x100 100x250 150x350	<50x50 50x50 50x150	AS 70-04
C-70-09	50x50(x3) 100x150(x2) 150x150 300x450	50x100 100x100(x2)	<50x50(x2) 50x50 100x150	
74-02	75x100 100x100(x2) 100x150 100x200 150x250 200x400	50x50(x2) 50x100 100x150(x2) 150x150 150x300 200x350	50x50(x3) <50x50	
74-03	<50x50(x3) 50x50 100x150 100x200 150x200	100x100 150x150	50x50 100x100 100x150 150x150	
75-01	<50x50(x2) 50x50(x3) 100x100(x2) 100x200	<50x50 50x50(x2) 100x100 100x250	<50x50 50x50(x3) 100x100(x3)	Plus TRACE COBALTITE ARSENOPYRITE
77-01	50x100	50x50 100x100 100x300	<50x50 100x200	
77-02	<50x50 150x150 250x400	100x150	<50x50 50x50 50x100	Plus NATIVE COPPER D50x50

VISIBLE GOLD FROM SHAKING TABLE AND PANNING

SAMPLE NUMBER	SIZE OF GOLD BY SHAPE A	IR	D	REMARKS	SAMPLE NUMBER	SIZE OF GOLD BY SHAPE A	IR	D	REMARKS
1H-83 78-01	<50x50 50x50(x5) 50x100(x2) 150x200 200x200	50x50 50x100(x3) 100x150 150x150	50x100(x2) 50x50 100x200						
80-01		150x300	<50x50 50x50(x2) 50x100(x4) 100x150(x2) 150x150 100x200 VD. 150x250						
84-01	50x50 50x100 50x100 100x150(x2) 150x200	50x100							
86-01	50x50 75x75 50x100(x2) 100x100(x2)	50x75 75x150							

APPENDIX C

BINOCULAR MICROSCOPE IDENTIFICATION

OF HEAVY MINERALS

OVERBURDEN DRILLING MANAGEMENT LIMITED

LABORATORY SAMPLE LOG

Sample Number	Weight (kg. wet)			Weight (grams dry)				Grains	Description		Classification
	Table Split	+10 Rock Chips	-10 Table Feed	Table Conc	M.I. Lights	Non-mag	Mag	V.G.	+10	Matrix	
MH-83-01-01	0.7	<0.1	0.7	63.2	58.6	3.6	1.0	—	Cobs V/S & Gr.	unsorted rusty beige with clay	TILL
-02-02	0.9	<0.1	0.9	90.9	77.9	7.6	5.4	—	"	unsorted gray beige with clay	"
-03-01	7.2	<0.1	7.2	192.1	144.7	35.6	11.8	—	Pebs V/Sd Gr.	"	"
-04-01	5.2	<0.1	5.2	197.1	155.7	33.1	8.3	—	"	"	"
-02	7.1	<01	7.1	247.4	191.9	45.0	10.5	A200X 500	"	"	"
-03	5.7	<01	5.7	125.4	84.4	31.2	9.8	—	"	"	"
-04	4.1	<0.1	4.1	128.0	93.4	26.8	7.8	—	"	"	"
-05-01	5.1	<0.1	5.1	121.7	83.2	29.8	8.7	A100X 200	"	"	"
-02	5.1	<0.1	5.1	179.0	136.6	33.8	8.6	IR250X 500	"	"	"
-03	6.0	<0.1	6.0	141.9	99.8	32.6	9.5	—	"	"	"
-04	6.8	<0.1	6.8	96.3	61.4	27.4	7.5	—	"	"	"
-05	6.8	<0.1	6.8	137.8	90.7	37.5	9.6	—	"	"	"
-06	5.8	<01	5.8	137.4	87.4	38.4	11.6	—	"	"	"
-06-01	8.3	<0.1	8.3	131.0	99.3	24.7	7.0	—	"	"	"
-02	6.3	<0.1	6.3	162.9	119.1	32.7	11.1	—	"	"	"
-07-01	3.6	<0.1	3.6	107.9	92.3	12.0	3.6	—	"	unsorted beige with clay	"
-08-01	7.8	<0.1	7.8	178.5	132.3	37.0	9.2	—	"	unsorted beige with gray beige clay	"
-02	8.0	<0.1	8.0	202.7	146.0	43.3	13.4	—	"	"	"
-03	7.5	<0.1	7.5	228.2	173.4	42.7	12.1	—	"	"	TILL

OVERBURDEN DRILLING MANAGEMENT LIMITED

LABORATORY SAMPLE LOG

Sample Number	Weight (kg. wet)			Weight (grams dry)				Grains	Description		Classification
	Table Split	+10 Rock Chips	-10 Table Feed	Table Conc	M.I. Lights	Non-mag	Mag	V.G.	+10	Matrix	
MH-83-08-04	3.2	0.4	2.8	129.7	101.4	16.0	12.3	—	Cobs 60%VIS 40%Gr.	unsorted gray with clay	TILL
-09-01	6.3	<0.1	6.3	191.8	141.6	39.4	10.7	A100X200	Pebs VIS & Gr.	unsorted beige with silt	"
-09-02	5.6	<0.1	5.6	197.3	156.7	31.5	9.1	—	"	unsorted gray beige with clay	"
-03	1.2	<0.1	1.2	119.9	100.0	17.1	2.8	—	"	"	"
-10-01	2.1	<0.1	2.1	102.1	81.1	17.2	3.8	—	"	"	"
-11-01	1.0	<0.1	1.0	62.2	56.6	5.4	0.2	—	"	unsorted beige with clay	"
-12-01	7.0	<0.1	7.0	235.4	192.6	30.7	12.1	*	"	"	"
-02	5.7	<0.1	5.7	160.6	125.0	26.4	9.2	—	"	unsorted gray beige with clay	"
-13-01	5.0	<0.1	5.0	120.5	89.8	24.1	6.6	—	"	"	"
-02	6.5	<0.1	6.5	144.7	106.4	28.1	10.2	—	"	"	"
-03	1.1	0.2	0.9	84.5	80.1	3.7	0.7	—	Cobs 70%VIS 30%Gr.	"	"
-14-01	4.7	<0.1	4.7	136.1	108.6	20.8	6.7	—	Pebs VIS & Gr.	unsorted beige with clay	"
-15-01	7.9	<0.1	7.9	153.9	110.5	32.2	11.2	—	"	unsorted gray beige with clay	"
-16-01	6.4	<0.1	6.4	130.1	97.2	24.6	8.3	—	"	"	"
-02	6.8	<0.1	6.8	180.2	139.9	29.9	10.4	—	"	"	"
-17-01	7.2	<0.1	7.2	196.6	155.2	31.9	9.5	—	"	unsorted beige with clay	"
-02	6.0	<0.1	6.0	151.6	115.3	27.4	8.9	—	"	unsorted beige with gray beige clay	"
-03	5.9	1.6	4.3	92.5	72.3	16.5	3.7	—	Pebs 60%VIS 40%Gr.	unsorted gray beige with clay	TILL
-04	4.2	1.1	3.1	134.9	108.5	21.7	4.7	—	Pebs 70%VIS 30%Gr.	"	TILL

* PLEASE NOTE FOR "*" ON ALL SHEETS REFER TO THE ACCOMPANYING GOLD SHEETS FOR GOLD COUNT.

OVERBURDEN DRILLING MANAGEMENT LIMITED

LABORATORY SAMPLE LOG

Sample Number	Weight (kg. wet)			Weight (grams dry)				Grains	Description		Classification
	Table Split	+10 Rock Chips	-10 Table Feed	Table Conc	M.I. Lights	Non-mag	Mag	V.G.	+10	Matrix	
MH-83-17.05	6.5	0.5	6.0	243.5	177.7	54.2	11.6	—	Cobs 75% V/S 25% Gr.	unsorted gray beige with clay	TILL
-06	5.9	—	5.9	154.1	115.7	30.6	7.8	—	—	"	"
-07	6.2	<0.1	6.2	166.2	127.1	31.0	8.1	—	Pebs V/S & Gr.	"	"
18-01	5.8	<0.1	5.8	166.4	120.7	36.3	9.4	—	"	unsorted beige with clay	"
-02	1.9	0.6	1.3	83.0	71.4	9.8	18	—	Cobs 75% V/S 25% Gr.	"	"
19-01	2.1	<0.1	2.1	96.3	81.4	12.7	2.2	R200x 200	Pebs V/S & Gr.	unsorted gray beige with clay	"
20-01	4.3	<0.1	4.3	173.7	138.3	28.6	6.8	—	"	"	"
21-01	5.4	0.2	5.2	193.0	158.3	28.3	6.4	—	Cobs 60% V/S 40% Gr.	"	"
-02	6.8	<0.1	6.8	163.8	129.2	27.1	7.5	A100x 100	Pebs V/S & Gr.	"	"
-03	1.1	<0.1	1.1	75.7	66.1	8.1	1.5	—	"	"	"
23-01	6.6	<0.1	6.6	218.4	172.4	34.2	11.8	A250x 300	"	"	"
-02	5.7	<0.1	5.7	175.3	150.9	15.9	8.5	A200x 200	"	unsorted gray beige with beige clay	"
24-01	5.8	<0.1	5.8	171.6	132.4	30.2	9.0	IR150x 200	"	unsorted gray beige with clay	"
-02	3.1	<0.1	3.1	114.0	90.8	18.3	4.9	—	"	"	"
25-01	2.5	<0.1	2.5	120.2	103.1	13.2	3.9	—	"	unsorted beige with clay	"
26-01	6.0	0.4	5.6	178.9	143.9	27.8	7.2	—	Cobs 50% V/S 50% Gr.	unsorted gray beige with clay	"
-02	6.0	0.1	5.9	222.8	189.4	25.1	8.3	—	Cobs 30% V/S 70% Gr.	"	"
C-01	7.2	0.1	7.1	260.4	216.3	34.5	9.6	—	Cobs 50% V/S 50% Gr.	unsorted beige with clay	"
C-05	2.3	<0.1	2.3	117.7	101.9	12.0	3.8	A150x 200	Pebs V/S & Gr.	unsorted gray beige with clay	"

OVERBURDEN DRILLING MANAGEMENT LIMITED

LABORATORY SAMPLE LOG

Sample Number	Weight (kg. wet)			Weight (grams dry)				Grains	Description		Classification
	Table Split	+10 Rock Chips	-10 Table Feed	Table Conc	M.I. Lights	Non-mag	Mag	V.G.	+10	Matrix	
MH-83-C-06	3.6	0.3	3.3	119.8	102.7	13.0	4.1	—	Cobs 80%VfS 20%Gr.	unsorted gray beige with clay	TILL
26-03	5.5	0.5	5.0	202.5	177.2	19.9	5.4	A100x 200	Cobs 70%VfS 30%Gr.	"	"
-04	6.1	1.1	5.0	128.0	95.1	22.4	10.5	—	Cobs 60%VfS 40%Gr.	"	"
-05	5.6	0.5	5.1	155.7	133.6	16.1	6.0	—	Cobs 70%VfS 30%Gr.	"	"
-06	4.9	0.8	4.1	175.9	153.9	16.5	5.5	A100x 100	Pebs 50%VfS 50%Gr.	"	"
-07	4.9	0.7	4.2	191.8	163.7	22.4	5.8	A 100x 150	Cobs 50%VfS 50%Gr.	"	"
27-01	4.8	0.4	4.4	122.8	98.2	19.4	5.2	—	Pebs 60%VfS 40%Gr.	unsorted beige with clay	"
-02	5.8	0.9	4.8	196.2	170.3	21.1	4.8	A 100 x 150	Cobs 65%VfS 35%Gr.	"	"
-03	5.4	0.5	4.9	186.4	153.1	27.0	6.3	—	"	unsorted gray beige with clay	"
-04	4.7	0.6	4.1	129.2	102.9	21.4	4.9	—	Pebs 70%VfS 30%Gr.	unsorted gray with clay	"
-05	4.8	<0.1	4.8	126.1	96.9	23.9	5.3	—	Pebs VfS & Gr.	"	"
-06	6.8	1.0	5.8	191.6	159.6	25.2	6.8	—	Cobs 90%VfS 10%Gr.	"	"
-07	4.2	<0.1	4.2	156.3	137.7	15.8	2.8	—	Pebs VfS & Gr.	"	"
-08	6.3	2.2	4.1	119.8	95.4	17.5	6.9	—	Pebs 60%VfS 40%Gr.	"	"
-09	4.8	0.6	4.2	133.2	108.9	19.7	4.6	—	Pebs 55%VfS 45%Gr.	"	"
28-01	6.3	<0.1	6.3	162.3	130.4	24.2	7.7	—	Pebs VfS & Gr.	"	"
-02	6.0	0.1	5.0	205.3	170.8	27.2	7.3	A200x400 A150x200	"	"	"
-03	5.0	<0.1	5.0	93.3	72.7	15.8	4.8	—	"	"	"
-04	4.9	<0.1	4.9	80.5	54.1	20.7	5.7	—	"	"	"

OVERBURDEN DRILLING MANAGEMENT LIMITED

LABORATORY SAMPLE LOG

Sample Number	Weight (kg. wet)			Weight (grams dry)				Grains	Description		Classification
	Table Split	+10 Rock Chips	-10 Table Feed	Table Conc	M.I. Lights	Non-mag	Mag	V.G.	+10	Matrix	
MH-83-29-01	4.8	<0.1	4.8	171.6	129.3	33.0	9.3	—	Pebs V/S+Gr.	unsorted gray beige with clay	TILL
30-01	5.9	<0.1	5.9	151.4	106.3	35.9	9.2	—	"	"	"
31-01	4.5	<0.1	4.5	235.6	169.7	52.2	13.7	*	"	"	"
-02	4.2	0.1	4.1	171.5	126.9	34.7	9.9	—	Cobs 80% V/S 20% Gr.	"	"
-03	5.3	0.2	5.1	136.9	93.8	32.2	10.9	A100X 200	"	"	"
-04	7.1	0.4	6.7	175.5	128.0	33.7	13.8	—	"	unsorted gray with clay	"
-05	5.6	0.5	5.1	122.1	94.3	22.1	5.7	—	Pebs 50% V/S 50% Gr. Tr. LS	unsorted gray beige with clay	"
-06	5.7	0.4	5.3	137.9	108.6	22.8	6.5	—	Cobs 70% V/S 30% Gr.	"	"
32-01	4.6	<0.1	4.6	151.2	108.7	33.6	8.9	IR200X 350	Pebs V/S & Gr.	"	"
-02	5.3	<0.1	5.3	155.9	110.7	35.9	9.3	*	"	"	"
-03	6.2	<0.1	6.2	105.3	73.3	25.5	6.5	A100X50	"	unsorted gray with clay	"
-04	6.2	0.5	5.7	119.3	85.2	26.6	7.5	—	Pebs 90% V/S 10% Gr.	"	"
-05	5.4	0.6	4.8	209.7	199.2	7.6	2.9	A150X 150	GRAN. 85% V/S 15% Gr.	"	"
33-01	6.6	<0.1	6.6	142.3	104.5	28.6	9.2	—	Pebs V/S + Gr.	"	"
34-01	2.9	<0.1	2.9	107.8	91.4	12.7	3.7	—	"	unsorted gray beige with clay	"
35-01	5.4	0.3	5.1	203.1	170.4	22.7	10.0	—	Pebs 60% V/S 40% Gr.	"	"
36-01	6.4	1.5	4.9	148.2	120.0	21.6	6.6	*	Cobs 65% V/S 35% Gr.	"	"
37-01	6.8	<0.1	6.8	185.2	142.2	31.9	11.1	—	Pebs V/S + Gr.	unsorted gray with clay	"
-02	5.4	<0.1	5.4	110.3	80.7	21.6	8.0	—	Pebs V/S & Gr.	"	"

OVERBURDEN DRILLING MANAGEMENT LIMITED

LABORATORY SAMPLE LOG

Sample Number	Weight (kg. wet)			Weight (grams dry)				Grains	Description		Classification
	Table Split	+10 Rock Chips	−10 Table Feed	Table Conc	M.I. Lights	Non-mag	Mag	V.G.	+10	Matrix	
MH-83 38-01	1.6	0.1	1.5	91.1	84.7	4.7	1.7	—	Pebs V/S	unsorted gray with clay	TILL
39-01	5.8	0.2	5.6	83.1	55.5	20.5	7.1	—	Pebs 60% V/S 40% Gr.	"	"
-02	4.9	0.4	4.5	80.6	64.2	13.2	3.2	—	Gran. 55% V/S 45% Gr.	unsorted gray beige with clay	"
-03	5.1	0.4	4.7	161.3	138.1	20.8	5.4	—	"	"	"
-04	4.7	0.4	4.3	154.2	131.6	18.7	3.9	—	Cobs 90% V/S 10% Gr.	"	"
-05	4.0	0.5	3.5	145.4	122.7	18.6	4.1	—	Gran. 35% V/S 65% Gr.	"	"
-06	5.7	0.7	5.0	190.7	159.3	25.8	5.6	—	Cobs 80% V/S 20% Gr.	"	"
40-01	4.9	<0.1	4.9	152.7	116.4	27.3	9.0	—	Pebs V/S & Gr.	"	"
41-01	5.2	0.2	5.0	184.3	153.9	23.2	7.2	IR 100x 250	Pebs 90% V/S 10% Gr.	"	"
42-01	4.8	0.2	4.6	187.8	167.3	15.2	5.3	—	"	"	"
-02	4.6	0.8	3.8	151.4	134.7	12.9	3.8	—	Pebs 85% V/S 15% Gr.	"	"
-03	6.4	1.0	5.4	204.7	174.6	25.2	4.9	—	Cobs 60% V/S 40% Gr	"	"
-04	4.1	0.8	3.3	132.7	111.2	17.8	3.7	—	Cobs 50% V/S 50% Gr.	"	"
-05	5.0	0.5	4.5	223.2	191.5	25.7	6.0	—	"	unsorted gray with gray beige clay	"
-06	2.0	0.2	1.8	95.2	82.5	8.9	3.8	—	"	"	"
43-01	4.3	<0.1	4.3	119.0	88.2	22.7	8.1	—	Pebs V/S & Gr.	unsorted gray beige with clay	"
44-01	4.5	<0.1	4.5	149.4	109.2	30.6	9.6	—	"	"	"
C-44-02	3.4	<0.1	3.4	122.3	92.4	23.1	6.8	A100x100 IR100x150	"	"	"
45-01	2.5	<0.1	2.5	88.1	70.9	13.1	4.1	A100x300	"	unsorted beige with clay	TILL

OVERBURDEN DRILLING MANAGEMENT LIMITED

LABORATORY SAMPLE LOG

Sample Number	Weight (kg. wet)			Weight (grams dry)				Grains	Description		Classification
	Table Split	+10 Rock Chips	-10 Table Feed	Table Conc	M.I. Lights	Non-mag	Mag	V.G.	+10	Matrix	
MH-83-46-01	4.8	<0.1	4.8	142.3	112.7	21.3	8.3	—	Pebs VIS & Gr.	unsorted beige with clay	TILL
-02	4.8	<0.1	4.8	165.2	132.8	25.3	7.1	A 200 x 250	"	unsorted gray beige with clay	"
47-01	2.2	<0.1	2.2	129.0	111.7	13.7	3.6	—	Pebs VIS & Gr.	unsorted gray beige with clay	TILL
48-01	5.5	0.6	4.9	236.8	207.8	20.6	8.4	—	Pebs 45% VIS 55% Gr.	unsorted bagd with clay	"
-02	4.4	<0.1	4.4	199.7	177.9	16.0	5.8	—	Pebs Gr. & VIS	unsorted gray beige with clay	"
49-01	4.8	<0.1	4.8	208.2	177.5	23.2	7.5	A 200 x 400	Pebs VIS & Gr.	unsorted gray with clay	"
-02	5.0	<0.1	5.0	201.6	165.3	28.2	8.1	—	"	"	"
50-01	4.7	<0.1	4.7	180.0	153.2	20.6	7.0	Ir. 200x200 D 50x150	"	"	"
-02	4.7	0.1	4.6	257.8	222.7	25.7	9.4	*	Pebs 50% VIS 50% Gr.	"	"
C-50-07	3.9	<0.1	39	234.1	198.7	28.1	7.3	—	Pebs VIS & Gr.	"	"
51-01	4.7	<0.1	47	280.4	242.1	30.2	8.1	—	"	"	"
52-01	2.5	<0.1	2.5	122.7	105.4	13.2	4.1	—	"	"	"
53-01	5.0	<0.1	5.0	173.7	131.9	33.4	8.4	A 150 x 150	"	unsorted gray beige with clay	"
54-01	5.1	<0.1	5.1	167.6	136.8	23.8	7.0	—	"	"	"
-02	4.9	<0.1	4.9	159.8	125.4	26.5	7.9	A 100 x 150 A 200 x 300	"	"	"
55-01	3.2	<0.1	3.2	121.2	99.8	16.9	4.5	A 150 x 150 A 100 x 250	"	unsorted beige with clay	"
56-01	5.3	<0.1	5.3	178.8	151.6	18.5	8.7.	—	"	"	"
57-01	5.2	<0.1	5.2	154.8	118.6	27.3	8.9	IR 100 x 200	"	unsorted gray beige with clay	"
58-01	5.3	<0.1	5.3	146.2	111.2	27.0	8.0	IR 200 x 200	"	"	"

OVERBURDEN DRILLING MANAGEMENT LIMITED

LABORATORY SAMPLE LOG

Sample Number	Weight (kg. wet)			Weight (grams dry)				Grains	Description		Classification
	Table Split	+10 Rock Chips	−10 Table Feed	Table Conc	M.I. Lights	Non-mag	Mag	V.G.	+10	Matrix	
MH-83 59-01	4.1	<0.1	4.1	118.8	95.2	16.1	7.5	A100X200 A100X100 IR 200X300	Pebs VIS & Gr.	unsorted beige with clay	TILL
-02	4.4	<0.1	4.4	117.8	89.1	21.3	7.4	—	"	"	"
60-01	4.5	<0.1	4.5	141.4	119.1	14.9	7.4	D250X500 A150X200	"	"	"
-02	3.0	<0.1	3.0	85.2	66.4	10.7	8.1	A100X200	"	"	"
61-01	4.0	0.4	3.6	116.5	96.2	13.0	7.3	—	Cobs 70% VIS 30% Gr.	unsorted gray beige with clay	"
C-62-01	4.7	<0.1	4.7	132.4	100.2	21.1	11.1	—	Pebs VIS & Gr.	unsorted gray with clay	"
62-01	5.1	<0.1	5.1	132.0	82.6	32.8	16.6	X	"	"	"
-02	2.1	0.4	2.7	74.3	67.3	5.5	1.5	—	Cobs 90% VIS 10% Gr.	"	"
63-01	5.7	<0.1	5.7	125.6	91.9	23.9	9.8	X	Pebs VIS & Gr.	"	"
-02	2.2	<0.1	2.2	124.9	91.8	24.6	8.5	A150X 350	"	"	"
-03	5.5	0.6	4.9	107.8	84.2	17.9	5.7	—	Pebs 80% VIS 20% Gr.	"	"
-04	5.5	0.4	5.1	113.3	92.7	16.2	4.4	—	Pebs 70% VIS 30% Gr.	"	"
-05	7.1	0.4	6.7	145.4	117.3	20.7	7.4	A150X 150	Pebs 80% VIS 20% Gr.	"	"
-06	5.0	0.8	4.2	123.1	101.4	17.5	4.2	—	Pebs 90% VIS 10% Gr.	"	"
64-01	5.3	<0.1	5.3	180.4	142.7	27.5	10.2	X	Pebs VIS & Gr.	"	"
-02	5.3	<0.1	5.3	188.9	143.6	33.4	11.9	—	"	"	"
65-01	4.8	<0.1	4.8	233.8	201.9	22.5	9.4	X	"	unsorted gray beige with clay	"
-02	6.4	<0.1	6.4	185.9	143.2	30.7	12.0	X	"	"	"
C-65-04	5.5	<0.1	5.5	211.0	170.6	30.4	10.0	—	"	unsorted gray beige with silt	"
66-01	5.6	<0.1	5.6	215.9	91.9	29.0	9.5	—	"	unsorted beige with clay	"

OVERBURDEN DRILLING MANAGEMENT LIMITED

LABORATORY S. .MPLE LOG

Sample Number	Weight (kg. wet)			Weight (grams dry)				Grains	Description		Classification
	Table Split	+10 Rock Chips	-10 Table Feed	Table Conc	M.I. Lights	Non-mag	Mag	V.G.	+10	Matrix	
MH-83 67-01	6.0	<0.1	6.0	165.4	124.2	30.5	10.7	—	Pebs V/S & Gr.	unsorted gray beige with clay	TILL
-02	6.5	<0.1	6.5	173.3	136.8	24.8	11.7	A150x 250	"	"	"
68-01	6.4	<0.1	6.4	138.7	90.5	37.0	11.2	X	"	"	"
-02	5.9	<0.1	5.9	228.2	190.7	27.5	10.0	A200x 300	"	"	"
C-68-09	6.2	<0.1	6.2	237.8	193.8	33.3	10.7	—	"	"	"
69-01	6.2	<0.1	6.2	167.3	111.9	39.0	16.4	X	"	"	"
-02	5.4	0.3	5.1	143.6	98.1	38.0	7.5	—	Cobs 80% V/S 20% Gr.	"	"
70-01	6.0	<0.1	6.0	110.0	73.3	25.0	11.7	—	Pebs V/S & Gr.	unsorted gray with clay	"
-02	5.5	<0.1	5.5	193.7	151.1	29.0	13.6	X	"	"	"
-03	6.3	<0.1	6.3	201.3	154.3	33.7	13.3	X	"	"	"
-04	5.8	<0.1	5.8	193.8	159.0	25.5	9.3	X	"	unsorted gray beige with s/lt.	"
-05	5.0	<0.1	5.0	152.6	118.4	24.1	10.1	X	"	"	"
-06	8.3	0.2	8.1	276.8	192.6	64.0	20.2	—	Pebs 80% V/S 20% Gr.	unsorted gray beige with clay	"
-07	7.5	<0.1	7.5	194.8	133.7	47.5	13.6	—	Pebs V/S & Gr.	"	"
-08	9.3	<0.1	9.3	336.4	258.0	62.5	15.9	A100x 200	Gran. V/S & Gr.	sorted gray beige med. with s/lt.	SAND
-09(1/2)	8.0	<0.1	8.0	235.2	173.3	46.5	15.4	X	"	unsorted gray beige with s/lt.	TILL
-09(2/2)	7.9	<0.1	7.9	230.9	177.2	37.3	16.4	A100x 200	"	"	"
C-70-09	4.7	<0.1	4.7	215.9	169.5	33.7	12.7	X	Pebs V/S & Gr.	unsorted gray beige with clay	"
73-01	6.5	0.1	6.4	205.5	167.4	25.8	12.3	—	Pebs 80% V/S 20% Gr	unsorted gray with clay.	"

OVERBURDEN DRILLING MANAGEMENT LIMITED

LABORATORY S. MPLE LOG

Sample Number	Weight (kg. wet)			Weight (grams dry)				Grains	Description		Classification
	Table Split	+10 Rock Chips	-10 Table Feed	Table Conc	M.I. Lights	Non-mag	Mag	V.G.	+10	Matrix	
MH-83 74-01	7.7	0.2	7.5	213.3	176.0	25.5	11.8	—	Pebs 80% VfS 20% Gr.	unsorted gray with clay	TILL
-02	7.8	0.2	7.6	205.7	121.4	55.2	29.1	*	Pebs 70% VfS 30% Gr.	"	"
-03	7.7	0.1	7.6	188.6	81.1	47.5	60.0	*	Gran. 90% VfS 10% Gr.	"	"
75-01	7.4	0.1	7.3	206.1	159.6	36.5	10.0	*	Pebs 90% VfS 10% Vf	"	"
76-01	3.5	<0.1	3.5	100.8	80.3	13.9	6.6	—	Pebs VfS & Gr.	unsorted gray beige with clay	"
77-01	6.5	<0.1	6.5	125.0	89.6	25.0	10.4	*	"	unsorted beige with clay	"
-02	6.9	<0.1	6.9	179.7	139.3	27.0	13.4	*	"	unsorted with clay	"
-03	6.1	0.1	6.0	226.4	183.4	31.0	12.0	Ir 100x250	Pebs 75% VfS 25% Gr.	unsorted gray beige with clay	"
78-01	5.7	0.2	5.5	190.6	126.1	42.3	22.2	*	Pebs 95% VfS 5% Gr.	unsorted gray with clay	"
-02	9.7	0.9	8.8	230.4	153.5	48.1	28.8	Ir 100x 250	Pebs 85% VfS 15% Gr.	"	"
-03	5.5	0.1	5.4	178.9	141.4	23.7	13.8	—	"	"	"
79-01	2.7	0.2	2.5	83.2	72.9	7.7	2.6	—	Pebs 95% VfS 5% Gr.	"	"
80-01	5.1	0.5	4.6	142.8	119.9	16.2	6.7	*	Pebs 85% VfS 15% Gr.	"	"
82-01	6.0	0.2	5.8	155.8	114.4	24.4	17.0	—	"	"	"
83-01	4.6	0.2	4.4	160.3	137.8	16.8	5.7	—	"	"	"
84-01	5.9	0.2	5.7	220.1	194.8	17.8	7.5	*	Pebs 70% VfS 30% Gr.	unsorted gray beige with clay	"
86-01	6.4	<0.1	6.4	222.7	174.7	36.5	11.5	*	Pebs VfS & Gr.	"	"
TR-83-01	4.4	1.3	3.1	102.9	92.3	8.7	1.9	—	Pebs 45% VfS 55% Gr.	unsorted beige with clay	"
TR-83-03	3.2	1.0	2.2	92.4	83.8	6.7	1.9	—	Cobs 60% VfS 40% Gr.	"	TILL

SAMPLE No.	SIEVE FRACTION (μ)	NON-MAGNETIC HEAVY MINERAL FRACTION (>3.3 S.G.)															MAGNETIC FRACTION		ROUNDING	SORTING	colourless minerals %	REMARKS
		MAJOR MINERALS & OXIDES %						SULPHIDES %				ACCESSORIES %							P = POOR M = MODERATE G = GOOD			
		GARNET	PYROXENE	EPIDOTE	AMPHIBOLE	HEMATITE	ILMENITE	PYRITE	CHALCOPYRITE	ARSENOPYRITE	MOLYBDENITE	RUTILE	SPHENE	STAUROLITE	ZIRCON	RESIDUAL MAGNETITE	Wt. % of TOTAL CONCENTRATE	% PYRRHOTITE				
	1-177																					
MH 83 01-01		18	19	43	1	1	5		2				1			7	22	NIL	P	M	3	
02-02		14	13	46			10	1	1				1		2	2	42	NIL	P	M	11	
03-01		16	20	42			11	2							1	5	25	<1	P	P	4	
04-01		17	19	37			5	6							1	5	20	NIL	P	P	9	
04-02		22	12	36			10	7							2	5	19	NIL	P	P	5	
04-03		15	18	45			4	5					1		4	4	29	NIL	P	P	5	
04-04		17	24	33			9	3							2	5	23	NIL	P	M	6	trace orthopyroxene
05-01		14	21	44			5	6							1	3	23	NIL	P	P	5	
05-02		18	28	42			4	3							1	2	20	NIL	P	P	3	
05-03		14	24	44			6	3	1				2		2	3	23	NIL	P	P	2	
05-04		14	18	36			7	9					1		3	2	21	NIL	M	P	6	
05-05		17	18	47			3	6					2		1	3	20	NIL	M	P	4	
05-06		14	24	51			4	2					1		3	1	23	NIL	M	P		
06-01		17	27	35			7	4							1	4	22	NIL	M	P	5	
06 02		19	15	41	1		5	9							1	4	25	NIL	M	P	5	

SAMPLE No.	SIEVE FRACTION (μ)	NON-MAGNETIC HEAVY MINERAL FRACTION (>3.3 S.G.)															MAGNETIC FRACTION		ROUNDING	SORTING	REMARKS
		MAJOR MINERALS & OXIDES %						SULPHIDES %				ACCESSORIES %					Wt. % of TOTAL CONCENTRATE	% PYRRHOTITE	P = POOR M = MODERATE G = GOOD		
		GARNET	PYROXENE	EPIDOTE	AMPHIBOLE	HEMATITE	ILMENITE	PYRITE	CHALCOPYRITE	ARSENOPYRITE	MOLYBDENITE	RUTILE	SPHENE	[illegible]	ZIRCON	RESIDUAL MAGNETITE					
	-177μ																				
MH-83 07-01		15	27	43			6	3					1	6	1	3	23	NIL	M	P	
08-01		27	11	39			8	6					1	3	2	3	20	NIL	P	P	
08-02		14	19	50			4	1					1	7	4	3	24	<1	M	P	
08-03		13	20	51			3	2						8	2	3	22	<1	M	P	
08-04		13	27	40			3	3					3	6	2	2	43	NIL	P	P	
09-01		12	22	43			8	5					3	2	1	4	21	NIL	P	P	
09-02		17	19	45			5	4						6	2	2	22	NIL	P	P	
09-03		13	24	48			5	3					2	2	1	2	14	NIL	P	P	
10-01		14	14	56			4	1					4	4		2	18	<1	P	P	
11-01		11	19	55			1	1					4	5	2	3	7	<1	P	M	
12-01		13	23	35			7	5					3	10		4	28	NIL	M	P	
12-02		16	25	33			5	8					1	2	5	4	26	NIL	P	P	
13-01		14	19	38			8	8					3	3	3	3	22	NIL	P	P	
13-02		16	24	36			7	4					5	3	1	4	27	<1	P	P	
13-03		13	23	42			5	4					6	4	2	3	16	NIL	M	M	

SAMPLE No.	SIEVE FRACTION (μ)	NON-MAGNETIC HEAVY MINERAL FRACTION (>3.3 S.G.)															MAGNETIC FRACTION		ROUNDING	SORTING	REMARKS
		MAJOR MINERALS & OXIDES %						SULPHIDES %				ACCESSORIES %					Wt. % of TOTAL CONCENTRATE	% PYRRHOTITE	P = POOR M = MODERATE G = GOOD		
		GARNET	PYROXENE	EPIDOTE	AMPHIBOLE	HEMATITE	ILMENITE	PYRITE	CHALCOPYRITE	ARSENOPYRITE	MOLYBDENITE	RUTILE	SPHENE	LEUCOXENE & ALTERATION PRODUCTS	ZIRCON	RESIDUAL MAGNETITE					
MH - 83	-1170																				
14 - 01		14	27	45			2	4					3	3		3	24	NIL	P	P	
15 - 01		16	21	34			6	7					2	5	5	3	26	<1	P	P	
16 - 01		13	17	44			9	5					3	4	3	3	25	NIL	P	P	
16 - 02		15	19	39			7	8					1	4	4	5	26	NIL	P	P	
17 - 01		12	23	44			8	5						3	1	4	23	<1	P	P	
17 - 02		17	23	40			5	5					3	3	2	3	25	<1	P	P	
17 - 03		16	26	37			4	4					2	4	3	3	18	<1	P	P	
17 - 04		15	19	42			5	4					3	5	3	5	18	<1	P	P	
17 - 05		13	42	37			6						1	7	1	2	18	<1	P	P	
17 - 06		22	19	38			8	4					1	6		2	20	<1	P	P	
17 - 07		16	18	50			4	4	1				2	6	3	3	21	<1	P	P	trace chalcopyrite
18 - 01		21	12	42			6	6					3	5		4	21	NIL	P	P	trace hematite
18 - 02		18	15	50			3	3						6	1	3	16	NIL	P	P	trace chalcopyrite
19 - 01		10	24	48			6	1					2	4	1	4	15	<1	P	P	
20 - 01		15	26	44			2	4					1	4		3	19	NIL	P	P	

SAMPLE No.	SIEVE FRACTION (μ)	NON-MAGNETIC HEAVY MINERAL FRACTION (>3.3 S.G.)															MAGNETIC FRACTION		ROUNDING	SORTING	REMARKS
		MAJOR MINERALS & OXIDES %						SULPHIDES %				ACCESSORIES %					Wt. % of TOTAL CONCENTRATE	% PYRRHOTITE	P = POOR M = MODERATE G = GOOD		
		GARNET	PYROXENE	EPIDOTE	AMPHIBOLE	HEMATITE	ILMENITE	PYRITE	CHALCOPYRITE	ARSENOPYRITE	MOLYBDENITE	RUTILE	SPHENE	colourless vitreous mineral	ZIRCON	RESIDUAL MAGNETITE					
MH - 03	-177μ																				
21 - 01		18	19	50			4	2					1	4		3	18	<1	P	P	
21 - 02		17	20	48			3	3						5		3	22	<1	P	P	
21 - 03		14	14	53			4							6	1	4	16	<1	P	P	
23 - 01		17	25	40			5	5					2	2		5	26	<1	P	P	
23 - 02		15	15	47			3	4					2	6	3	5	35	<1	P	P	
24 - 01		15	21	48			4	3					2	3	2	3	23	Nil	P	P	trace hematite
24 - 02		13	20	52			2	2						6	2	3	21	Nil	P	P	
25 - 01		11	27	47			4	4					1	4		4	23	<1	P	P	trace chalcopyrite
26 - 01		16	19	43			4	4					3	4	2	4	21	<1	P	P	
26 - 02		14	22	48			3	4						3	2	3	25	<1	P	P	
26 - 03		18	16	49			5	3						7		2	21		P	P	
26 - 04		11	36	37			5	3						2	1	6	32		P	P	
26 - 05		16	30	41			5							2	2	4	27		P	P	
26 - 06		17	35	38			2	2						2	1	3	25	<1	P	P	
26 - 07		11	36	33			2	5	1				1	4	1	6	21	<1	P	P	

SAMPLE No.	SIEVE FRACTION (μ)	NON-MAGNETIC HEAVY MINERAL FRACTION (>3.3 S.G.)															MAGNETIC FRACTION		ROUNDING	SORTING	REMARKS
		MAJOR MINERALS & OXIDES %						SULPHIDES %				ACCESSORIES %					Wt. % of TOTAL CONCENTRATE	% PYRRHOTITE	P = POOR M = MODERATE G = GOOD		
		GARNET	PYROXENE	EPIDOTE	AMPHIBOLE	HEMATITE	ILMENITE	PYRITE	CHALCOPYRITE	ARSENOPYRITE	MOLYBDENITE	RUTILE	SPHENE	[illegible]	ZIRCON	RESIDUAL MAGNETITE					
MH 83	-177μ																				
-27-01		15	21	43			6	7						6		3	21	NIL	P	P	trace molybdenite
-27-02		11	34	35			5	2					1	5	3	3	19	NIL	M	P	
27-03		22	24	37			4	4						4	2	2	19	NIL	M	P	
27-04		13	18	53			5	4					2	4		2	19	<1	M	P	
27-05		15	26	40			6	3					3	3	3	2	18	<1	M	M	trace chalcopyrite
27-06		13	27	39			6	3					3	2	3	4	21		P	P	
27-07		18	25	41			6	2					2	4		3	15	<1	M	P	
27-08		15	23	45			3	2					2	3	3	4	28		M	P	
27-09		10	31	42			6	2					2	1		5	19	<1	M	P	
28-01		17	23	38			4	9					2	2	1	4	24	<1	M	P	
28-02		14	11	48			7	7					3	2	1	7	21	NIL	M	P	
28-03		9	19	52			3	2					2	4	2	5	23	NIL	M	P	
28-04		14	15	51			5	5					2	5	1	4	22	<1	M	G	
29-01		9	23	51			4	4					3	2	1	3	22	NIL	P	P	
30-01		10	12	56			4	9					2	3	1	3	20	NIL	P	P	

SAMPLE No.	SIEVE FRACTION (μ)	NON-MAGNETIC HEAVY MINERAL FRACTION (>3.3 S.G.)															MAGNETIC FRACTION		ROUNDING	SORTING	REMARKS
		MAJOR MINERALS & OXIDES %						SULPHIDES %				ACCESSORIES %							P = POOR M = MODERATE G = GOOD		
		GARNET	PYROXENE	EPIDOTE	AMPHIBOLE	HEMATITE	ILMENITE	PYRITE	CHALCOPYRITE	ARSENOPYRITE	MOLYBDENITE	RUTILE	SPHENE	carbonates & ferruginous minerals	ZIRCON	RESIDUAL MAGNETITE	Wt. % of TOTAL CONCENTRATE	% PYRRHOTITE			
MH - 83	-177																				
31 - 01		13	24	49			2	5					2	3		3	21	NIL	P	P	trace arsenopyrite
31 - 02		12	18	50			3	4					4	3	1	5	22	<1	P	P	
31 - 03		20	14	45			3	9						1	3	6	25		P	P	
31 - 04		13	13	50			4	5					4	4		6	29		P	M	
31 - 05		10	21	47			4	3					4	2		4	20	<1	P	P	
31 - 06		15	17	48			5	5					3	1	2	5	22	<1	P	P	
32 - 01		6	19	52			6	5					2	4	1	5	21	NIL	P	P	
32 - 02		13	20	46			6	3					3	4		4	21	NIL	P	P	trace arsenopyrite
32 - 03		12	19	47	1		3	5					2	6	1	4	20	NIL	P	M	
32 - 04		10	26	44			3	5					2	4	2	5	22	<1	P	P	
32 - 05		12	28	23			6	6					3	6	1	15	28	<1	P	P	
33 - 01		18	18	43		1	4	4	2				4	3		5	24	NIL	P	M	
34 - 01		10	20	58			3	1					3	1	1	4	23	NIL	P	M	
35 - 01		14	20	50			3	2	1				2	2	1	6	31	<1	P	P	
36 - 01		14	16	50			5	2					3	4	1	5	23	NIL	M	P	trace cobaltite arsenopyrite

SAMPLE No.	SIEVE FRACTION (μ)	NON-MAGNETIC HEAVY MINERAL FRACTION (>3.3 S.G.)															MAGNETIC FRACTION		ROUNDING	SORTING	REMARKS
		MAJOR MINERALS & OXIDES %						SULPHIDES %				ACCESSORIES %					Wt. % of TOTAL CONCENTRATE	% PYRRHOTITE	P = POOR M = MODERATE G = GOOD		
		GARNET	PYROXENE	EPIDOTE	AMPHIBOLE	HEMATITE	ILMENITE	PYRITE	CHALCOPYRITE	ARSENOPYRITE	MOLYBDENITE	RUTILE	SPHENE	Colourless anisotropic mineral	ZIRCON	RESIDUAL MAGNETITE					
MH-83	-177μ																				
37-01		12	30	41			2	2					4	2	2	4	26	NIL	P	P	
37-02		14	21	44			4	6					3	3	1	4	27	NIL	P	P	
38-01		10	30	50				6					6	1	1	8	27	1	P	P	
39-01		16	22	45			6	3					1	2	1	4	26	<1	P	M	
39-02		14	17	52			6	4					2	3	3	6	20	1	P	M	
39-03		14	27	44			4	2					2	2	1	5	21		P	P	
39-04		13	21	52			3	1					2		3	5	17	<1	P	P	
39-05		17	23	43			3	2					4	1	1	5	18	1	P	P	
39-06		11	36	40			2	2					4	1		4	18	<1	P	P	
40-01		14	22	48				6	1				1	4	1	4	25	NIL	P	P	
41-01		17	27	39			1	5					2	3		7	24	NIL	P	P	
42-01		4	22	41			2	12					6	4		6	26	NIL	P	P	
42-02		8	22	54			5	2					2		1	6	23		P	P	
42-03		6	31	43			1	3					8	3	1	4	16	<1	P	P	
42-04		8	38	38			2	2					5	2	2	4	17		P	P	

SAMPLE No.	SIEVE FRACTION (μ)	NON-MAGNETIC HEAVY MINERAL FRACTION (>3.3 S.G.)															MAGNETIC FRACTION		ROUNDING	SORTING	REMARKS
		MAJOR MINERALS & OXIDES %						SULPHIDES %				ACCESSORIES %							P = POOR M = MODERATE G = GOOD		
		GARNET	PYROXENE	EPIDOTE	AMPHIBOLE	HEMATITE	ILMENITE	PYRITE	CHALCOPYRITE	ARSENOPYRITE	MOLYBDENITE	RUTILE	SPHENE	colourless viterous material	ZIRCON	RESIDUAL MAGNETITE	WT. % of TOTAL CONCENTRATE	% PYRRHOTITE			
MH-83	-177μ																				
42-05		4	33	40		1	2	3		1			3	2	1	6	19		P	P	
42-06		7	35	35			1	3					12	1	2	4	30	NIL	P	M	chalcopyrite trace arsenopyrite
43-01		17	17	52			3	4					2		1	4	26	NIL	P	P	
44-01		16	22	40			2	7	1				5	3	1	5	24	<1	P	P	
44-02		13	24	42			3	4	1				2	5	1	4	23	NIL	P	P	
45-01		15	14	53	1		4	2					4	2	1	4	24	NIL	M	M	
46-01		23	16	47			5	1						4	2	4	28	NIL	M	M	
46-02		11	19	52			3	4					3	4		5	22	NIL	P	P	
47-01		17	8	59			5						1	5		6	21	NIL	M	M	
48-01		16	11	55			3	5					1	3		6	29	<1	P	P	
48-02		14	16	46			4	6					4	2	2	6	27	NIL	P	P	
49-01		17	11	44			5	8					3	3	2	7	24	NIL	P	P	
49-02		17	13	51			4	5					2	2	1	6	22	<1	P	P	trace hematite
50-01		11	19	49			5	7							2	6	25	<1	P	P	
50-02		14	18	39			5	9					8	1		6	27		P	P	

SAMPLE No.	SIEVE FRACTION (μ)	NON-MAGNETIC HEAVY MINERAL FRACTION (>3.3 S.G.)															MAGNETIC FRACTION		ROUNDING	SORTING	REMARKS
		MAJOR MINERALS & OXIDES %						SULPHIDES %				ACCESSORIES %							P = POOR M = MODERATE G = GOOD		
		GARNET	PYROXENE	EPIDOTE	AMPHIBOLE	HEMATITE	ILMENITE	PYRITE	CHALCOPYRITE	ARSENOPYRITE	MOLYBDENITE	RUTILE	SPHENE	colourless vitreous mineral	ZIRCON	RESIDUAL MAGNETITE	Wt. % of TOTAL CONCENTRATE	% PYRRHOTITE			
MH-83	-177μ																				
51-01		11	15	48			5	8					3	2	4	4	21	NIL	P	P	
52-01		15	7	53			2	11					4	4		4	24	NIL	P	P	
53-01		8	14	58			3	5	1				2	2	1	6	20	NIL	P	P	
54-01		16	20	49			4	4					2	1		3	23	<1	P	P	trace hematite
54-02		15	25	42			3	5					1	3	2	4	23	NIL	P	M	
55-01		15	17	49			4	3					6	2	1	3	21	NIL	M	G	
56-01		10	22	53			3	1					5	3	1	3	32	<1	P	P	
57-01		16	15	45			5	5					4	5	2	4	25	NIL	P	P	
58-01		11	15	51			1	6					4	5		7	23	<1	P	P	
59-01		12	26	48			4						6	1	1	3	32		P	M	
59-02		15	17	53			2	1					2	2	3	4	26	<1	M	M	
60-01		15	20	50			2						4	4	1	4	33	NIL	P	P	
60-02		17	18	49			3						1	5	2	5	43	NIL	P	M	
61-01		12	20	51			3	4					2	4		4	36	<1	P	P	chalcopyrite cobaltite
62-01		14	16	46			5	4					2	7	1	6	37	NIL	P	P	trace arsenopyrite

SAMPLE No.	SIEVE FRACTION (μ)	NON-MAGNETIC HEAVY MINERAL FRACTION (>3.3 S.G.)															MAGNETIC FRACTION		ROUNDING	SORTING	REMARKS
		MAJOR MINERALS & OXIDES %						SULPHIDES %				ACCESSORIES %					Wt. % of TOTAL CONCENTRATE	% PYRRHOTITE	P = POOR M = MODERATE G = GOOD		
		GARNET	PYROXENE	EPIDOTE	AMPHIBOLE	HEMATITE	ILMENITE	PYRITE	CHALCOPYRITE	ARSENOPYRITE	MOLYBDENITE	RUTILE	SPHENE	carbonates & other non-magnetic minerals	ZIRCON	RESIDUAL MAGNETITE					
MH-93	-177μ																				
62-02		16	11	55			3	3					1	2	1	8	21	NIL	P	P	
63-01		15	21	48			2	4					3	2		5	29	<1	P	P	
63-02		14	23	48			3	3					2	2	1	6	26	NIL	P	P	
63-03		10	22	48			5	5					2	4	2	3	24	<1	P	P	
63-04		13	18	46			2	7					3	4	1	6	21	NIL	P	P	
63-05		13	25	44			2	4					1	5	1	5	26	<1	P	P	trace hematite
63-06		12	25	48			4	4					1	2		4	19	<1	P	P	
64-01		16	19	50			2	5					1	2	1	5	27	NIL	M	P	trace arsenopyrite. trace hematite
64-02		19	17	45			5	6					3	3	1	4	26	<1	P	P	
65-01		11	21	53			5	3					2	2	1	4	29		P	P	
65-02		14	17	50			3	4					6	1		6	28		P	P	
66-01		13	16	57				4					3	4	1	2	25	NIL	P	M	
67-01		14	15	45	2		4	9					5	1	1	4	26	NIL	M	P	
67-02		16	16	42	2		5	6					5	2	4	2	32	<1	P	P	
68-01		7	31	45			2	5					3	2	1	4	23	NIL	P	P	trace arsenopyrite

SAMPLE No.	SIEVE FRACTION (μ)	NON-MAGNETIC HEAVY MINERAL FRACTION (>3.3 S.G.)															MAGNETIC FRACTION		ROUNDING	SORTING	REMARKS
		MAJOR MINERALS & OXIDES %						SULPHIDES %				ACCESSORIES %							P = POOR M = MODERATE G = GOOD		
		GARNET	PYROXENE	EPIDOTE	AMPHIBOLE	HEMATITE	ILMENITE	PYRITE	CHALCOPYRITE	ARSENOPYRITE	MOLYBDENITE	RUTILE	SPHENE	colourless tetragonal mineral	ZIRCON	RESIDUAL MAGNETITE	Wt. % of TOTAL CONCENTRATE	% PYRRHOTITE			
MH-63	.177°																				
-68-02		15	15	54			2	7	1				2			4	27	NIL	P	M	
69-01		6	18	59			2	3					2	7	1	3	29	NIL	P	M	trace arsenopyrite
69-02		8	33	76			3	3					3	2		3	16	NIL	P	G	
70-01		13	10	56			6	6					3	2		4	32	NIL	P	P	trace hematite
70-02		9	23	52			2	7					5			3	32	NIL	P	P	trace hematite
70-03		16	9	53			3	6					1	5	4	3	28	NIL	P	P	
70-04		14	27	44			3	7					2	3	1	1	27	NIL	P	P	trace cobaltite arsenopyrite
70-05		19	19	44			1	10					2	2	3	1/2	30	<1	P	P	trace hematite
70-06		10	23	56			4	3						3		3	24	NIL	M	P	
70-07		14	24	48			3	4					3	1		3	22	NIL	P	P	trace hematite
70-08		10	32	43			2	6						4	1	2	20	NIL	P	P	
70-09		11	22	51			3	7					2	2		3	25		P	P	hematite cobaltite trace arsenopyrite
73-01		19	16	49			2	9						2	1	3	32	NIL	M	P	
74-01		16	24	41			4	8					4	2		2	32	NIL	P	P	
74-02		16	21	40			3	12					1	3	1	2	35	<1	P	P	

SAMPLE No.	SIEVE FRACTION (μ)	NON-MAGNETIC HEAVY MINERAL FRACTION (>3.3 S.G.)															MAGNETIC FRACTION		ROUNDING	SORTING	REMARKS
		MAJOR MINERALS & OXIDES %						SULPHIDES %				ACCESSORIES %					Wt. % of TOTAL CONCENTRATE	% PYRRHOTITE	P = POOR M = MODERATE G = GOOD		
		GARNET	PYROXENE	EPIDOTE	AMPHIBOLE	HEMATITE	ILMENITE	PYRITE	CHALCOPYRITE	ARSENOPYRITE	MOLYBDENITE	RUTILE	SPHENE	colourless uniaxial mineral	ZIRCON	RESIDUAL MAGNETITE					
MH-93	177μ																				
77-03		11	17	48			3	14						3	2	3	56	<1	P	P	
75-01		4	20	48			4	10						6		3	22	<1	P	P	trace arsenopyrite cobaltite
76-01		11	17	55		1	3	5						3	1	3	32	NIL	P	M	trace hematite
72-01		15	12	61			4						1	2	3	2	29	NIL	P	G	
72-02		11	13	61			6	1					3	2		3	33	NIL	P	G	native copper
77-03		14	27	43		1	2	4						4	2	3	28		P	P	
78-01		9	19	50			3	9					2	3	1	4	34	<1	M	P	
78-02		12	17	47		1	5	13					2	2	2	2	37	<1	P	P	
78-03		12	16	55			1	6					1	5		4	37		P	P	
79-01		14	19	48			1	5					2	7	1	<1	25	NIL	P	P	trace hematite
80-01		10	24	39			8	4					2	3	2	4	29	NIL	M	M	
82-01		12	13	50			3	12					3	4		3	41	NIL	P	P	
83-01		11	22	43			4	9					3	3	2	3	25	NIL	P	P	trace molybdenite
84-01		19	14	45			5	7					2	4	1	3	30	NIL	P	P	trace hematite
86-01		9	27	48			4	3					1	4	1	3	24	NIL	P	M	

SAMPLE No.	SIEVE FRACTION (μ)	NON-MAGNETIC HEAVY MINERAL FRACTION (>3.3 S.G.)															MAGNETIC FRACTION		ROUNDING	SORTING	REMARKS
		MAJOR MINERALS & OXIDES %						SULPHIDES %				ACCESSORIES %					Wt. % of TOTAL CONCENTRATE	% PYRRHOTITE	P = POOR M = MODERATE G = GOOD		
		GARNET	PYROXENE	EPIDOTE	AMPHIBOLE	HEMATITE	ILMENITE	PYRITE	CHALCOPYRITE	ARSENOPYRITE	MOLYBDENITE	RUTILE	SPHENE	[illegible]	ZIRCON	RESIDUAL MAGNETITE					
MH - 83																					
C - 01		7	24	52			4	5					2	4	1	3		<1	P	P	
C - 05		12	31	42			2	5					2	2	2	2			P	P	
C - 06		12	25	50			3	6					2			2			M	M	
C - 44 - 02		13	23	45			2	8					2	2	2	2		NIL	P	P	1 arsenopyrite - trace
C - 50 - 07		7	22	49			2	4					8			3		NIL	P	P	
C - 62 - 01		14	16	30			3	8					2	1	4	4		NIL	P	P	trace hematite
C - 65 - 04		12	19	47			3	10					3	3	1	3		<1	P	P	trace hematite
C - 66 - 04		16	13	52			4	3					3	3	4	2		NIL	P	P	
C - 70 - 09		13	18	54			1	6					3	1	2	3		NIL	P	P	1 graphite - trace

SAMPLE No. T	SIEVE FRACTION (μ)	NON-MAGNETIC HEAVY MINERAL FRACTION (>3.3 S.G.)															MAGNETIC FRACTION		ROUNDING	SORTING		REMARKS
		MAJOR MINERALS & OXIDES %						SULPHIDES %				ACCESSORIES %							P = POOR M = MODERATE G = GOOD			
		GARNET	PYROXENE	EPIDOTE	AMPHIBOLE	HEMATITE	ILMENITE	PYRITE	CHALCOPYRITE	ARSENOPYRITE	MOLYBDENITE	RUTILE	SPHENE		ZIRCON	RESIDUAL MAGNETITE	Wt. % of TOTAL CONCENTRATE	% PYRRHOTITE				
TR-83	-177μ																					
-01		17	18	55			2	∓					7		1	3	18	Nil	P	M	2	
-03		12	17	58			3	2					3		1	1	22	Nil	P	M	2	

APPENDIX D

GEOCHEMICAL ANALYSES OF

NON-MAGNETIC CONCENTRATES

Bondar-Clegg & Company Ltd.
764 Belfast Road
Ottawa, Ontario
Canada K1G 0Z5
Phone: (613) 237-3110
Telex: 053-4455

BONDAR-CLEGG

Geochemical Lab Report

RE ORT: 014-0040

FROM: MALARTIC HYGRADE GOLD MINES (CANADA) LTD. SUBMITTED BY: OVERBURDEN
DATE: 10-JAN-84 PROJECT:

OR ER	ELEMENT	LOWER DETECTION LIMIT	EXTRACTION	METHOD	SIZE FRACTION	SAMPLE TYPE	SAMPLE PREPARATION
01	Au	5 PPB	AQUA REGIA	Fire Assay AA	-200	HEAVY MINERAL CONC.	PULVERIZE -200

REPORT COPIES TO: C.P. 999
DERRY, MICHENER & BOOTH

INVOICE TO: C.P. 999

REMARKS: ALL SAMPLES ARE SUFFIXED BY 3/4H
> MEANS GREATER THAN
SAMPLE NOS. MH-83-29-01 AND MH-83-43-01 WERE ANALYSED IN DUPLICATE. THE AU VALUES IN PPB FOR THESE SAMPLES ARE 280 AND 530, & 1290 AND 325 RESPECTIVELY.

DETECTION LIMITS FOR GOLD
10 gram sample: 5 ppb.
5 gram sample: 10 ppb.
1 gram sample: 50 ppb.

Sample Wt. 10 g. unless otherwise stated.

NOTE:
Check concentration/sample weight ratio for effective detection level.

...mpany Ltd.
al
ario
-3 0Z5
(13) 237-3110
53-4455

BONDAR-CLEGG

Geochemical Lab Report

REPORT: 013-3780 | PROJECT: | PAGE 1

SAMPLE NUMBER	ELEMENT UNITS	Au PPB	wt/Au gm	-10mesh Feed gms		Au µg/kg	NOTES Au+6 µg/kg	SAMPLE NUMBER	ELEMENT UNITS	Au PPB	wt/Au gm	-10mesh Feed gms	Conc wt. gms	Au µg/kg
MH-83-01-01-3/4		<25	2.11	700	3.6	0.12		MH-83-17-07-3/4		375		6200	31.0	1.9
MH-83-02-02-3/4		45	4.98	900	7.6	0.40		MH-83-18-01-3/4		50		5800	36.3	0.31
MH-83-03-01-3/4		260		7200	35.6	1.3		MH-83-18-02-3/4		400		1320	9.8	3.0
MH-83-04-01-3/4		110		5200	33.1	0.70		MH-83-19-01-3/4		1540	8.89	7100	12.7	9.3
MH-83-04-02-3/4		445		7100	45.0	2.8	✓27	MH-83-20-01-3/4		215		4300	28.6	1.4
MH-83-04-03-3/4		35		5700	31.2	0.19		MH-83-21-01-3/4		785		5200	28.3	4.3
MH-83-04-04-3/4		160		4100	26.8	1.0		MH-83-21-02-3/4		110		6800	29.1	0.44
MH-83-05-01-3/4		125		5100	29.8	0.73	2.2	MH-83-21-03-3/4		45	5.10	1100	8.1	0.33
MH-83-05-02-3/4		80		5100	33.8	0.53	(34)	MH-83-23-01-3/4		35		6600	39.2	0.18
MH-83-05-03-3/4		290		6000	32.6	1.6		MH-83-23-02-3/4		2090		5700	15.9	5.8
MH-83-05-04-3/4		50		6800	27.4	0.20		MH-83-24-01-3/4		635		5800	30.2	3.3
MH-83-05-05-3/4		85		6800	39.5	0.47		MH-83-24-02-3/4		1320		3100	18.3	7.8
MH-83-05-06-3/4		400		5900	38.4	2.6		MH-83-25-01-3/4		150	9.67	2500	13.2	0.79
MH-83-06-01-3/4		765		8300	24.7	2.3		MH-83-26-01-3/4		415		5600	29.8	2.1
MH-83-06-02-3/4		765		6300	32.7	4.0		MH-83-26-02-3/4		930		5200	26.1	4.0
MH-83-07-01-3/4		800	8.32	3800	12.0	2.7		MH-83-26-03-3/4		3480		5000	19.9	
MH-83-08-01-3/4		785		7800	37.0	3.7		MH-83-26-04-3/4		515		5000	22.4	2.3
MH-83-08-02-3/4		55		8000	43.3	0.30		MH-83-26-05-3/4		660		5100	16.1	2.1
MH-83-08-03-3/4		135		7500	42.5	0.76		MH-83-26-06-3/4		135		4100	16.5	0.54
MH-83-08-04-3/4		40		2800	16.0	0.23		MH-83-26-07-3/4		830		4200	22.4	4.4
MH-83-09-01-3/4		160		6300	39.4	1.0	2.2	MH-83-27-01-3/4		195		4400	19.4	0.86
MH-83-09-02-3/4		735		5600	31.5	4.1		MH-83-27-02-3/4		1865		4800	21.1	8.2
MH-83-09-03-3/4		130		1200	17.1	1.8		MH-83-27-03-3/4		100		4900	24.0	0.55
MH-83-10-01-3/4		45		2100	17.2	0.37		MH-83-C-05		970		2300	12.0	5.1
MH-83-11-01-3/4		245	3.19	1000	5.4	1.3		MH-83-C-06		400		3300	13.0	1.6
MH-83-12-01-3/4		2230		7000	30.7	9.8	(25)	C-01-3/4		380		7100	39.5	1.8
MH-83-12-02-3/4		1040		5700	26.4	4.8								
MH-83-13-01-3/4		110		5000	24.1	0.53								
MH-83-13-02-3/4		145		6500	28.1	0.83								
MH-83-13-03-3/4		190	2.31	900	3.7	0.98								
MH-83-14-01-3/4		180		4700	20.8	0.80								
MH-83-15-01-3/4		460		7900	32.2	1.9								
MH-83-16-01-3/4		395		6400	24.6	1.5								
MH-83-16-02-3/4		370		6800	29.9	1.6								
MH-83-17-01-3/4		1680		7200	31.9	7.4								
MH-83-17-02-3/4		1140		6000	27.4	5.2								
MH-83-17-03-3/4		190		4300	16.5	0.73								
MH-83-17-04-3/4		30		3100	21.7	0.21								
MH-83-17-05-3/4		90		6000	54.2	0.81								
MH-83-17-06-3/4		390		5900	30.6	2.0								

...ompany Ltd.
...d
...ario
...G 0Z5
...(13) 237-3110
...53-4455

BONDAR-CLEGG

Geochemical Lab Report

REPORT: 014-0040 | PROJECT: | PAGE 1

SAMPLE NUMBER	ELEMENT UNITS	Au PPB	wt/Au GM	-10 mesh Feed gms	Conc. Wt. gms	Au µg/kg	NOTES Au-VG. µg/kg
MH-83-27-04		700		4100	21.4	3.6	
MH-83-27-05		115		4800	23.9	0.57	
MH-83-27-06		300		5800	25.2	1.3	
MH-83-27-07		210		4200	15.8	0.79	
MH-83-27-08		280		4100	17.5	1.2	
MH-83-27-09		320		4200	19.7	1.5	
MH-83-28-01		550		6300	24.2	2.1	
MH-83-28-02		[illegible]		5000	27.2	[illegible]	22
MH-83-28-03		245		5000	15.8	0.77	
MH-83-28-04		190		4900	20.7	0.80	
MH-83-29-01		280		4800	33.0	1.9	
MH-83-30-01		625		5900	35.9	3.8	
MH-83-31-01		730		4500	52.2	8.5	
MH-83-31-02		455		4100	34.7	3.8	
MH-83-31-03		[illegible]		5100	32.2	[illegible]	2.2
MH-83-31-04		1020		6700	33.7	5.1	
MH-83-31-05		620		5100	22.1	2.7	
MH-83-31-06		265		5300	22.8	1.1	
MH-83-32-01		635		4600	33.6	4.6	
MH-83-32-02		[illegible]		5300	35.9	[illegible]	4.4
MH-83-32-03		320		6200	25.5	1.3	0.23
MH-83-32-04		130		5700	26.6	0.61	
MH-83-32-05		2500	4.55	4800	7.6	4.0	2.4
MH-83-33-01		500		6600	28.6	2.3	
MH-83-34-01		35	8.25	2900	12.7	0.15	
MH-83-35-01		300		5100	22.7	1.3	
MH-83-36-01		[illegible]		4900	21.6	[illegible]	30
MH-83-37-01		845		6800	31.9	4.0	
MH-83-37-02		695		5400	24.6	2.8	
MH-83-38-01		1130	2.70	1500	4.7	3.5	
MH-83-39-01		700	8.35	5600	20.5	2.6	
MH-83-39-02		150		4500	13.2	0.49	
MH-83-39-03		80		4700	20.8	0.35	
MH-83-39-04		130		4300	18.7	0.56	
MH-83-39-05		195		5500	18.6	1.0	
MH-83-39-06		330		5000	25.8	1.7	
MH-83-40-01		1270		4900	27.3	7.1	
MH-83-41-01		1540		5000	23.2	7.1	3.4
MH-83-41-02		1070		4600	15.2	3.5	
MH-83-42-02		250		3800	12.9	0.85	

SAMPLE NUMBER	ELEMENT UNITS	Au PPB	wt/Au GM	-10 mesh Feed gms	Conc. Wt. gms	Au µg/kg	NOTES Au
MH-83-42-03		110		5400	25.2	0.51	
MH-83-42-04		205		3300	17.8	1.1	
MH-83-42-05		190		4500	25.7	1.2	
MH-83-42-06		410		1800	9.9	2.0	
MH-83-43-01		1290		4300	22.7	6.8	
MH-83-44-01		725		4500	30.6	4.9	
MH-83-44-02		1740		3400	23.1	[illegible]	
MH-83-45-01		1500	8.55	2500	13.1	7.9	
MH-83-46-01		110		4800	21.3	0.49	
MH-83-46-02		315		4800	25.3	1.7	
MH-83-47-01		200	9.69	2200	13.7	1.2	
MH-83-48-01		730		4900	20.6	3.1	
MH-83-48-02		2330		4500	16.0	8.5	
MH-83-49-01		[illegible]		4800	23.2	[illegible]	
MH-83-49-02		545		5000	28.2	3.1	
MH-83-50-01		1240		4900	20.6	5.4	
MH-83-50-02		2000		4600	25.4	[illegible]	
MH-83-C-50-07		1290		3900	28.1	9.3	
MH-83-51-01		400		4700	34.2	2.6	
MH-83-52-01		730	9.04	2500	13.2	3.8	
MH-83-53-01		270		5000	23.4	1.8	
MH-83-54-01		1250		5100	23.8	5.8	
MH-83-54-02		495		4900	26.5	2.7	
MH-83-55-01		1730		3200	16.9	9.1	
MH-83-56-01		545		5300	18.5	1.9	
MH-83-57-01		720		5200	27.3	3.8	
MH-83-58-01		180		5300	27.0	0.92	
MH-83-59-01		2440		4100	16.1	[illegible]	
MH-83-59-02		765		4400	21.3	3.7	
MH-83-60-01		[illegible]		4500	14.9	[illegible]	
MH-83-60-02		1920	7.60	3000	10.7	6.8	
MH-83-61-01		1440	9.13	3600	13.0	5.2	
MH-83-C-62-01		1940		4700	21.1	8.7	
MH-83-62-01		1880		5100	19.8	12.	
MH-83-62-02		1500	3.68	2700	5.6	3.0	
MH-83-63-01		2150		5700	23.9	9.0	
MH-83-63-02		1190		2200	24.6	13	
MH-83-63-03		360		4900	17.9	1.3	
MH-83-63-04		[illegible]		5100	16.2	(22)	
MH-83-63-05		1220		6700	20.7	3.8	

Bondar-Clegg & Company Ltd.
764 Belfast Road
Ottawa, Ontario
Canada K1G 0Z5
Phone: (613) 237-3110
Telex: 053-4455

BONDAR-CLEGG

Geochemical
Lab Report

RE REPORT: 014-0040 | PROJECT: | PAGE 2

SAMPLE NUMBER	ELEMENT UNITS	Au PPB	wt/Au GM	NOTES	SAMPLE NUMBER	ELEMENT UNITS	Au PPB	wt/Au GM	NOTE
MH-83-63-06		580			MH-83-84-01		710		
MH-83-64-01		3180			MH-83-86-01		145		
MH-83-64-02		925			TR-83-01		125	6.09	
MH-83-65-01		10455			TR-83-03		260	4.61	
MH-83-65-02		> 15000							
MH-83-C-65-04		2465							
MH-83-66-01		250							
MH-83-67-01		1425							
MH-83-67-02		640							
MH-83-68-01		485							
MH-83-68-02		370							
MH-83-C-68-09		425							
MH-83-69-01		2900							
MH-83-69-02		645							
MH-83-70-01		2330							
MH-83-70-02		1240							
MH-83-70-03		3180							
MH-83-70-04		910							
MH-83-70-05		305							
MH-83-70-06		935							
MH-83-70-07		845							
MH-83-70-08		400							
MH-83-70-09		790							
MH-83-C-70-09		3500							
MH-83-73-01		695							
MH-83-74-01		665							
MH-83-74-02		3360							
MH-83-74-03		1780							
MH-83-75-01		1030							
MH-83-76-01		1050							
MH-83-77-01		1265							
MH-83-77-02		2050							
MH-83-77-03		2225							
MH-83-78-01		2380							
MH-83-78-02		1310							
MH-83-78-03		710							
MH-83-79-01		5200	5.33						
MH-83-80-01		2970							
MH-83-82-01		1670							
MH-83-83-01		1610							

Bondar-Clegg & Company Ltd.
764 Belfast Road
Ottawa, Ontario
Canada K1G 0Z5
Phone: (613) 237-3110
Telex: 053-4455

BONDAR-CLEGG

Geochemical Lab Report

REPORT: 013-3780 | PROJECT: | PAGE 1

SAMPLE NUMBER	ELEMENT UNITS	Au PPB	wt/Au gm	NOTES	SAMPLE NUMBER	ELEMENT UNITS	Au PPB	wt/Au gm	NO
MH-83-01-01-3/4		<25	2.11		MH-83-17-07-3/4		375		
-83-02-02-3/4		45	4.98		MH-83-18-01-3/4		50		
MH-83-03-01-3/4		260			MH-83-18-02-3/4		400		
MH-83-04-01-3/4		110			MH-83-19-01-3/4		1540	8.89	
-83-04-02-3/4		445			MH-83-20-01-3/4		215		
MH-83-04-03-3/4		35			MH-83-21-01-3/4		785		
-83-04-04-3/4		160			MH-83-21-02-3/4		110		
-83-05-01-3/4		125			MH-83-21-03-3/4		45	5.10	
MH-83-05-02-3/4		80			MH-83-23-01-3/4		35		
MH-83-05-03-3/4		290			MH-83-23-02-3/4		2090		
-83-05-04-3/4		50			MH-83-24-01-3/4		635		
MH-83-05-05-3/4		85			MH-83-24-02-3/4		1320		
-83-05-06-3/4		400			MH-83-25-01-3/4		150	9.67	
-83-06-01-3/4		765			MH-83-26-01-3/4		415		
MH-83-06-02-3/4		765			MH-83-26-02-3/4		930		
07-01-3/4		800	8.32		MH-83-26-03-3/4		3480		
-08-01-3/4		785			MH-83-26-04-3/4		515		
-08-02-3/4		55			MH-83-26-05-3/4		660		
-83-08-03-3/4		135			MH-83-26-06-3/4		135		
-83-08-04-3/4		40			MH-83-26-07-3/4		830		
-83-09-01-3/4		160			MH-83-27-01-3/4		195		
-83-09-02-3/4		735			MH-83-27-02-3/4		1865		
MH-83-09-03-3/4		130			MH-83-27-03-3/4		100		
MH-83-10-01-3/4		45			MH-83-C-05		970		
-83-11-01-3/4		245	3.19		MH-83-C-06		400		
MH-83-12-01-3/4		2230			C-01-3/4		380		
-83-12-02-3/4		1040							
-83-13-01-3/4		110							
MH-83-13-02-3/4		145							
-83-13-03-3/4		190	2.31						
MH-83-14-01-3/4		180							
MH-83-15-01-3/4		460							
-83-16-01-3/4		395							
MH-83-16-02-3/4		370							
MH-83-17-01-3/4		1680							
-83-17-02-3/4		1140							
MH-83-17-03-3/4		190							
-17-04-3/4		30							
-17-05-3/4		90							
MH-83-17-06-3/4		390							

Bondar-Clegg & Company Ltd.
764 Belfast Road
Ottawa, Ontario
Canada K1G 0Z5
Phone: (613) 237-3110
Telex: 053-4455

BONDAR-CLEGG

Geochemical Lab Report

REPORT: 014-0040 | PROJECT: | PAGE 1

SAMPLE NUMBER	ELEMENT UNITS	Au PPB	wt/Au GM	NOTES	SAMPLE NUMBER	ELEMENT UNITS	Au PPB	wt/Au GM	NOTE
MH-83-27-04		700			MH-83-42-03		110		
MH-83-27-05		115			MH-83-42-04		205		
MH-83-27-06		300			MH-83-42-05		190		
MH-83-27-07		210			MH-83-42-06		410		
MH-83-27-08		280			MH-83-43-01		1290		
MH-83-27-09		320			MH-83-44-01		725		
MH-83-28-01		550			MH-83-44-02		1740		
MH-83-28-02		4060			MH-83-45-01		1500	8.55	
MH-83-28-03		245			MH-83-46-01		110		
MH-83-28-04		190			MH-83-46-02		315		
MH-83-29-01		280			MH-83-47-01		200	9.69	
MH-83-30-01		625			MH-83-48-01		730		
MH-83-31-01		730			MH-83-48-02		2330		
MH-83-31-02		455			MH-83-49-01		3000		
MH-83-31-03		7380			MH-83-49-02		545		
MH-83-31-04		1020			MH-83-50-01		1240		
MH-83-31-05		620			MH-83-50-02		2000		
MH-83-31-06		265			MH-83-C-50-07		1290		
MH-83-32-01		635			MH-83-51-01		400		
MH-83-32-02		4190			MH-83-52-01		730	9.04	
MH-83-32-03		320			MH-83-53-01		270		
MH-83-32-04		130			MH-83-54-01		1250		
MH-83-32-05		2500	4.55		MH-83-54-02		495		
MH-83-33-01		500			MH-83-55-01		1730		
MH-83-34-01		35	8.25		MH-83-56-01		545		
MH-83-35-01		300			MH-83-57-01		720		
MH-83-36-01		8740			MH-83-58-01		180		
MH-83-37-01		845			MH-83-59-01		2440		
MH-83-37-02		695			MH-83-59-02		765		
MH-83-38-01		1130	2.70		MH-83-60-01		3270		
MH-83-39-01		700	8.35		MH-83-60-02		1920	7.60	
MH-83-39-02		150			MH-83-61-01		1440	9.13	
MH-83-39-03		80			MH-83-C-62-01		1940		
MH-83-39-04		130			MH-83-62-01		1880		
MH-83-39-05		195			MH-83-62-02		1500	3.68	
MH-83-39-06		330			MH-83-63-01		2150		
MH-83-40-01		1270			MH-83-63-02		1190		
MH-83-41-01		1540			MH-83-63-03		360		
MH-83-42-01		1070			MH-83-63-04		6980		
MH-83-42-02		250			MH-83-63-05		1220		

Company Ltd.
...ad
...ario
...IG 0Z5
613) 237-3110
053-4455

BONDAR-CLEGG

Geochemical Lab Report

ORT: 014-0040

PROJECT:

SAMPLE NUMBER	ELEMENT UNITS	Au PPB	wt/Au GM	-10mesh Feed gms	Conc. wt. gms	Au µg/kg	NOTES Au-VG µg/kg
MH-83-63-06		580		4200	17.5	2.4	
M 83-64-01		3180		5300	27.5	16	~ 26
M 83-64-02		925		5300	33.4	5.8	
MH-83-65-01		10455		4800	22.5	49	~ 27
MH-83-65-02		> 15000		6400	30.7	>72	~ 4.2
MH-83-C-65-04		2465		5500	30.4	77	
MH-83-66-01		250		5600	29.0	1.3	
M 83-67-01		1425		6000	30.5	7.2	
M 83-67-02		640		6500	24.8	2.4	~ 4.1
MH-83-68-01		485		6400	37.0	2.8	~ 9.2
M 83-68-02		370		5900	27.5	1.7	~ 10
MH-83-C-68-09		425		6200	33.3	2.3	
MH-83-69-01		2900		6200	39.0	18	~ 18
M 83-69-02		645		5100	38.0	4.8	
Mn 83-70-01		2330		6000	25.0	9.7	
M 83-70-02		1240		5500	29.0	6.5	~ 12
M 83-70-03		3180		6300	33.7	17	~ 6.1
MH-83-C-70-04		910		5800	25.5	4.0	~ 27
M 83-70-05		305		5000	20.7	1.5	~ 9.0
M 83-70-06		935		3100	6440	7.4	
MH-83-70-07		845		7500	47.5	5.4	
M 83-70-08		400		9300	62.5	2.7	~ 1.2
Mn 83-70-09		790	(x2)	3900	35.5	3.5	~ 72
MH-83-C-70-09		3500		4700	33.7	25	46
M 83-73-01		695		6400	25.8	2.8	
MH-83-74-01		665		7500	35.5	2.3	
M 83-74-02		3360		7600	55.2	24	~37
M 83-74-03		1780		7600	49.5	11	~ 9.8
Mn 83-75-01		1030		7300	36.5	5.2	~ 7.9
MH-83-76-01		1050		3500	13.9	4.2	
M 83-77-01		1265		6500	25.0	4.9	~ 6.8
MH-83-77-02		2050		6900	27.0	8.0	~ 21
M 83-77-03		2225		6000	31.0	11	~ 3.0
M 83-78-01		2380		5500	42.3	18	~ 16
MH-83-78-02		1310		8800	48.1	7.2	~ 2.0
M 83-78-03		710		5400	23.7	3.1	
Mn-83-79-01		5200	5.33	2500	7.7	76	
MH-83-80-01		2970		4600	16.2	10	~17
M 83-82-01		1670		5800	24.4	7.0	
M 83-83-01		1610		4400	16.8	6.1	

SAMPLE NUMBER	ELEMENT UNITS	Au PPB	wt/Au GM	-10mesh Feed gms	Conc. wt. gms	Au µg/kg	NOTES Au µg
MH-83-84-01		710		5700	17.8	2.2	~6.
MH-83-86-01		145		8400	36.5	0.83	~3.
TR-83-01		125	6.09	3100	8.7	0.34	
TR-83-03		260	4.61	2200	6.7	0.79	