GM 44343

REVERSE CIRCULATION OVERBURDEN DRILLING AND HEAVY MINERAL GEOCHEMICAL SAMPLING, CARPENTIER PROJECT

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REVERSE CIRCULATION OVERBURDEN DRILLING

AND

HEAVY MINERAL GEOCHEMICAL SAMPLING

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OVERBURDEN DRILLING MANAGEMENT LTD.

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1. SUMMARY

The report details the results of a 49-hole reverse circulation overburden drilling/heavy mineral geochemical sampling program that was conducted by BP Resources Canada Limited, Selco Division, in Carpentier Township, northwestern Quebec. The drill program was designed to test a high strain aluminous alteration zone for gold mineralization. Similar alteration at Selco's Chetwynd gold deposit in Newfoundland and gold prospects in the Carolina Slate Belt indicate that such alteration environments can host significant gold deposits.

The drill area is underlain by Archean metavolcanic rocks of the Upper Figuery Formation, Harricana Group. The rocks intersected in drilling are predominantly intermediate flows although a small wedge of felsic flows and intermediate tuffs is present in the central portion of the drill area. Intense deformation and hydrothermal aluminous alteration results in a masking of primary textures and the variable replacement of original rock constituents by silica, sulfides, and silica-pyrophyllite-chloritoid. The deformation and alteration appear to be restricted to the intermediate flow which have previously been misinterpreted as tuffs.

The only significant bedrock anomalies occur in a sulfide-silica-carbonate replacement zone Hole 13 and in a silicified zone in Hole 20 (180 and 140 ppb Au, respectively). Slightly elevated levels of nickel, zinc, arsenic, molybdenum and antimony accompany the gold in Hole 13. Although the anomalies are weak, they are significant in that the gold is restricted to sulfide-rich and silicified rocks as in the Chetwynd and Carolina deposits.

Overburden depth in the area averages 16.8 metres and drill operating costs, including road preparation, averaged $61.56/metre ($18.77/foot). Quaternary strata from a single glaciation are present. Chibougamau Till forms a thin, discontinuous veneer that is overlain by to largely supplanted by glaciofluvial, glaciolacustrine and littoral sediments. The poor preservation of till hinders the assessment of the property's mineral potential.

A high visible gold and analytical gold background is noted in the overburden but this appears to be a regional feature. Most heavy mineral gold anomalies present in the drill area are due to erratic concentrations of fine visible gold, or are nugget anomalies. Many anomalies occur in sand/gravel sequences and result from fluvial concentration. Of the anomalies that occur in till, only a visible gold occurrence in Holes 40-41 appears to represent dispersion from a single source area. However, the degree of abrasion of the gold grains and the position of the dispersion within the till sections indicate 700+ metres of ice transport. Low assay results due to the small size of the gold grains, together with the long transport distance, preclude a confident estimate of the size or grade of the source.

It is recommended that an 18-hole Phase II reverse circulation drilling program be undertaken at a cost of $32,400.00. Ten of these holes will evaluate and trace the visible gold anomalies of Holes 40-41. The remaining eight holes are located along the northeast side of a silica-pyrophyllite ridge where 1986 holes high on the bedrock slope failed to intersect significant amounts of till.

Potentially auriferous sulfide rich and silicified rocks in areas of poor till cover can best be tested by geophysical methods and diamond drilling. IP and EM geophysical surveys should be considered to outline sulphide zones and Resistivity/IP to identify silicified zones.

2 INTRODUCTION

2.1 Project Background

In March and April of 1986 BP Resources Canada Ltd., Selco Division conducted a reverse circulation-heavy mineral geochemical sampling program on its land holdings in Carpentier Township, Quebec (Figs. 1, 2). The program was initiated to evaluate the gold potential of a high strain zone marked by high alumina (chloritoid-sericite-pyrophyllite-silica) alteration. The alteration noted is similar to that described for Selco's Chetwynd gold deposit in Newfoundland (McKenzie, 1986; Swinden, 1984) and also of a type noted in gold prospects in the Carolina Slate Belt (Spence, et. al, 1980; Schmidt, 1983).

An extensive cover of Quaternary overburden precludes direct observation of bedrock over a large portion of the area. Regional mapping studies (Gaucher, 1985, MERQ-OGS, 1983) (Fig. 3) indicate the area to be underlain predominantly by northwest-southeast trending mafic to felsic volcanic and fragmental rocks. The location of the alumina-silica alteration/shear zone is marked by a corridor of low magnetic intensity (Selco, 1985) which parallels the stratigraphic and structural grain. An upstanding, resistant silica-pyrophyllite ridge forms the northern extremity of this alteration/shear zone.

The extent and poor exposure of much of the alteration zone led to the decision to use the reverse circulation overburden drilling/heavy mineral geochemical sampling method to explore the area. Overburden Drilling Management (ODM), a Nepean, Ontario company was retained by Selco to manage the program.

ODM collected samples from Quaternary till, sand and gravel sections and from a 1.5 metre bedrock section at 49 reverse circulation drill hole sites. Heavy mineral concentrates were prepared from the Quaternary samples and a gold particle count was made. The concentrates and bedrock samples were analyzed for gold plus twenty-five elements by Instrumental Neutron Activition. The Quaternary and Archean stratigraphy were studied, and the heavy mineral and bedrock geochemistry were interpreted in relation to this stratigraphy.

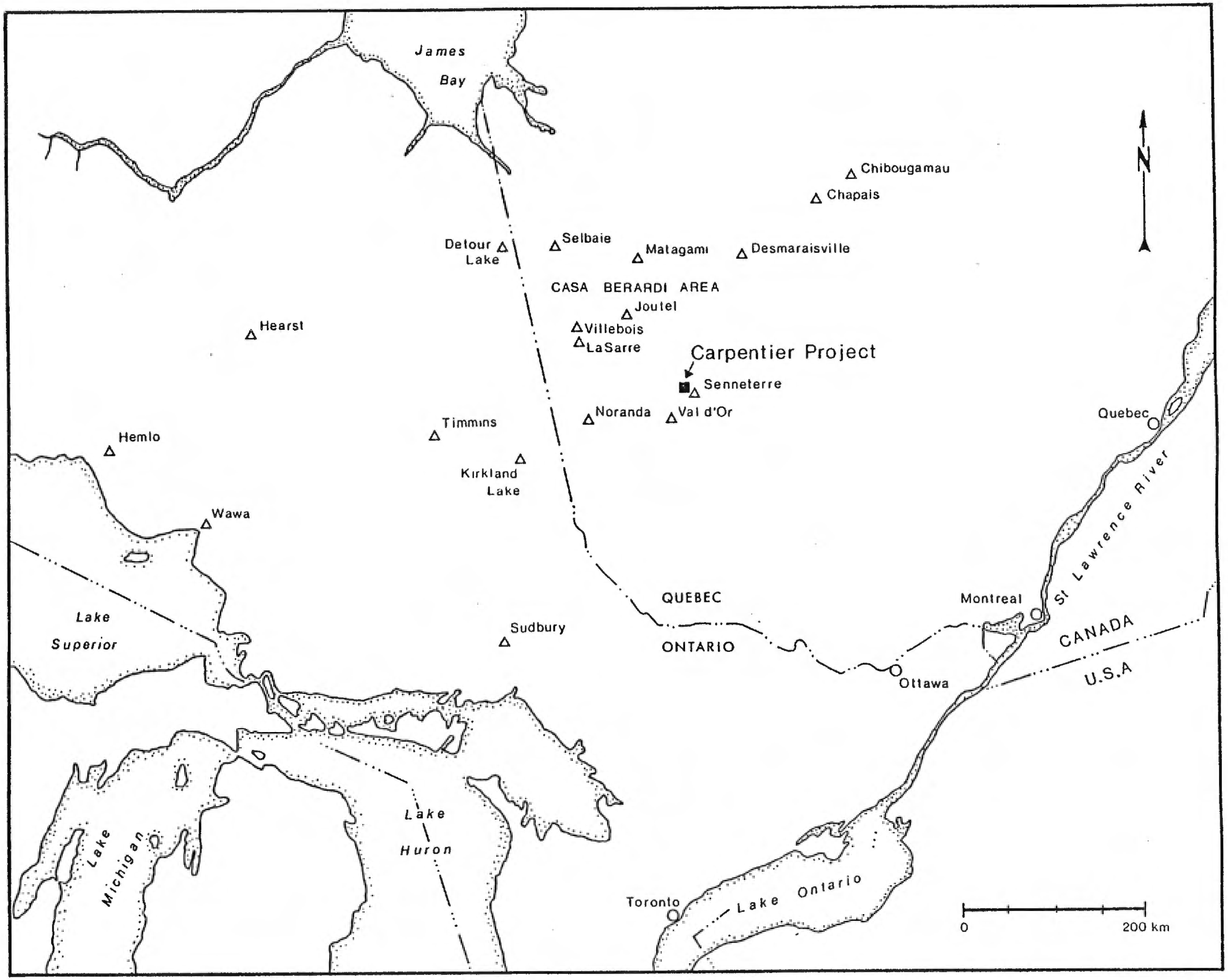

Figure 1 - Carpentier Location Map

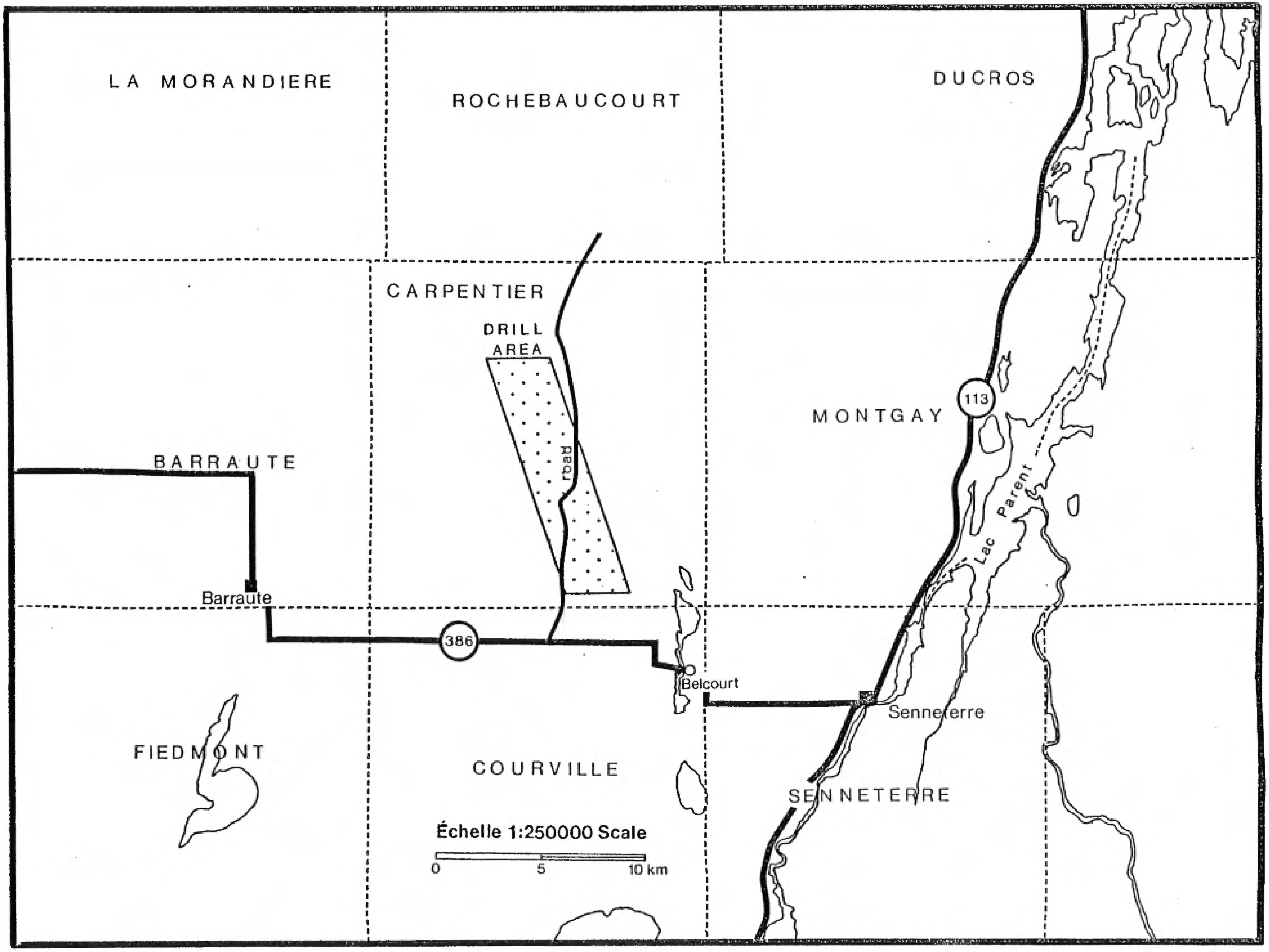

Figure 2 - Carpentier Project Location Map

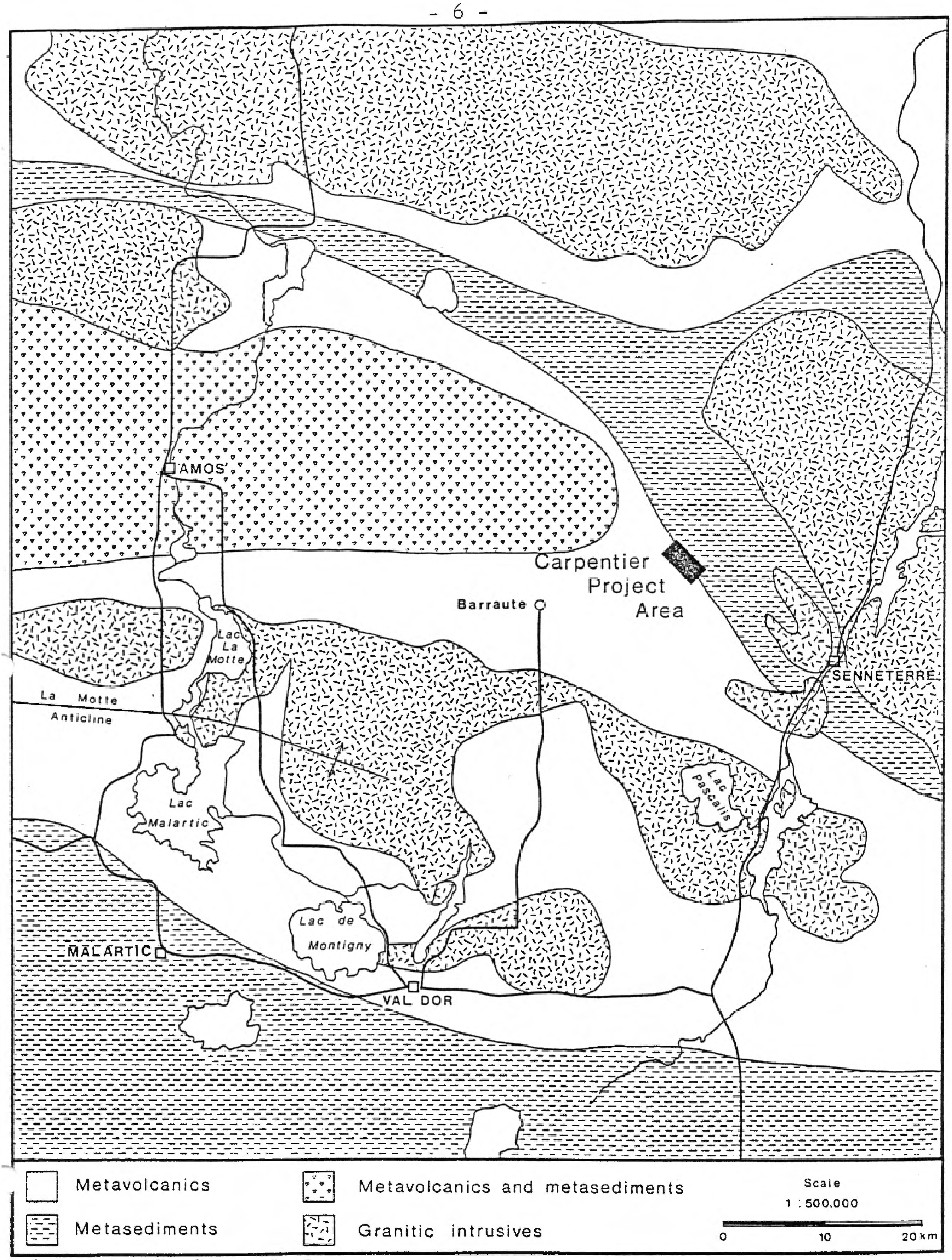

Figure 3 - Regional Geology

2.2 Location and Access

The Carpentier Project area is located in Carpentier Township, approximately eighteen kilometres northwest of Senneterre, Quebec. The area is centred by Latitude 48°30' and Longitude 77°25'. Road access is gained by following Highway 386 west from Senneterre to central Carpentier Township. From here a north-south gravel road traverses the central part of the Selco claim block. Direct access to off-road drill sites was facilitated by clearing heavy snow and brush with a D-6 Caterpillar.

2.3 Physiography and Vegetation

The Carpentier Project area lies within the southeastern portion of the physiographic region known as the Abitibi Uplands, the southern boundary of which approximates the Hudson Bay-St. Lawrence River drainage divide (Bostock, 1967).

Overburden thickness varies across the area but is relatively thin compared to other regions of the Abitibi greenstone belt. Surface relief varies from approximately 320 to 365 metres ASL and is controlled by a north-northwest trending bedrock ridge and a north-south trending esker system. Variations in overburden thickness are directly related to these features.

Drainage varies from moderate to good and like overburden thickness is directly related to the presence of the bedrock ridge and esker system. Well drained areas occur on the slopes of the bedrock ridge and also in areas underlain by glaciofluvial and related sands and gravels. These areas support an extensive forest cover consisting of black spruce, poplar and birch. In low lying areas of predominantly glaciolacustrine sedimentation, drainage is restricted and swamp-like areas of stunted black spruce and spongy moss are developed. Even in these areas, however, surface drainage is sufficient that few areas of open water are present.

2.4 Previous Work

Only a limited amount of information is available on the exploration history of the property. Pyrophyllite was identified in the northern portion of the area by the Quebec Department of Natural Resources in 1962. From 1964-1974, the property was optioned by Domtar and reserves of twenty-four million tons of forty percent pyrophyllite were outlined.

Little is known of previous gold exploration in the area. The Bonsecour prospect (best value 0.31 oz./ton Au over 8.6 feet) occurs within the silica-pyrophyllite alteration zone. Gold occurs in quartz-filled tension gashes in narrow felsic porphyry dikes paralleling the regional stratigraphy. Diamond drilling by Johns Manville (year unknown) could not establish continuity of grade or tonnage.

Esso Minerals Canada did gold exploration in the area in the early 1980's. They apparently focussed their attention on long formational conductors in mixed sedimentary and volcanic terrane to the east of the alteration zone. Results of this work are not known but Esso's interest lapsed and Selco acquired the property based on the similarity of the alteration assemblage to that noted at their Chetwynd gold deposit in Newfoundland. Since acquiring the property, Selco has been conducting an ongoing exploration program including line cutting, geophysics, geological mapping, and the current reverse circulation drilling.

A regional mapping program (Gaucher, ibid) under the auspices of the Ministère de l'Énergie et des Ressources du Quebec provides an updated geological data base for exploration.

3. DRILLING AND SAMPLING

3.1 The Principles of Overburden Exploration in Glaciated Terrain

During the Pleistocene epoch of the Quaternary period, the crowns of all ore bodies that subcropped beneath the continental ice sheets of North America were eroded and dispersed down-ice in the glacial debris. The dispersion mechanisms were systematic (Averill, 1978) and the resulting ore "trains" in the overburden are generally long, thin and narrow and most importantly are several hundred times larger than the parent ore bodies. These large trains can be used very effectively to locate the remaining roots of the ore bodies.

Because the dispersion trains originated at the base of the ice, they are either partly or entirely buried by younger, nonanomalous glacial debris. Most trains are confined to the bottom layer of debris deposited during glacial recession--the basal till. In fact, the sampling of glacial overburden for exploration purposes is commonly referred to as "basal till sampling". It is important to note, however, that in areas affected by multiple glaciations the bottom layer of debris in the overburden section may be only the lowermost of several stacked basal tills, and that a dispersion train may occur at any level within any one of the basal till horizons. Consequently, the term "basal till sampling" is not synonymous with the collection of samples from the base of the overburden section. Moreover, the term is not strictly correct because significant glacial dispersion trains can occur in formations other than basal till.

From the foregoing statements, it can be seen that glacial dispersion and glacial stratigraphy are interdependent. Consequently, the effectiveness of overburden sampling as an exploration method is related to the ability of the sampling equipment to deliver stratigraphic information from the unconsolidated glacial deposits. In areas of deep overburden such as Casa-Berardi, drills must be used. Most drills have been designed to sample bedrock and are unsuitable for overburden exploration, but in the last fifteen years rotasonic coring rigs and reverse circulation rotary rigs have been developed to sample the overburden as well as the bedrock. Both drills provide accurate stratigraphic information throughout the hole and also deliver large samples that compensate for the natural inhomogeneity of glacial debris.

The reverse circulation rotary system was selected for the Carpentier program. This system employs dual-tube rods and a tricone bit with the outer rod tube acting as a casing to contain the drill water for recirculation and to prevent contamination of samples by material caving from overlying sections. Air and water are injected at high pressure through the annulus between the outer and inner rods to deliver a continuous sample of the entire overburden section through the small inner rod. The sample is disturbed but returns to surface instantly, and the precise positions of stratigraphic contacts can be identified. Full sample recovery is possible in all formations regardless of porosity or consistency, although sample loss due to blow-out commonly occurs in the first 1 to 3 meters of the hole until a sediment seal is made around the outer rod.

Reverse circulation holes are normally extended 1.5 meters into bedrock. Cuttings of maximum 1 cm size are obtained. The bedrock samples are used to determine overburden provenance (and, hence, the precise directions of glacial transport), and the interrelated bedrock and overburden data provide exceptionally comprehensive exploration coverage.

Most of the glacial overburden in Canada is fresh, and metals in the overburden occur in primary, mechanically dispersed minerals rather than in secondary chemical concentrations. While ore mineral dispersion trains are very large, they are also weak due to dilution by glacial transport and are difficult to identify from a normal "soil" analysis of the fine fraction of the samples. Consequently, heavy mineral concentrates are prepared to amplify the primary anomalies, and analysis of the fines is normally reserved for areas where significant post-glacial oxidation is evident. The heavy mineral concentrates are very sensitive, and special care must be taken to avoid the introduction of contaminants into the samples. On gold exploration programs, it is advantageous to separate and examine any free gold particles because most gold anomalies in heavy mineral concentrates are caused by background nugget grains that are of no interest.

3.2 Drill Hole Pattern

Overburden holes are ideally drilled along profiles oriented parallel to the strike of the mineralization and perpendicular to the direction of Quaternary ice advance. The hole spacing along the profile is determined primarily by the expected cross-ice subcropping strike length of the target mineralization. Profile separation is determined by the length of the dispersion train that can be expected for the type of mineralization sought, and is generally greater than hole separation.

ODM has participated in Abitibi belt reverse circulation and rotasonic drilling programs totalling more than 5,000 holes. From this work, it was known that two tills with similar azimuths of ice transport would be present in the Carpentier project area:

1. Lower Till - 225 to 240 degrees
2. Chibougamau Till - 190 to 220 degrees

The Lower and Chibougamau Till both contact bedrock sufficiently to be useful sampling media. Both flow directions intersect most of the Carpentier bedrock stratigraphy at a high angle because the general stratigraphic trend is NW-SE. Drill profiles were laid out in the NW-SE direction parallel to the bedrock stratigraphy (Plan 1).

Till dispersion trains are often called fans but are actually ribbon-shaped. Therefore the hole spacing along a drill profile should be similar to the expected cross-ice subcropping length of the target mineralization. For the Carpentier program, it was assumed that mineralization of interest would have an ore-grade subcrop at least 100 m long and would be stratigraphically and structurally controlled. Such deposits typically have 100-200 m sub-ore extensions along strike in either direction, and this weak mineralization can be detected with the sensitive heavy mineral method, giving the target a total strike length of 300-400 m. Thus a 400 m hole separation was used.

ODM has identified and traced to source a total of nine gold dispersion trains (Table 1). The train length for deposits oriented perpendicular to the ice flow direction ranges from 300 to 1000 m. Therefore a drill profile separation of 300 m would be needed to ensure detection of all subcropping gold mineralization. Base metal massive sulphide dispersion trains, on the other hand, are generally more than 1,000 m long. A total of 49 holes along two profiles was outlined for the Carpentier program. The profiles were oriented parallel to bedrock stratigraphy and profile separation ranged from approximately 400 metres in the southern

PROVINCE	GOLD DEPOSIT	TRAIN LENGTH[1] (m)	
		TRACED	EST. TOTAL
Saskatchewan	Lake "X"[2]	300	300
Saskatchewan	Star Lake	300	800
Saskatchewan	Lake "Y"	500	1000
Saskatchewan	Waddy Lake[2]	600	2000
Ontario	McCool	300	400
Quebec	Cooke Mine[3]	800	1000
Quebec	Golden Pond West	300	400[4]
Quebec	Golden Pond	400	500[4]
Quebec	Golden Pond East	100	1000

1 - Based on minimum 10 gold grains of similar size and shape per 8 kg sample for free gold trains and on coincident high gold and base metal assays for invisible gold trains

2 - Deposit oriented parallel to glacial ice advance

3 - Invisible gold deposit

4 - Train foreshortened by erosion in last ice advance

Table 1 - Heavy Mineral Gold Dispersion Trains Identified by Overburden Drilling Management Limited Laboratory

portion of the drill area to 1,300 metres in the north. This pattern was considered appropriate given the abundant outcrop exposure along the ridge between the profiles in the north, the presence of an esker cutting acutely across the alteration zone and the probable absence of till along its channel, and the thinning of the zone of interest to the south. Furthermore, a lack of detailed information on overburden depths resulted in a rather liberal estimate of average overburden thickness (30 m) which would result in prohibitive costs if a more detailed program was undertaken.

3.3 Drilling Equipment

A single reverse circulation rotary drill was contracted from Bradley Brothers Ltd. of Noranda, Quebec for the Carpentier program. The drill rig consisted of a Longyear 38 diamond drill modified for reverse circulation drilling and mounted on an FN-160 Nodwell carrier for all-terrain mobility. Ancillary equipment including the air compressor, water pump, and logging/sampling facilities was unitized on the Nodwell carrier. As a result of mild weather during the course of the program, the rig was only partially enclosed.

The drill rig employed an air compressor with a rated capacity of 185 c.f.m. at 100 p.s.i. and a water pump rated at 20 g.p.m. at 600 p.s.i. Water flow rate, however, was normally maintained at less than 10 g.p.m. The rig was equipped with a 100 volt generator and Cool White Fluorescent fixtures that simulate natural sunlight for accurate sample logging. As the logging and sampling area was not fully enclosed, secondary lighting was not normally required.

The holes were logged in metres and the drill carried twenty 10-foot rods. For convenience each 10-foot rod was considered to be three metres long. Logged hole depth is therefore 1.6 percent less than actual hole depth.

The Nodwell drill rig was supported by a smaller Nodwell (FN-60) equipped with a single 500 gallon water tank. Exhaust from the FN-60 was piped through the water tank to prevent freezing.

3.4 Drill Performance

Drilling on the Carpentier project started on March 16, 1986 and was completed on April 2, 1986 for a total of eighteen drilling days. The drill usually operated on one 10-hour shift per day but the shift was lengthened or shortened at the discretion of the field geologist. Major delays included a broken axle on the FN-60 water carrier, a broken water circulation pump, and a malfunctioning water pump on the compressor. Minor delays included cold weather start-up problems on a few days, and overheating of the compressor engine prior to replacement of the water pump.

Forty-nine reverse circulation holes were drilled for a total of 821.7 metres of overburden and 69.9 metres of bedrock (Table 2). All holes reached bedrock after intersecting an average of 16.8 metres of overburden. Production averaged 49.5 metres per day. Chargeable (productive) drill hours amounted to 124.5 and mechanical downtime to 27 hours or 17.8 percent. Penetration during operating hours averaged 7.2 metres per hour. Drilling costs, including road clearing, averaged $61.56/metre ($18.77/foot).

3.5 Logging and Sampling

ODM logged and sampled the Carpentier drill holes (Appendix A) and provided all necessary logging and sampling equipment. The ODM field crew comprised a logger and sampler. Field personnel involved were geologists K. MacNeil and M. Edwards and geotechnician D. Parnham.

Samples were collected in two 20 litre buckets coupled with a plastic tube. This procedure ensures a quiet settling environment thus reducing the loss of fines encountered if only one bucket is used and allowed to overflow. Most of the clay is still lost but a recent research study made by ODM (Dimock, 1985) showed that sand loss is insignificant and silt loss is reduced to 40 percent compared to 72 percent with the one-bucket system. Interestingly, fine gold is lost in direct proportion to fine quartz and feldspar because the flake shape rather than high density of fine gold is the primary factor controlling the rate of settling.

Hole Number	Coordinates	Meters Drilled		Hole Depth (metres)	Samples Collected	
		Overburden	Bedrock		Overburden	Bedrock
CA-86- 01	L 34S; 12+00W	25.7	1.3	27.0	5	1
02	30S; 12+50W	13.4	1.6	15.0	3	1
03	26S; 11+50W	14.9	1.2	16.1	4	1
04	22S; 11+00W	16.6	1.4	18.0	3	1
05	18S; 10+50W	18.1	1.5	19.6	4	1
06	14S; 10+50W	21.2	0.9	22.1	5	1
07	10S; 10+50W	14.0	1.0	15.0	2	1
08	6S; 11+00W	7.0	2.2	9.2	1	1
09	2S; 11+OOW	8.6	1.8	10.4	1	1
10	2N; 12+50W	12.8	1.2	14.0	2	1
11	6N; 11+00W	9.3	1.3	10.6	0	1
12	10N; 11+00W	12.5	2.2	14.7	0	1
13	14N; 10+00W	9.8	1.2	11.0	1	1
14	18N; 8+00W	4.9	1.7	6.6	1	1
15	21N; 6+00W(?)	14.2	1.2	15.4	1	1
16	24N; 3+00W	12.3	1.4	13.7	1	1
17	28N; 0+50W	15.8	1.2	17.0	2	1
18	24N; 3+00E	17.8	2.0	19.8	1	1
19	20N; 2+00E	20.4	1.0	21.4	2	1
20	16N; 4+00E	4.9	1.1	6.0	2	1
21	12N; 3+50E	8.3	1.3	9.6	4	1
22	8N; 1+00E	7.7	1.7	9.4	3	1
23	4N; 1+00E	1.1	1.3	2.4	1	1
24	L0; 0+50E	6.8	1.7	8.5	2	1
25	4S; 0+50E	15.5	1.5	17.0	3	1
26	8S; 0+50E	8.5	1.5	10.0	2	1

Table 2 - Reverse Circulation Drilling Statistics

Hole Number	Coordinates	Meters Drilled		Hole Depth (metres)	Samples Collected	
		Overburden	Bedrock		Overburden	Bedrock
CA-86- 27	L 12S; 1+00W	6.4	1.8	8.2	1	1
28	16S; 1+00W	14.4	1.4	15.8	2	1
29	20S; 1+50W	28.5	1.1	29.6	3	1
30	24S; 2+50W	45.3	1.3	46.6	14	1
31	28S; 4+00W	30.6	1.6	32.2	10	1
32	32S; 4+50W	30.6	1.4	32.0	11	1
33	36S; 5+00W	35.9	1.5	37.4	11	1
34	40S; 5+00W	19.0	1.5	20.5	5	1
35	44S; 7+00W	22.1	1.4	23.5	4	1
36	48S; 8+50W	20.0	1.1	21.1	4	1
37	52S; 9+50W	13.9	1.3	15.2	1	1
38	56S; 9+00W	19.2	1.3	20.5	2	1
39	60S; 9+00W	26.9	1.6	28.5	14	1
40	64S; 9+00W	12.9	1.5	14.4	4	1
41	68S; 9+00W	8.5	1.1	9.6	3	1
42	66S; 13+00W	4.0	1.3	5.3	1	1
43	62S; 13+00W	19.2	1.8	21.0	8	1
44	58S; 14+00W	24.6	1.4	26.0	3	1
45	54S; 14+00W	21.8	1.3	23.1	4	1
46	50S; 13+50W	27.4	1.5	28.9	10	1
47	46S; 13+00W	18.5	1.5	20.0	4	1
48	42S; 12+50W	26.7	1.3	28.0	7	1
49	38S; 12+00W	23.2	1.5	24.7	6	1
TOTALS		821.7	69.9	891.6	188.0	49

Table 2 - Reverse Circulation Drilling Statistics

ODM employed a 10-mesh (1700 micron) screen over the first bucket to separate and discard the majority of rock cuttings and thereby increase the proportion of matrix material needed to identify and trace dispersion trains. The +10 mesh rock cuttings were constantly monitored to discern any variations which could give clues to overburden stratigraphy, or for any clasts indicative of an environment suitable for gold or base metal mineralization. Approximately 20 percent of the cuttings were kept for future reference. The degree of sorting of the -10 mesh matrix was monitored to differentiate till from sand and gravel.

The Chibougamau Till was sampled continuously using an average sample interval of 1.5 metres. Glaciofluvial and related sand and gravel were sampled over longer 3 to 6 metre intervals because they are far-travelled and thus generally ineffective for mineral tracing. Glaciolacustrine clay and silt were not sampled because they are of no exploration value.

One hundred eighty-eight overburden samples and forty-nine bedrock samples were collected (Table 2). The overburden samples were reduced to 7-9 kilograms with an aluminum scoop, packed in heavy plastic bags and shipped in 20-litre metal pails to the ODM processing laboratory in Nepean.

3.6 Sample Processing

Heavy mineral concentrates were prepared from the 188 overburden samples using the procedures shown in the flow sheet of Figure 4. These procedures may be summarized as follows:

First, a 250 gram character sample is extracted from the bulk sample using a tube-type sampler. The character sample is dried and stored for future reference. On some programs, its minus 250 mesh fraction is separated and analyzed to allow comparison with the heavy mineral analyses.

The remainder of the bulk sample is weighed wet and is sieved at 1700 microns (10 mesh). The +1700 micron clasts are weighed wet and the -1700 micron matrix is processed on a shaking table to obtain a preconcentrate. The table

SAMPLE PROCESSING FLOW SHEET

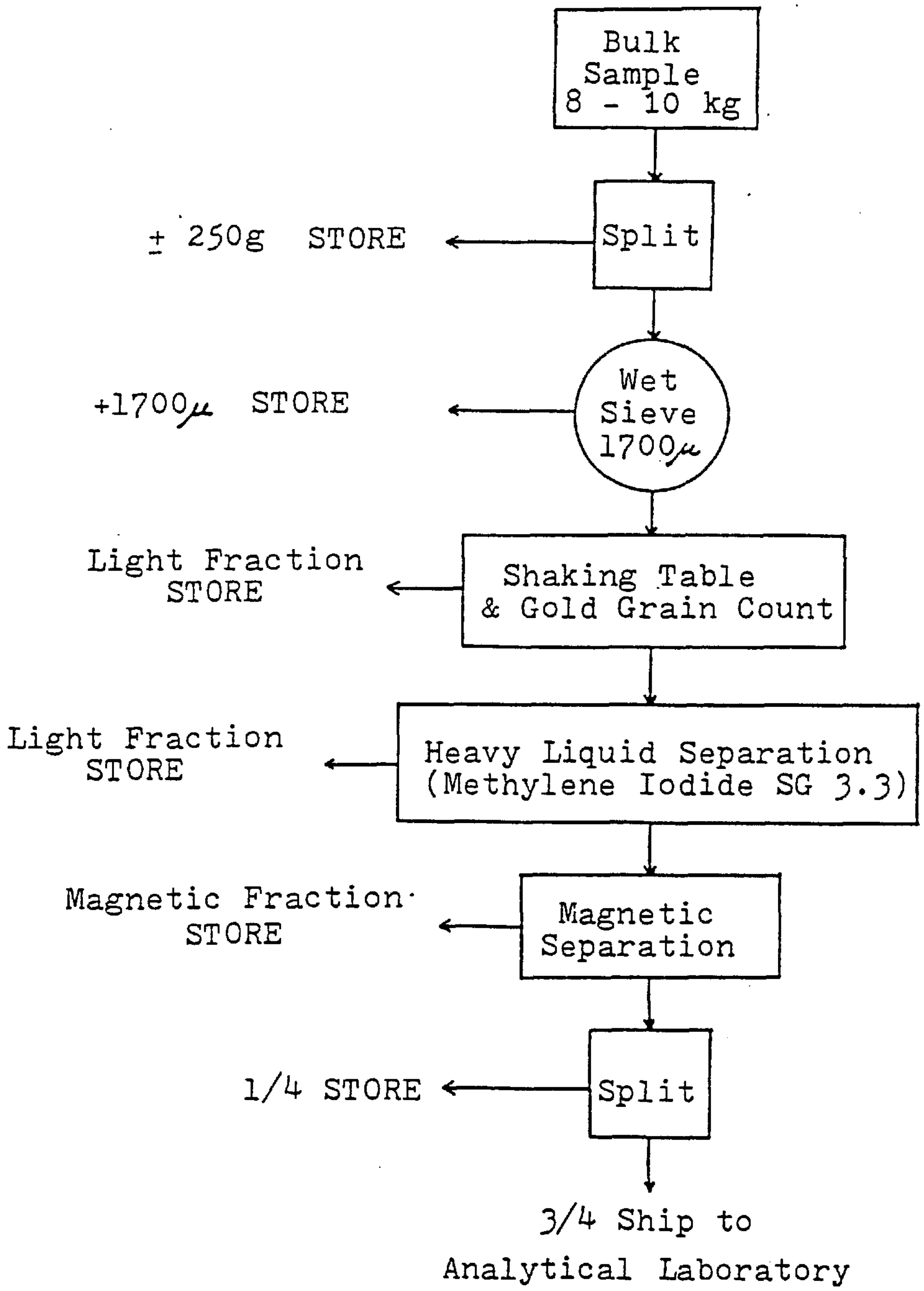

Figure 4 - Sample Processing Flow Sheet

concentrate and all fractions obtained from it are weighed dry. The Carpentier sample weights are listed in Appendix B.

ODM has developed technology for evaluating free gold anomalies as the samples are being tabled. The use of special feeders and table adjustments causes many gold grains to separate from the other heavy minerals and follow individual paths across the table. These grains are picked from the deck, placed under a binocular microscope, measured to obtain an estimate of their contribution to the eventual assay of the concentrate, and classified as delicate, irregular or abraded (Fig. 5) to determine their approximate distance of glacial transport. Photomicrographs (35 mm slides) are taken if more than 10 gold grains are present.

Magnetite, with a Specific Gravity of 5.2, is the heaviest of the common minerals and normally forms the top mineral band on the table above garnet and epidote/pyroxene. Common flake gold coarser than 125 microns separates completely from the magnetite and is readily counted. Fine gold, thick gold and delicate gold travel with the magnetite due to size and shape effects, and only 10 to 20 percent of such grains can be sighted on the table. Gold particles can also be obscured by pyrite which tends to cross the table in the gold path if it forms more than 10 percent of the concentrate. However, ODM has developed a special panning technique to recover the hidden particles together with some copper, lead and arsenic pathfinder minerals. ODM normally pans samples in which two or more gold particles are sighted on the table as well as samples with high pyrite concentrations or any delicate gold. The Carpentier Project table and pan gold counts are listed in Appendix C.

The table and pan concentrates and any gold grains are recombined and the concentrate is dried. A heavy liquid separation in methylene iodide (Specific Gravity 3.3) is then performed. The light fraction (S.G. less than 3.3) is stored and the heavy fraction undergoes a magnetic separation to remove drill steel and magnetite. The Carpentier magnetic separates were checked to ensure that they contained not more than five percent pyrrhotite.

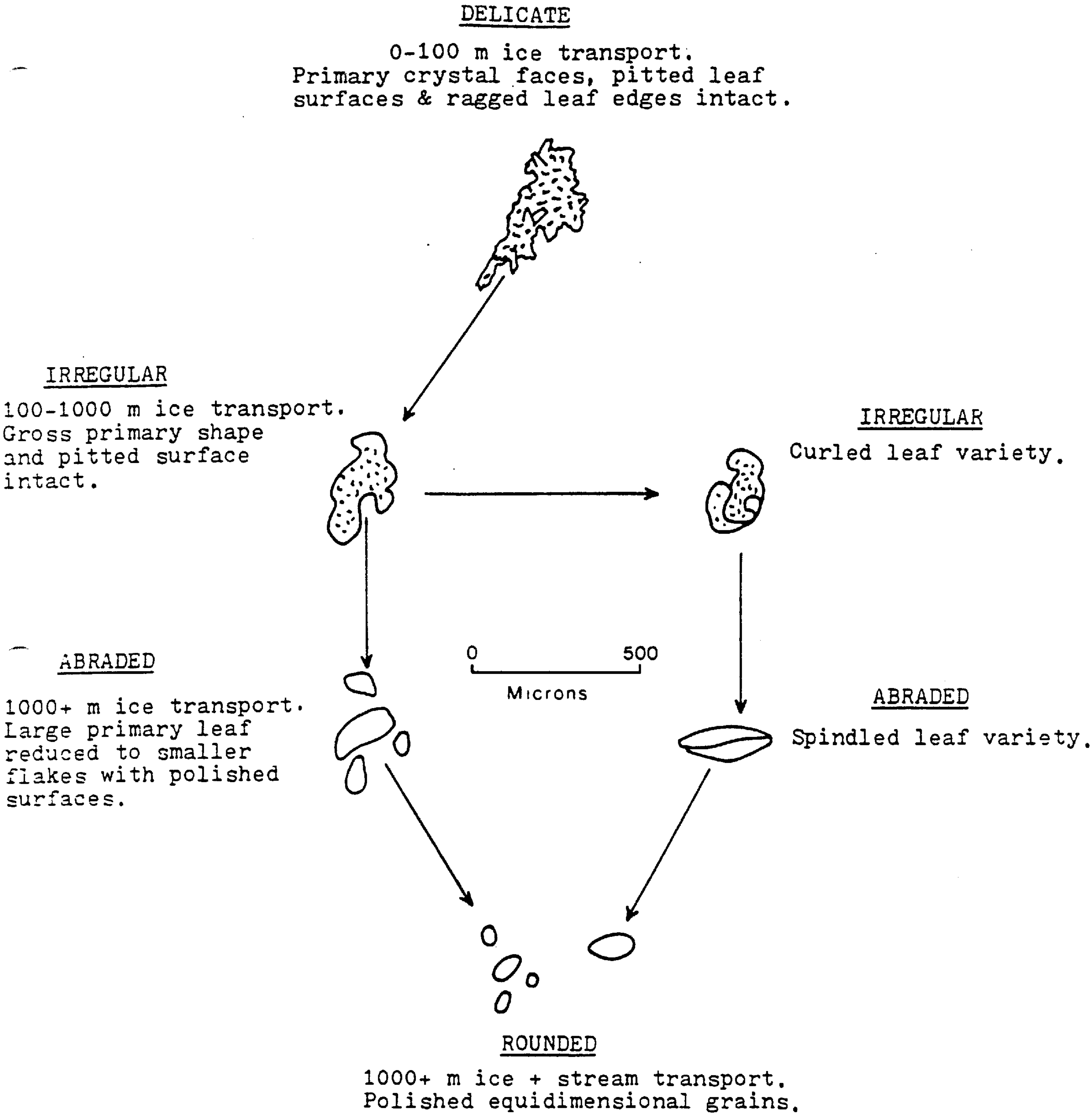

Figure 5 - Effects of glacial transport on gold particle size and shape.
(Developed by Overburden Drilling Management Ltd.)

3.7 Sample Analysis

On gold exploration programs it is desirable to analyze the whole heavy mineral concentrate to minimize the nugget effect that is caused by the particulate nature of most till gold. If the analysis is by chemical methods that involve pulping, the entire concentrate is destroyed. To compensate for this the heavy mineral samples are split on a 3/4: 1/4 basis with the 3/4 split being analyzed and the 1/4 split being retained for mineralogical work or check panning to explain unexpected base metal or gold anomalies.

The whole concentrate can be analyzed without damaging its integrity by employing the Instrumental Neutron Activation (INA) technique which requires no sample preparation (pulping). While the mineralogy of the concentrate is preserved, the delay time between irradiation and analysis (10 days) and the "cooling down" period for the irradiated sample (4 months) precludes quick, determinative checks of the cause of anomalies.

The Carpentier concentrates were analyzed by INA (Appendix D) but only a 3/4 split was used. This compromise allowed for mineralogical checks of the 1/4-concentrate following receipt of the assays, while perserving the mineralogy of the 3/4-concentrates for more definitive checks, if necessary.

The analytical work was performed by Bondar-Clegg and Company Limited of Ottawa at their INA facility in Buffalo, New York. INA is not suitable for some elements due to radiation interference from atomically related elements. Bondar-Clegg offers a package of gold plus twenty-five INA-compatible elements that is well-suited to gold exploration programs. In addition to gold, the pathfinder elements Zn, As, Sb, Ag, Mo, W and Ba are determined. On reverse circulation programs, the W assays are of no value due to contamination interference from the tungsten carbide drill bits. Arsenic and copper have been the two most useful gold pathfinders in dispersion trains tested by ODM. Unfortunately, copper cannot be determined by INA. However, zinc and silver were both analyzed and often accompany Cu in polymetallic deposits. The lower detection limit for Zn by INA is high at 200 ppm but is still well below ODM's established 700-800 ppm threshold level for heavy mineral Zn anomalies.

The other elements in the twenty-five element package - Sc, Fe, Cr, Co, Ni, Se, Rb, Cd, Cs, La, Eu, Tb, Yb, Hf, Ta, Ir, Th and U - are of little or no value in heavy mineral gold exploration.

Carpentier bedrock chip samples were analyzed by INA for the same elements as the heavy mineral concentrates (Appendix E). In addition, whole rock compositions were determined by DC Plasma analysis (Appendix F).

4. BEDROCK GEOLOGY

4.1 Regional Geology

The Senneterre-Barraute area is in the southeastern portion of the Archean, Abitibi greenstone belt. The Abitibi belt comprises repeated komatiitic to calc-alkalic cycles of lavas, volcaniclastics, porphyries and layered basic-ultrabasic intrusions with coeval clastic sedimentary rocks, and intrusives of potassium poor dioritic to tonalitic composition. These rocks have been complexly deformed and metamorphosed to the greenschist facies and intruded by late kinematic granodiorite and monzonite plutons (Gariepy, Allègre, Lajoie, 1984).

Rock units in the Senneterre-Barraute area correspond to those found on the north limb of the Lamotte Anticline (MERQ-OGS, 1983). The dominant structure in the area, however, is the Duverny Syncline with its northwest-southeast trending axis occurring approximately three kilometres northeast of the Selco drill area (Gaucher, ibid). The rock units young toward the synclinal axis and correlate with the predominantly basaltic to andesitic rocks of the Lower and Upper Figuery Formations of the Harricana Group, and the pillowed basalts of the lower portions of the Amos Group. These are included in the Upper Diverse Division of Cycle II by Dimroth et al (1982).

The drill area itself lies entirely within the confines of the Upper Figuery Formation of predominantly andesitic volcanics (Chamois; letter and notes dated October 29, 1985).

4.2 Bedrock Logging Procedures

A binocular microscopic log of all bedrock samples was prepared (Appendix G) to confirm and amplify field descriptions with the objective of producing an accurate stratigraphic map. Particular attention was paid to primary features, and with the exception of the silica-pyrophyllite alteration zones the rocks were assigned genetic names such as intermediate volcanics rather than metamorphic names such as chlorite schist.

Reasonably accurate measurements of primary mineralogy, structure, texture, degree of metamorphism and alteration can be made from chip samples with a binocular microscope, but inherent limitations are present. These limitations include:

1. Inability to differentiate gray plagioclase from gray-brown and gray-green pyroxene where the grain size is less than 0.2 mm as in most volcanic rocks. This effectively precludes differentiation of intermediate volcanics from mafic volcanics in extensive areas of the Abitibi belt where primary pyroxene has survived the sub-greenschist facies metamorphism. In greenschist facies areas where pyroxene has been largely converted to amphibole and chlorite, intermediate and mafic units can be differentiated.

2. Inability to determine bedding thickness or fragment size where the dimensions of the beds or fragments are greater than the 1 cm diameter of the coarsest drill cuttings.

3. Inability to recognize tops in bedded sections.

4. Difficulty in differentiating certain primary structures such as pillow selvages from secondary veins.

5. Necessity of inferring gross mineralogy of aphanitic samples from rock colour and hardness.

4.3 Bedrock Stratigraphy of the Carpentier Project Area

As mentioned, the entire drill area is underlain by meta-volcanic rocks of the Upper Figuery Formation, lying on the southwest limb of the Duverny Syncline. The Figuery Formation is predominantly intermediate in character (MERQ-OGS, ibid) with minor mafic and felsic volcanics and tuffaceous rocks (Gaucher, ibid). However, the outcrops in the drill area have been mapped as predominantly tuffaceous (Charbonneau, 1984; Gaucher, ibid.)

Table 3 lists the various lithologies encountered in reverse circulation drill holes. Their distribution is illustrated in Plan 2. Bedrock exposures from various sources are included in the geological plan but no attempt has been made to include these in our interpretation as questions to the reliability of the mapping remain.

The drill area is restricted to a corridor of low magnetic intensity corresponding to a highly strained and altered zone. The low magnetic signature probably results from a combination of this alteration and variations in primary rock lithology - i.e. basaltic rocks bracket the "corridor" which contains andesitic to dacitic rocks and their altered equivalents.

The northern portion of the drill area is occupied by a bedrock ridge marked by intense deformation and alumina-silica alteration. This type of alteration, producing rocks consisting essentially of silica-pyrophyllite-chloritoid, is similar to that noted in Selco's Chetwynd gold deposit in Newfoundland, in gold deposits and prospects in the Carolina Slate Belt, and in various deposits on a world wide scale. The alteration is apparently due to intense leaching of primary rock constituents by strong, hot acidic solutions resulting in the removal of most cations with the exception of silicon, aluminum, and titanium thus producing a rock with a chemical end product essentially expressed by the whole rock oxides SiO_2, Al_2O_3 and TiO_2. The source of such hydrothermal fluids in somewhat ambiguous but the alteration has been related to solfataric or fumarolic exhalative activity (Worthington, et al, 1980; Spence, ibid), or to fluids produced by subvolcanic activity with the alteration forming a transitional phase to the porphyry copper-molybdenum alteration systems (Schmidt, ibid). As stated by Schmidt the two "theories" are not necessarily mutually exclusive (basic differences are the variations in the depth

LEGEND

Bedrock Lithology

4	Quartz-feldspar porphyry
3	Intermediate tuffs
2	Felsic volcanics
1	Intermediate volcanics (1a); mafic volcanics (1b); silicified volcanics (1c); silica-pyrophyllite-chlorotoid altered volcanics (1d); sulfide-silica-carbonate altered volcanics (1e)

Table 3 - Table of Bedrock Formations

of formation in the volcanic systems and the nomenclature applied to siliceous rocks) and with more work an integrated model may be uncovered. In respect to the alteration system in Carpentier Township, the strong deformation of the volcanic rocks and certain replacement textures and minerals (chloritoid cross-cutting schistosity) suggest that initial shearing produced a permeable rock which could channel later hydrothermal fluids thereby precluding a strictly hot spring, exhalative, syngenetic model. The presence of a large quartz-feldspar porphyry body to the west (Gaucher, ibid), underlying the alteration system, lends credence to Schmidt's theory.

The silica-pyrophyllite-chloritoid zone in Carpentier is enveloped by highly deformed intermediate volcanic rocks which display varying degrees and types of alteration compatible with the system envisioned but which to a large degree also conform to normal alteration in the Abitibi belt. Chloritic, sericitic and carbonate alteration is common in the drill area but also in other areas of the Abitibi belt with similar primary lithologies and deformational histories. Secondary silicification as well as magnetite, hematite, fuchsite, tourmaline, and sulfide alteration and replacement products are more restricted and should relate directly to the silica-alumina system, forming in response to changes in temperature, pH, and composition of the hydrothermal fluids. A strict zonal alteration assemblage is difficult to detail.

The bedrock sample logs do suggest progressive zones of hydrothermal alteration within the area. The least altered stage post-dates deformation and development of chlorite (normal greenschist metamorphism). This stage results in bleaching of the rock, destruction of chlorite, and variable development of Fe/Mg carbonates, disseminated hematite, magnetite metacrysts and magnetite (after chlorite) rimmed amygdules. An incipient recrystallization of quartz and plagioclase to coarser crystalline grains may occur giving the bedrock samples a tuffaceous or spotted appearance. This rock appears to have been mislogged as tuff by Charbonneau (ibid) and Gaucher (ibid).

Continued leaching and alteration produces siliceous-aluminous rocks. Chemically, these rocks are similar to the intermediate volcanics but are characterized by a silica (chert), pyrophyllite, chloritoid, and carbonate mineral assemblage. The strong penetrative deformation of the area is preserved in these highly altered rocks, but chloritoid metacrysts traversing the foliation indicate that the alteration post-dates deformation.

The most intense alteration appears to be silicification or sulfide replacement. Varying degrees of these alterations are noted but where most complete, orginial rock textures are completely obliterated. The secondary rocks produced are essentially massive as opposed to the strongly foliated "primary" rocks of the area, illustrating the efficacy of the alteration mechanisms.

In addition to the intermediate volcanics and their probable altered equivalents, felsic volcanics and intermediate tuffs are present as a wedge shaped-unit in the central portion of the drill area. These rocks retain much of their primary texture and mineralogy and thus have escaped the strong deformation and alteration evident elsewhere within the drill area. Intermediate volcanics immediately southeast of this wedge also appear less altered than those to the northeast and those further south. A magnetically inferred, northeast trending fault in the Holes 36-46 area demarcates the variation in alteration intensity.

A detailed description of the rock units follows:

4.3.1 Intermediate to Mafic Volcanics (Unit 1a, 1b)

Indisputable intermediate to mafic volcanics are present in more than 50 percent of the reverse circulation drill holes and additional highly altered samples are assumed to have had the same original lithology. Most of the samples are intermediate in character (dacites, andesites) with only the samples from Holes 44, 47 and 49 believed to be mafic (basalts). The distinction is based on whole rock analyses and mafic mineral percentages-essentially chlorite in the Carpentier area. The mafic volcanics generally contain greater than 35 percent chlorite while intermediate volcanics normally contain less than 25 percent chlorite and often contain sericite or sericite plus chlorite rather than chlorite alone. In some samples, an intermediate character is presumed even though alteration has destroyed most, if not all, of the ferromagnesian minerals (Samples 16-02, 18-02, 19-03, 33-12, 43-09).

The Jensen Cation Plot (Fig. 7) displays the chemical affinity of all bedrock samples in the drill area. The majority of the intermediate-mafic volcanics plot in the tholeiitic rhyolite and dacite fields. Others plot is the calc-alkalic rhyolite to basalt fields. Considering the degree of alteration of many samples (destruction of ferromagnesians, formation of Fe and/or Mg carbonate, etc.) the trends are of dubious significance.

The intermediate-mafic volcanics are commonly fine grained (less than 0.2 mm) and range from poorly foliated to highly schistose and sheared. Amygdules are locally observed and often appear to preferentially survive even the strongest deformation although they may be stretched at a 2-3:1 ratio. The amygdules are infilled with quartz, carbonate, and chlorite in varying combinations. A few samples contain minor, small quartz eyes. Flow or pillow selvage material is locally seen. Quartz-calcite vein material constitutes 0-5 percent of the samples with the exception of 20 percent quartz-calcite veining in Hole 12.

The intermediate to mafic volcanic rocks are variably altered. The most common and widespread alteration products are chlorite and/or sericite which are present in most samples. Carbonate (irrespective of veining) is also widespread and includes calcite and a slowly reactive Fe/Mg carbonate in Holes 14, 15, 16, 18, 19, 33, 36, 37, 43 and 46. The presence of the poorly reactive carbonate may result from the acid leaching postulated for the alteration system. The iron and magnesium may be carried from zones of intense leaching, and where conditions permit, may react with CO_2 to produce the carbonate. Although this cannot be proved, the development of hematite disseminations in bleached, mafic free portions of samples from Holes 16, 18 and 19, and the formation of magnetite metacrysts and magnetite rims (replacing chlorite) around amygdules in Holes 11, 12, 18, 19, 36, 38, 40 is highly suggestive of destruction of mafic minerals and redeposition of part of the iron and magnesium in other mineral phases. In some holes (36, 38), the development of magnetite metacrysts and Fe/Mg carbonate is accompanied by an incipient recrystallization of quartz and plagioclase to coarser grains producing a rubbly, spotted schist that resembles tuff.

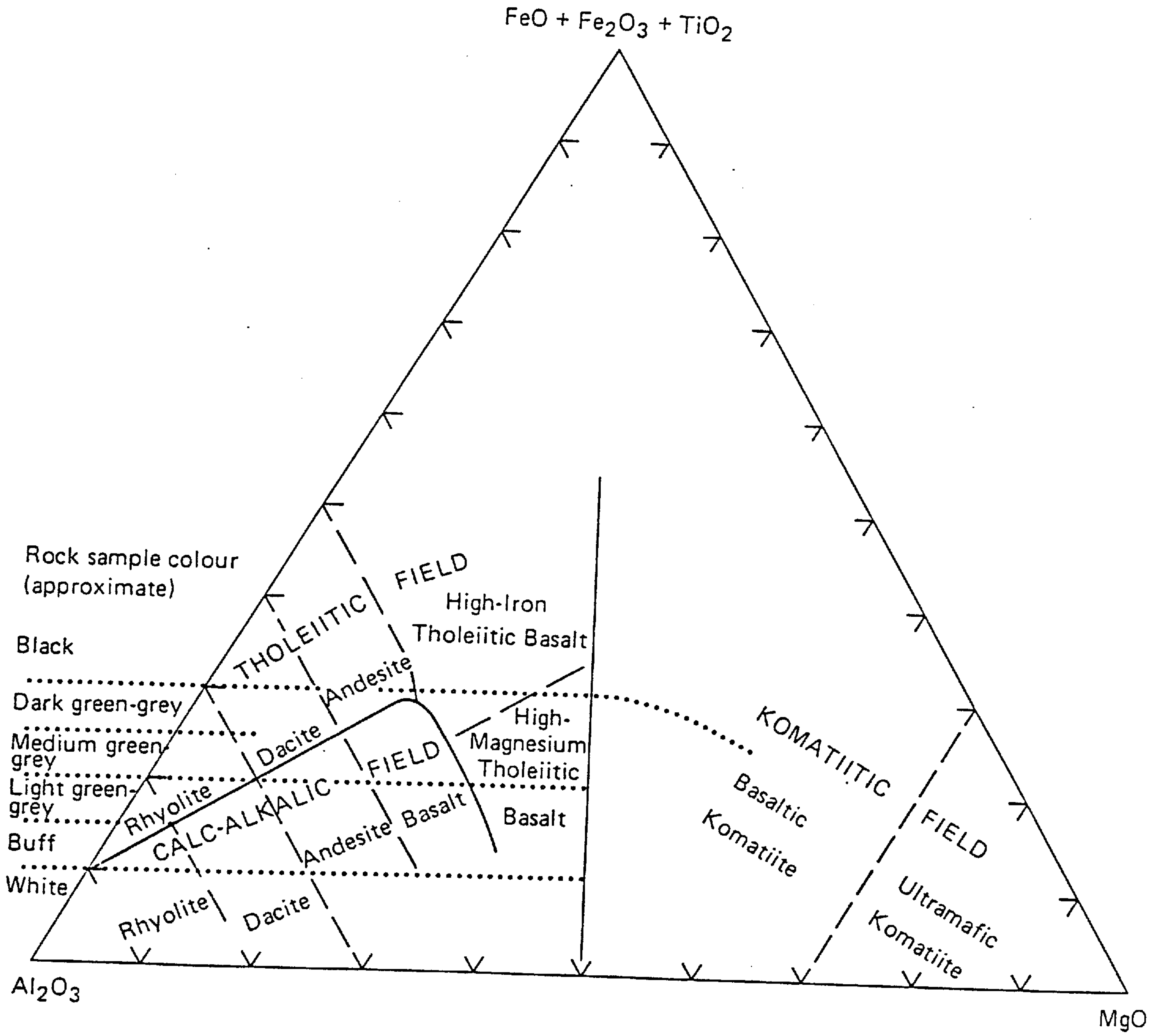

Figure 6 - Jensen Cation Plot Legend

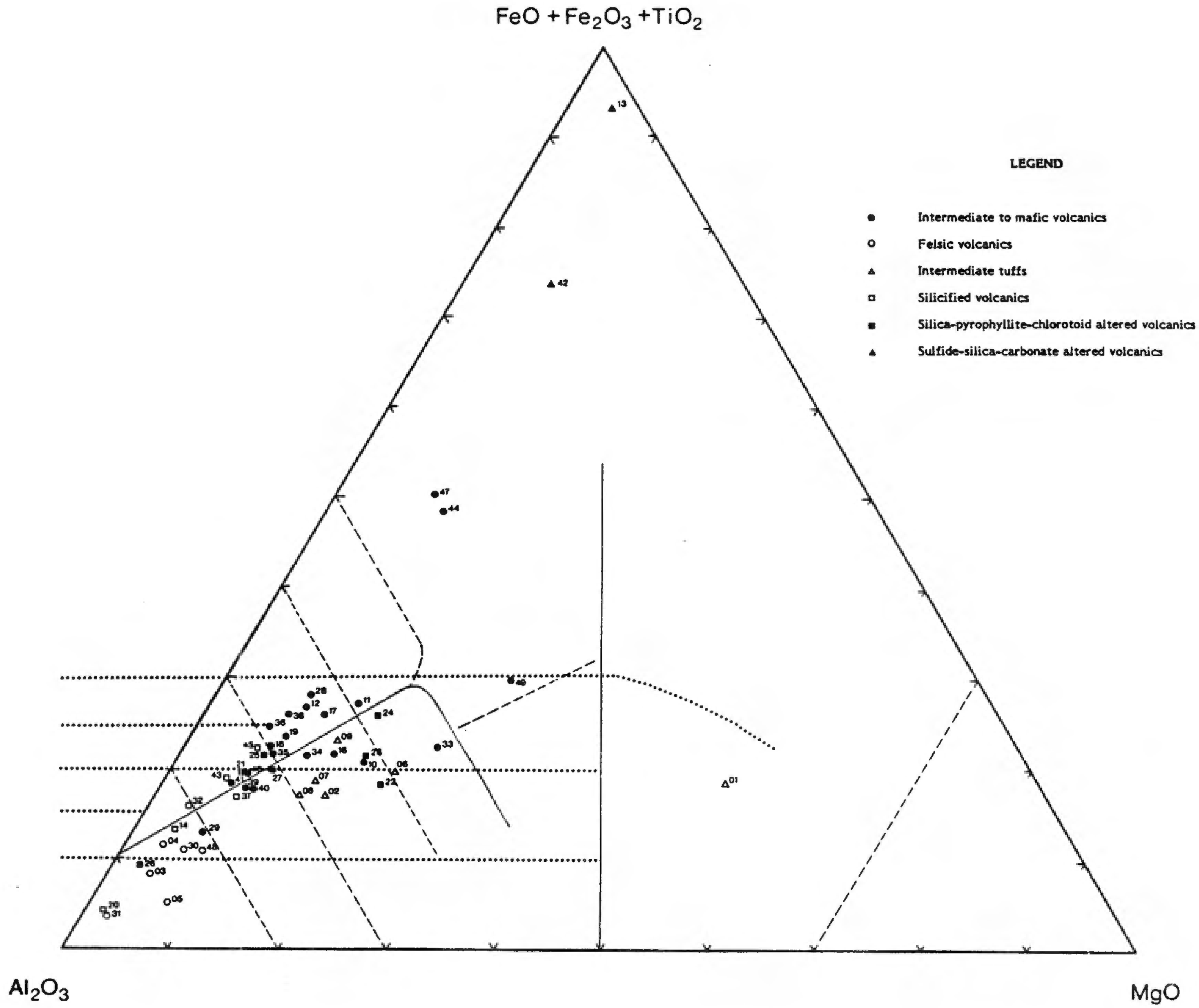

Figure 7 - Jensen Cation Plot - Carpentier Bedrock Samples

The most extreme example of the carbonate alteration occurs in Hole 16 which is completely devoid of mafic minerals but does contain ten percent poorly reactive carbonate, one to two percent very fine, disseminated specular hematite, and traces of fuchsite and tourmaline. Bedrock of Hole 33 is also completely mafic-free, bleached and highly carbonatized. It contains no iron oxides but does contain three to five percent fuchsite. However, the position of the hole marginal to felsic rocks of a small "dome" may indicate alteration related to felsic volcanism rather than the aluminous alteration system.

Tourmaline, in minor amounts, was noted in bedrock from Holes 38 and 41.

In addition to carbonate and iron oxide alteration, partial cherty silicification has occurred in bedrock samples from Holes 14, 37, 39, 43, 45 and 47. The silification may accompany carbonate alteration but specific relationships are unknown. Silicification appears to "control" sulfide deposition to some degree as slightly elevated concentrations of pyrite are often associated with the silicified portions of the samples.

The alteration "zones" do not have clearly defined boundaries but are remarkable in their restriction to foliated intermediate-mafic volcanic rocks. The felsic rocks and associated tuffs in the central portion of the drill area are largely devoid of similar alteration effects possibly indicating that they escaped or were resistant to the shearing and deformation evident in the intermediate-mafic volcanics.

4.3.1.1 Silicified Volcanics and Silica-Pyrophyllite-Chloritoid Altered Volcanics (Unit 1c, d)

The best examples of the aluminous alteration are found in bedrock samples from Holes 20-27. These holes are on the northeast side of the bedrock ridge at the northern end of the drill area marginal to a high grade pyrophyllite deposit (24 x 10^6 tons of 40% pyrophyllite). The alteration in these holes is so complete that textures reminiscent of the original protolith are largely obliterated. The on-strike presence of predominantly intermediate volcanic rocks, and the lack of quartz eyes which could be expected to remain relatively unaffected during alteration suggests the rocks may originally have been intermediate in character as opposed to felsic. Whole rock Fe_2O_3 concentrations in felsic rocks of the area are also lower than those in the altered rocks. Considering that the aluminous alteration results in a general removal of most cations, including iron, the observed Fe_2O_3 percentage should reflect a more mafic original lithology.

Bedrock of Hole 20 is fine grained (0.1 mm), beige, and massive to poorly foliated. It is bleached and heavily silicified, containing patches of sugary chert and ten percent or less pyrophllite. The remainder of the rock appears to have a relict interlocking texture but this is not distinct or diagnostic. No carbonate is present. Disseminated pyrite forms 0.1 percent of the sample. Considering the lack of carbonate, high LOI (8.85%) and Na_2O (5.15%) reported for this sample are curious.

Bedrock of Holes 21 to 27 is grey-white (locally oxidized to beige brown), very fine grained, and strongly schistose. Original textures and mineralogy have been largely destroyed. What remains are rocks composed of a very fine intergrowth of silica-pyrophyllite-carbonate containing eight to twenty-five percent green, euhedral chloritoid metacrysts to 0.5 mm in size which impart a spotted appearance to the rock. The chloritoid metacrysts have grown unimpeded across the strong penetrative fabric suggesting that the alteration post-dates deformation.

Mineral percentages in the groundmass are difficult to determine due to the fine grain size. The samples appear to be composed essentially of silica/chert and thirty to fifty percent pyrophyllite. The fine nature of the chert-pyrophyllite produces a sample which can appear quite hard but which may be easily broken with a needle. Local pure chert and/or pyrophyllite patches are also present. In addition to chert and pyrophyllite, two to ten percent poorly reactive Fe/Mg carbonate is present in these samples with the exception of CA-26-03 which is carbonate-free. Pyrite is absent or constitutes trace amounts to three percent of the samples. Although not conclusive, the pyrite may occur associated with the more cherty phases of the samples.

4.3.1.2 Sulfide-Silica-Carbonate Altered Volcanics (Unit 1e)

A distinct alteration assemblage occurs in bedrock of Holes 13 and 42. In Hole 13, the sample consists of 60-70% massive to semi-massive and crystalline pyrite and one to two percent pyrrhotite. The remainder of the rock is composed of beige, sugary chert-carbonate. The sequence is not bedded but rather appears to represent complete replacement of an unknown host. A replacement origin is further suggested by the absence of a strong foliation as observed in surrounding rocks, and by the coarsely crystalline pyritic phase that is present marginal to massive pyrite.

In Hole 42, the replacement/alteration is not as complete as in Hole 13. The host rock in Hole 42 appears to be a fine grained, quartz-eye intermediate volcanic. A highly chloritic phase, also containing quartz eyes, is present and may represent initial metamorphism. The remainder of the sample consists of beige, massive, sugary chert-carbonate similar to that of Hole 13, with fifteen to twenty-five percent disseminated to semi-massive sulfides consisting of 60:40 pyrrhotite versus pyrite and extensively limonitized material probably resulting from oxidation of the sulfides. In addition to sulfides, five to eight percent disseminated and stringer-like concentrations of magnetite are present. The abundance of magnetite and pyrrhotite may be indicative of a deficiency of sulfur in the system and/or collapse of the alteration system prior to completion. In contrast the alteration and replacement in Hole 13 appears to have proceeded further.

4.3.2 Felsic Volcanics (Unit 2)

Felsic volcanic rocks (Unit 2) are present in seven holes in the central portion of the drill area. They occur associated with a tuffaceous unit (Unit 3) by which they may be underlain.

The felsic volcanics are white to green in colour and range from poorly foliated to strongly schistose. They are hard and fine grained to aphanitic with an interlocking flow texture. Quartz eyes may be present but are not diagnostic. Rare, tiny amygdules may be locally present. The foliation/schistosity is defined by sericite which forms five to twenty-five percent of the sample. Chlorite, in contrast, does not exceed ten percent but does impart a light green colour to some samples. Minor amounts of carbonate (maximum of three percent) are present as disseminations, fracture fillings and with quartz in stringers and veinlets that may constitute up to four percent of the samples. Calcite is most prevalent but three percent poorly reactive carbonate is present in the sample from Hole 32. Sulfides are found in all samples but in amounts of less than 0.1 percent. Pyrite is ubiquitous, but a faint trace of chalcopyrite was noted in Holes 03 and 04. Hole 04 also contained 0.5 percent tourmaline - possibly associated with quartz-carbonate stringers.

On the Jensen Cation Plot (Fig. 7) the felsic volcanic samples fall within the calc-alkalic rhyolite field with the exception of the Fe/Mg carbonated sample of Hole 32 which plots in the tholeitic field near the calc-alkalic boundary. This is thought to indicate primary calc-akalic affinity as the samples do not display the high degree of alteration evident in other rocks.

4.3.3 Intermediate Tuffs (Unit 3)

Tuffaceous rocks of intermediate affinity and chemistry (Fig. 7) are present in six holes along the southwestern profile of reverse circulation drill holes. Their stratigraphic and spatial position indicates that they underlie the felsic volcanics. The tuffs plot predominantly in the calc-alkalic andesite field while felsic volcanics occur mainly in the calc-alkalic rhyolite field. The rock association and chemistry suggests the presence of a small volcanic dome or vent.

The tuffaceous rocks are commonly grey-green in colour, are foliated to schistose and have variable grain sizes from less than 0.1 to 0.4 mm. They are predominantly ash tuffs although scattered lapilli sized fragments are observed; in reverse circulation chip samples identification of coarse fragments is impeded by the small size of the rock chips so only minimum fragment sizes are readily apparent. Bedrock samples from Holes 08 and 09 contain ten percent, or less, plagioclase phenocrysts in an indistinctly ashy matrix, along with ten to twenty percent black, graphitic mudstone/tuff beds with pyrite laminae. An indistinct primary bedding - defined by variations in ash size - may be locally observed in other samples.

The tuffaceous rocks contain both chlorite and sericite in variable proportions. The chlorite often appears to have a light grey colour as opposed to the normal dark green chlorite of mafic volcanic rocks. This may be a compositional feature of the chlorite itself or could result from intergrown chlorite and light coloured sericite. Such grey chlorite is often noted in sedimentary rocks but rarely in altered volcanic flows.

With the exception of bedrock from Hole 01, the tuff samples contain less than one to five percent interstitial carbonate. Calcite is present in Holes 02 and 06, and Fe/Mg carbonate in Holes 07, 08 and 09. Hole 01 is intensely altered with fifteen to twenty (+) percent poorly reactive Fe/Mg rich carbonate. Due to the secondary carbonate alteration, Hole 01 plots in the komatiitic field in Fig. 7 reflecting the addition of magnesium rather than original composition.

Sulfides are present in Holes 02, 07, 08 and 09. Holes 02 and 07 contain two percent or less pyrite (plus pyrrhotite in Hole 02) as disseminations and local crystalline concentrations. Holes 08 and 09 contain three to five percent pyrite as disseminations and minor stringers but with most occurring as thin beds in the dark graphitic phases.

4.3.4 Quartz-Feldspar Porphyry (Unit 4)

Quartz-feldspar porphyry is present in only one hole (CA-86-15) in association with a sugary, recrystallized(?) intermediate volcanic rock. The porphyry is pink-white, leucocratic and appears massive and fractured. Grain size is indistinct although the matrix appears to be approximately 0.5 mm. Approximately ten percent, coarse (1.5 mm) phenocrysts of each of anhedral quartz and sub- to euhedral pinkish feldspar are present. Including both phenocrysts and matrix the sample is composed of thirty-five percent quartz, thirty percent pink feldspar, and thirty-five percent white feldspar. The porphyry also contains one percent coarse pyrite cubes and one percent interstitial calcite. The associated volcanic rock found in the hole appears recystallized and coarser grained than normal indicating the effects of intrusion and heating by the porphyry. Although termed a porphyry, the possibility exists that the sample may actually be a porphyrytic plutonic rock - possibily a quartz-monzonite.

4.4 Bedrock Geochemistry

Analytical results for the bedrock chip samples are presented in Appendix E. Gold assays for thirty-nine of the forty-nine bedrock samples fall below the 5 ppb detection limit. Seven of the remaining ten samples contain 5-20 ppb gold. The most highly anomalous sample (13-02) contains 180 ppb Au. The sample is of a sulfide-chert-carbonate replacement rock which contains greater than sixty percent pyrite. This sample also has elevated levels of Ni (200 ppm), Zn (370 ppm), As (258 ppm), Mo (13 ppm) and Sb (3.5 ppm).

An analytical result of 140 ppb Au occurs in the wholly silicified bedrock of Hole 20 - other elements occur at background levels. The only remaining gold result of greater than twenty ppb is 39 ppb in Sample 18-02. The bedrock sample is of a strongly schistose and altered (sericite, magnetite) intermediate volcanic. As with the bedrock sample of Hole 20, gold is the only anomalous element.

The gold anomalies of Holes 13 and 20, occurring as they do in sulfide rich or silicified rock, are reminiscent of gold occurences in other areas of aluminous alteration. At the Haile Mine in South Carolina, for example, gold is described as associated with pyritic and siliceous rocks.

No other precious or base metal anomalies are present in the Carpentier bedrock samples. Slightly elevated antimony levels (0.4 to 1.4 ppm) are present in the silica-pyrophyllite-chloritoid rocks of Holes 21-27 but the results are not of great significiance.

5. OVERBURDEN GEOLOGY

5.1 Quaternary History and Stratigraphy

The Quaternary history of the Abitibi region is poorly documented and is a subject of considerable controversy. Published accounts (e.g. Baker, 1984; Boissoneault, 1966; Hughes, 1959) are based on surficial mapping and on drill holes from a handful of localities. They are invariably simple and generally assume that:

1. All preserved strata were deposited during the Wisconsinan period.
2. The direction of ice advance was similar for all till horizons.
3. All sedimentation occurred during periods of ice recession.

ODM accepted these interpretations for almost ten years. After drilling more than 5,000 holes in the Abitibi region, however, we now recognize the following additional events (Fig. 8):

1. Two pre-Wisconsinan glaciations involving ice flow directions different from those in the Wisconsinan.
2. A Wisconsinan/Illinoian (Sangamon) interglacial period.
3. A major period of Early Wisconsinan sedimentation that occurred during ice advance rather than ice recession.

The recognition of these events has modified our interpretation of heavy mineral anomalies. Some of the events were previously recorded by Skinner (1973) in the Moose River basin 200 km north of the Abitibi area, and we have retained his stratigraphic names where possible. However, it has been necessary to coin new names for some previously unrecognized or unnamed units and events.

Drilling on the Carpentier property revealed Quaternary sediments related to only the Wisconsinan glaciation. All known Quaternary strata in the Abitibi region are listed in Table 4 and are described starting with the oldest units. The distribution of the Carpentier units is illustrated in Plan 3 and Sections A-A' to B'-B".

Figure 8 - Glacial History

LEGEND

Quaternary Stratigraphy

YEARS B.P.

10,000 LATE WISCONSINAN

[7] Cochrane Sediments
7b - glaciolacustrine member
7a - glaciofluvial/morainal member

[6] Cochrane Till

[5] Ojibway II Sediments
5d - littoral and aeolian member
5c - glaciolacustrine clay member
5b - glaciolacustrine sand member
5a - glaciofluvial member

[4] Chibougamau/Matheson Till

100,000 EARLY WISCONSINAN AND SANGAMON

[3] Missinaibi Sediments
3c - Ojibway I member
3b - forest-peat member
3a - fluvial member

ILLINOIAN

[2] Lower Till and Sediments

1,000,000 YARMOUTH AND KANSAN

[1] Older Till and Sediments

Table 4 - Table of Quarternary Formations

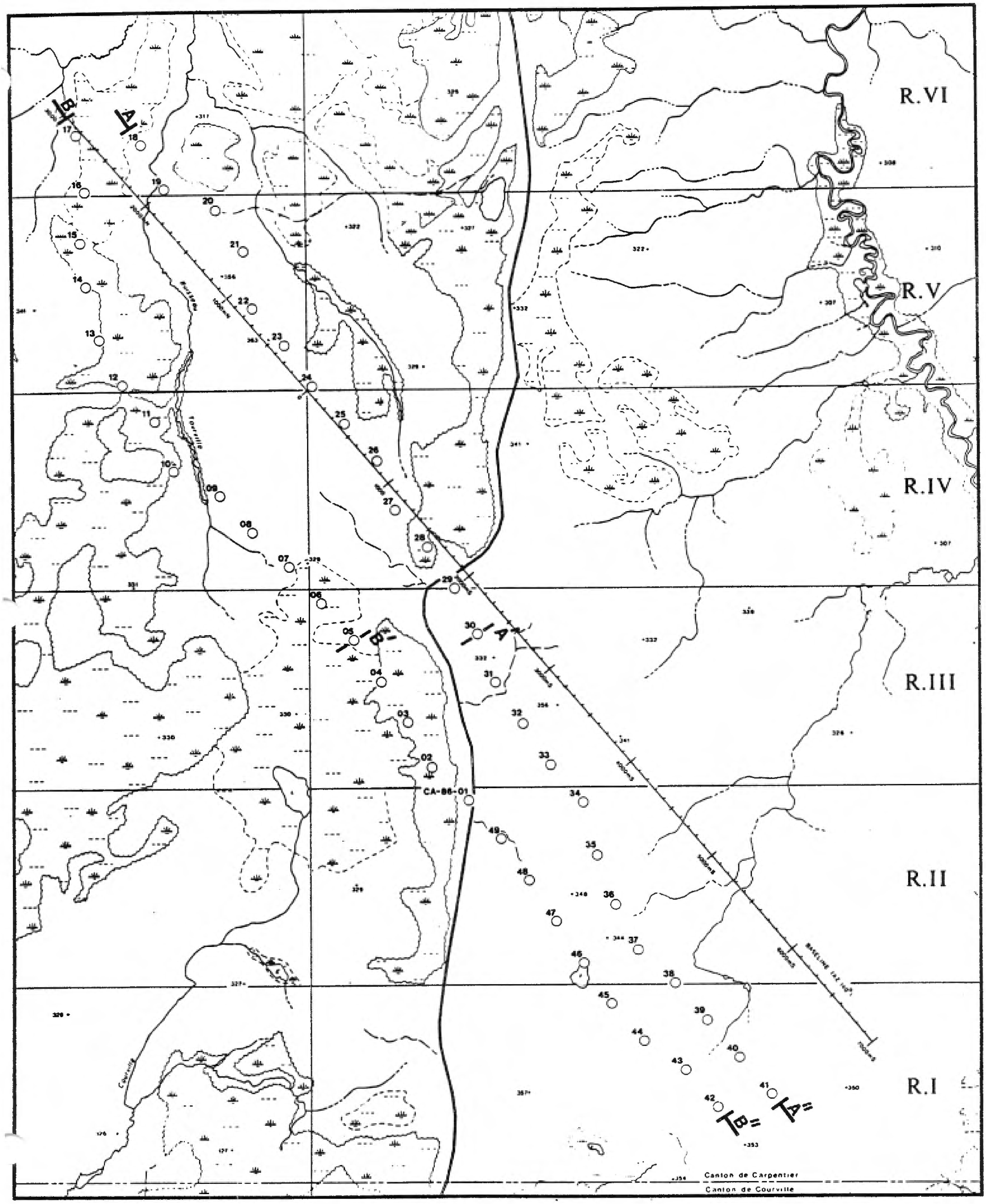

Figure 9 - Location of Quaternary Sections

Microfilm

PAGE DE DIMENSION HORS STANDARD

MICROFILMÉE SUR 35 MM ET

POSITIONNÉE À LA SUITE DES

PRÉSENTES PAGES STANDARDS

Numérique

PAGE DE DIMENSION HORS STANDARD

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5.1.1 Older Till and Sediments (Unit 1)

Till and sediments from the earliest recorded glaciation were not intersected within the Carpentier test area, but are intermittently present further to the north in the Casa-Berardi/Selbaie area. This early glaciation, possibly Kansan, dispersed Paleozoic limestone and Proterozoic sandstone southward from Hudson Bay into Quebec.

5.1.2 Lower Till (Unit 2)

The name "Lower Till" has been so widely used to describe the oldest till known in the Abitibi region prior to the discovery of the older and still lower unit in the Casa-Berardi area that we have chosen to retain it. Most authors (e.g. Baker, 1984) consider the Lower Till to be of Wisconsinan age but it is overlain by sediments that are partly interglacial and occur in the same relative stratigraphic position as Skinner's (1973) Missinaibi Formation of probable Sangamon age. We therefore consider the Lower Till to be of Illinoian age.

It has been difficult to establish the direction of Illinoian ice transport because the Lower Till is preserved only as buried lenses in bedrock valleys where it was protected from erosion in the Wisconsinan period. However, reliable measurements have been obtained from two dispersion trains (Selbaie Mine, Quebec and Bowman Township, Ontario) and from striae at three localities (one outcrop south of the Golden Pond deposit at Casa-Berardi and two open pit mines at Owl Creek and Maude Lake, Ontario). These measurements are consistently between 225 and 240 degrees, indicating regular southwesterly ice flow from a Nouveau Quebec centre (Averill, 1986; Fig. 8). Striae measurements by GSC personnel (Veillete, in press) in Abitibi-Temiscamingue also consistently record pre-Chibougamau/Matheson ice movement in this direction.

Lower Till throughout the Abitibi region is characteristically thin and contains a high proportion of clasts eroded from Abitibi belt formations. Its matrix consists mainly of fine sand and silty rock flour. Gray clay is not an important matrix constituent and is rarely present as beds in the till or between the till and the oxidized interglacial member of the overlying Missinaibi succession. Taken together, these features indicate that till melt-out occurred subaerially with the ice in direct contact with bedrock, producing an excellent sampling medium. Evidently most of the sediment-laden meltwater flowing off the glacier during both ice advance and recession immediately drained northward down the Hudson Bay slope. Unimpeded northward drainage would be expected since the Illinoian ice front trended north-northwest. Wisconsinan melt water, in contrast, became ponded in Lake Ojibway between an east-west trending ice front and the Hudson Bay/St. Lawrence River drainage divide and drained southward over the divide. Matheson Till was therefore deposited under subaqueous conditions.

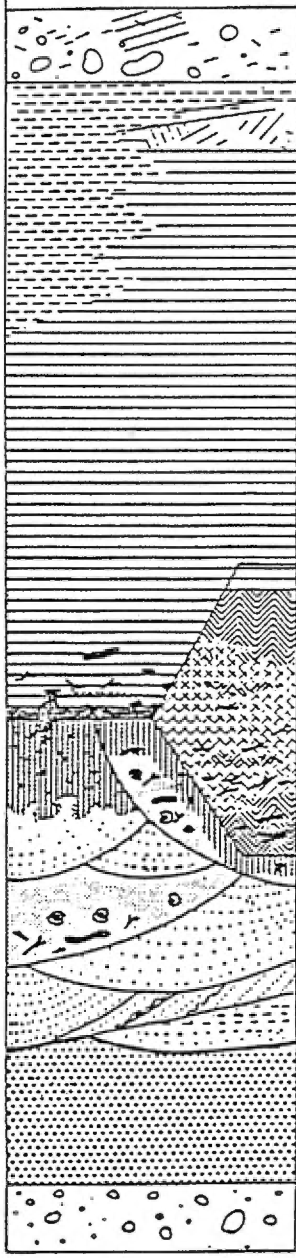
Intersections of Lower Till are not present in the Carpentier drill area.

5.1.3 Missinaibi Sediments (Unit 3)

The name "Missinaibi Formation" was applied by Skinner (1973) to a distinctive sedimentary succession (Table 5) occurring between "Adam Till" and "Lower Till" in the Moose River Basin. If one counts down in the stratigraphic succession, Skinner's Adam and Lower Tills correlate, respectively, with the Matheson/Chibougamau and Lower Tills of the Abitibi region. If the Missinaibi Formation is present in the Abitibi area, therefore, it should overlie the Lower Till and underlie the Matheson/Chibougamau Till. Twenty percent of Abitibi drill holes have intersected a Missinaibi-like unit in the expected position. We use the informal name "Missinaibi Sediments" for this unit.

The complete Missinaibi section at the Moose River type locality comprises four members:

1. A basal marine clay unit related to the incursion of the Bell Sea (i.e. glacial Hudson Bay) in the interval between Illinoian (?) ice withdrawal and isostatic rebound.



SEDIMENTS	INTERPRETATION	ROCK STRATIGRAPHIC UNITS	
TILL	GLACIATION	*ADAM TILL*	
NON- TO SLIGHTLY ORGANIC, VERY CALCAREOUS SILT-CLAY RHYTHMITES COMMONLY SHEARED AND FOLDED. VERY ORGANIC, LAMINATED TO MASSIVE SILT; SLIGHTLY OR NON-CALCAREOUS.	GLACIAL OVERRIDING LITTLE OR NO REWORKING OF FOREST-PEAT-BED; GLACIER PROBABLY AN IMPORTANT SEDIMENT SOURCE. REWORKING OF FOREST-PEAT-BED. TRANSGRESSION OF PROGLACIAL LAKE	LACUSTRINE MEMBER	MISSINAIBI FORMATION
LAYER OF MOSS, STUMPS, STICKS, AND OTHER PLANT FRAGMENTS RARELY FIBROUS PEAT	↑ PEAT AND FOREST GROWTH ↑	FOREST-PEAT-BED MEMBER	
ZONE OF WEATHERING (VERTICAL LINES) AFFECTS LOWER UNITS AS WELL SAND, SILT, GRAVEL, COMMONLY CROSS-STRATIFIED IN PLACES WITH LENSES OF FOSSILIFEROUS SEDIMENT	WEATHERING, SOIL FORMATION STREAM INCISION AND DEPOSITION	FLUVIAL MEMBER	
SAND SILT AND CLAY CONTAINS MARINE FOSSILS.	↑ OFF-LAP OF BELL SEA ↑ MARINE INCURSION (BELL SEA) GLACIAL RETREAT	MARINE MEMBER	
TILL	GLACIATION	*LOWER TILL*	

Table 5 - Stratigraphy of the Missinaibi Formation, Moose River Basin

2. An overlying fluvial (not glaciofluvial) sand and gravel unit that was deposited by streams flowing northward down the Hudson Bay slope in an interglacial period, presumably the Sangamon.

3. A weathered soil profile and forest-peat horizon from the same interglacial period.

4. An upper glaciolacustrine varved clay/silt/sand unit that was deposited by Wisconsinan ice advancing through Lake Ojibway I which was dammed proglacially on the Hudson Bay slope in Early Wisconsinan time.

The marine member at Moose River is thin and has generally been eroded. Its former existence is inferred mainly from marine shells that have been reworked into younger members. The fluvial member is up to 8 m thick but is discontinuous. It is generally oxidized and often contains detrital wood. The peat layer in the forest-peat horizon is up to 2 m thick, similar to modern peat bogs, while the forest layer is typically 2 to 5 cm thick and contains stumps up to 12 cm diameter, similar to much of the modern forest layer in the area.

All of the Moose River members except the basal marine clay are present in the Abitibi region. The marine member is absent because the Bell Sea did not extend this far south. In its place should be discontinuous glaciofluvial and glaciolacustrine members associated with the Illinoian recession, although these units have not been recognized as yet.

The forest-peat member is rare in Abitibi intersections because the sediments are preserved mostly in buried valleys that were probably occupied by small lakes rather than forests and peat bogs in the Sangamon interglacial. Most preserved examples are at higher elevations on the protected lee (down-ice) slopes of bedrock highs.

The upper glaciolacustrine member of Lake Ojibway I is much more prominent, with up to 30 m remaining after overriding by the Wisconsinan glacier. In terms of its thickness, it is similar to the Ojibway II sediments that were deposited during the recession of the same glacier. However, clay beds in the overriden sediments are tough, dry, compact and platy while the Ojibway II clays remain soft except at the base of very thick sections. As at Moose River, the Ojibway I section coarsens upward from clay to sand whereas the Ojibway II section fines upward from sand to clay.

Missinaibi Sediments do not appear to have been intersected in the Carpentier drill area. Their absence is partly due to the fact that a large portion of the area is a bedrock ridge with little overburden or with overburden related to only Late Wisconsinan events. The deepest depression (40 + metres) is occupied by Late Wisconsinan esker sediments. Any previously deposited Missinaibi sediments along this corridor would not be expected to have survived the high energy glaciofluvial environment. The drill area is also proximal to the Hudson Bay-St. Lawrence drainage divide resulting in a thinner overburden cover than in areas such as Selbaie and Casa-Berardi with concomitant lesser thicknesses and poorer preservation of the earliest Quaternary units.

5.1.4 Chibougamau Till (Unit 4)

In the deeper part of the Abitibi-James Bay Quaternary basin, the thick glaciolacustrine member of the Missinaibi Sediments was able to accumulate because the front of the approaching Wisconsinan glacier 100,000 years ago trended east-west, damming the natural northward drainage of meltwater and causing a major proglacial lake — Lake Ojibway I -- to form between the ice and the Hudson Bay/St. Lawrence River drainage divide. The glacier then advanced through the lake, overriding and eroding the bottom sediments. In Late Wisconsinan time, 10,000 years ago, the glacier melted northward. The orientation of the ice front remained east-west as the ice crossed the drainage divide and meltwater was again ponded on the Hudson Bay slope, forming lake Ojibway II. Once in the lake, the receding glacier separated into two distinct lobes along a north-south line passing through the approximate sites of the present towns of Val d'Or and Matagami. The esker-like Harricana Moraine (Dyke et al, 1982) was deposited between the two lobes. The eastern lobe, which covers the Carpentier area, involved southwestward ice movement and deposited Chibougamau Till. The western lobe involved southeastward ice movement and deposited Matheson Till (Fig. 8).

The Carpentier area was on the southern edge of Lakes Ojibway I and II where the water was shallow and relatively thin sandy sediments were deposited. The Selbaie - Casa-Berardi area was in the middle of the lakes where the water was more than 100 metres deep and thick ice-proximal sands and ice-distal clays were deposited. As a result, the Chibougamau Till at Carpentier and in other areas near the south margin of the basin is different from the same till to the north. Specifically it is thin, consistently has a sand-rich matrix, is rarely stratified and seldom contains coherent eroded sheets of Ojibway I sediments while the till to the north is thick, may have either a sand-rich or clay-rich matrix, is generally bedded toward the top and often contains eroded sheets of Ojibway I clay.

Chibougamau Till in the Carpentier drill area ranges from 0-18.8m in thickness and averages less than 3 metres. Southwest of the pyrophyllite ridge, (Sections B-B', B'-B") thicknesses range from 0-6.7m and average 1.6m. Northeast of the ridge, (Sections A-A', A'-A") thicknesses range from 0-18.8m and average 4.3m (averages based only on those holes which contain till). The preservation of greater thicknesses of till northeast of the ridge implies a "plastering" of till against the ridge by the south-southwesterly moving ice. On the lee side of the bedrock obstruction, the basal load of debris would be less resulting in a thinner till unit.

Till is thin or absent along and marginal to the bedrock ridge in the north and also along the glaciofluvial scour channel Twenty-six percent of the drill holes contain no till. As the bedrock ridge is within the target silica-alumina alteration zone, and the glaciofluvial channel bisects this zone at an acute angle, most of the holes with no till are in a critical area. This greatly decreases confidence in assessing the mineral potential of the alteration zone using heavy mineral data alone.

The Chibougamau Till characteristically has a grey-beige sand-silt matrix. Clay is a matrix consistuent only in Holes 21, 22, 23, 25 and 39 indicating the paucity of Ojibway I clay prior to Wisconsinan glaciation. The till is exposed at surface on the northeast flank of the silica-pyrophyllite ridge - here oxidation imparts a beige-brown colour to the till matrix. In the extreme southeastern portion of the drill area, near surface till intersections may be mantled by thin littoral sands.

Thin till intersection may give the appearance of having a sorted sand matrix. Till in Holes 03, 09, 10 and 17 near the bedrock ridge appears to be deficient in fine matrix silt as a result of washing during deposition for it is covered by clay and could not have been winnowed after deposition. The "till" of Hole 42 is similar in that it lacks the fine matrix component. However, it is not protected by a clay and may be a lag or beach deposit formed during the lowering of Lake Ojibway II - it may be more correctly termed a gravel.

Clasts in the till range from pebble to cobble size. The clasts area of local Abitibi belt volcanics and sediments and more distal granitoid material. Proportions range from 50:50 to 95:05 volcanics/sedments versus granitoids, but commonly fall in the range of 70-80% volcanics/sediments and 20-30% granitoids. The high local clast component is indicative of intense scouring of local bedrock.

5.1.5 Ojbway (II) Sediments (Unit 5)

Ojibway II Sediments include the following sub-units:

5a. Glaciovluvial sand and gravel deposited at the mouth of an ice-walled channel that delivered meltwater to Lake Ojibway II while the Chibougamau Till was being deposited.

5b. The lower esker/ice proximal sand (± gravel) member of the Ojibway II lake bed.

5c. The upper ice-distal clay-silt member of the Ojibway II lake bed.

5d. A conformably overlying/interfingering sequence of offlap, littoral sand and minor gravel locally forming spits, terraces and beaches along the flanks of the esker (Subunit 5a) that bisects the drill area. Following the draining of Lake Ojibway II, dunes were developed in some areas.

The Ojibway glaciofluvial member (Subunit 5a) forms a southward trending esker that is up to 45 m. thick and sub-parallels and bisects the drill profiles in the southern half of the drill area. The surface expression of this esker is distinct on aerial photographs where it stands out in moderate topographic relief. Irrespective of the relief, large amounts of esker sediments have been redistributed by wave action producing the glaciolacustrine (Subunit 5b) and littoral (Subunit 5d) members that underlie and overlie, respectively, glaciolacustrine clay and silt (Subunit 5c). Wave action also resulted in a smoothing of the esker profile and infilling of kettle depressions that are most noticeable by their absence!

The esker sediments include fine to coarse and granular sands, and pebbly to cobbly gravels - six meters of boulders with minor interstitial sand are present at the base of Hole 30. The fine to coarse sands often display a clean beige colour that can be mistaken for post-depositional oxidation. In fact the colour is due to grain size and the well sorted nature of the sediments. Very fine sands, or silty sands are commonly described as being grey in colour. Oxidation is generally restricted to the initial 3 metres of a hole and/or these areas lying above the water table.

The gravels have a medium to coarse sand matrix but are locally clast supported. Thinly bedded gravels and fine sands often have a till-like appearance in the disturbed reverse circulation samples but sorting in these units is usually much better defined than in tills. Clasts vary from pebble to cobble size, with the aforementioned boulders present at the bottom of Hole 30. Clast composition essentially mirrors that noted in Chibougamau Till.

Holes 25 and 26 contain an enigmatic oxidized gravel resting on bedrock. In Hole 25 this unit is overlain by unoxidized Chibougamau Till and in Hole 26 by unoxidized Ojibway sands. The oxidized nature of the sediment is due to pre-glacial oxidation of the source rocks as most clasts are of a highly weathered schist. The gravel probably records a brief, restricted ice-proximal glaciofluvial system - possibly occurring between the ice front and the bedrock ridge - which was subsequently overriden by the ice.

The Ojibway II glaciolacustrine member in the Abitibi region comprises a thin, basal ice-proximal grey sand (Subunit 5b) overlain by a thick succession of ice-distal, deep water clays and silts (Subunit 5c). In the Carpentier area, the same succession is observed with minor modifications. The "basal" sand (5b) has a more variable thickness and rather than relating to the position of the ice front, is considered to reflect proximity to the major sediment source - i.e. the esker. In drill hole logs (Appendix A) and Quaternary sections (eg. Section B'-B") it is observed that thick sands, with lesser, interbedded clays and silts, are present marginal to the esker but with increasing distance from the glaciofluvial system, "pure" clays become more prominent with sands restricted to the basal portions of the glaciolacustrine section or being absent.

Overlying the glaciolacustrine sediments and merging with the glaciofluvial sands and gravels is a veneer of offlap, littoral sediments (Subunit 5d) that record decreasing water depth as Lake Ojibway II drained in Late Wisconsinan time. Offshore currents carried esker-derived sediments into the shoaling lake producing terraces and spits marginal to the esker and to a lesser extent along the silica-pyrophyllite ridge (Plan 3). Away from the terraces and spits, areas originally assumed to have been underlain strictly by glaciolacustrine clays are covered by a featureless sand apron. Recovery problems in many holes in the initial 3-5 metres are believed to have been due to the presence of this apron as the sand was blown aside by the pressurized drilling fluid. In some holes, recovery was obtained only once glaciolacustrine clays were encountered, or in the sands at depths sufficient to provide tight sediment seal around the drill bit.

The littoral sediments are predominantly fine grained sands. Minor clay/silt seams are variably present as would be expected in the shallow subaqueous environment. Locallized gravel intersections near the esker proper, bedrock ridge and surface exposures of till (i.e. positive topographic features) are thought to represent beaches or bedded turbidite-like material formed by slumping of sedimentary material into Lake Ojibway II.

5.1.6 Cochrane Till (Unit 6) and Cochrane Sediments (Unit 7)

The final glacial event in the Abitibi, before the draining of Lake Ojibway II, was a minor southeastward readvance of the Matheson lobe into the northern part of the lake. This event is known as the Cochrane Stage (Prest, 1964). Clay eroded from the lake bottom was redeposited as Cochrane Till and a new layer of glaciolacustrine clay and sand that we call Cochrane Sediments was deposited over the till. The Cochrane advance terminated in the Joutel-Matagami area well to the north of the Carpentier drill area.

6. OVERBURDEN GEOCHEMISTRY

6.1 Regional Gold Background

Most gold occurrences in the Abitibi belt are of the free gold type. Even in Casa-Berardi or Hemlo-type deposits having a high pyrite/arsenopyrite content, most of the gold is free although very fine grained (50 microns). Thus, all tills over the Abitibi belt contain scattered free gold particles. Due to the nugget effect — the chance occurrence of a coarse gold particle in a given sample — the gold backgrounds of small till samples collected at the same site will vary by several orders of magnitude.

The nugget effect can be overcome if a sample of sufficient size is collected and all of the gold is concentrated into a small heavy mineral fraction that is then analyzed in its entirety (Clifton, 1967). We have found that at least 50 kg of till would be needed to overcome the nugget effect. However, it is impractical to collect, process or analyze samples of this size. We have standardized to 7-9 kg samples because reverse circulation drills deliver this quantity of material during one metre of advance.

Rather than trying to eliminate the nugget effect, we have developed procedures for recognizing and discounting anomalies that are caused by it. Specifically we measure the dimensions of all gold grains sighted on the table or recovered by panning and use these dimensions to calculate the expected contribution of each gold grain to the concentrate assay (Appendix C). In this way, the cause of each high assay is identified and nugget anomalies are screened out.

Most gold particles occur as thin flakes and it is difficult to position these flakes on edge to measure their thickness. However, we have found that each flake can be treated as a disc in which the thickness is a function of the diameter. For flakes of less than 1000 microns diameter, this relationship is expressed by the following equation:

$$t = 0.2d - 0.01\frac{(d-100)\ d}{100}$$

Thus, by simply measuring the diameters of the gold flakes that separate from the samples during tabling, it is possible to calculate the relative volume of gold in a given flake and from this relative volume to calculate the geochemical assay that the flake would produce in a sample of specific size. Clifton (1967) showed that a 100 micron flake will produce a value of approximately 100 ppb in a 15-gram sample. Conveniently, the analyzed 3/4 concentrates of reverse circulation samples also weigh about 15 grams. Thus the range of assays produced in a "standard" reverse circulation concentrate by a single gold flake of varying size is as follows:

Size Classification	Flake Diameter (microns)	ppb Au
Very Fine	50	10
"	100	100
Fine	150	330
"	200	760
Medium	300	2,400
"	400	5,400
"	500	10,000
Coarse	600	16,200
"	700	24,000
"	800	33,300
"	900	43,700
"	1,000	55,000
Very Coarse	1,000+	55,000+

It is apparent from the above figures that till concentrates that contain no free gold will assay less than 10 ppb provided auriferous sulphides are also absent. Concentrates containing a single gold particle will assay from 10 ppb to more than 55,000 ppb depending on the size of the gold particle. Thus the normal background for till concentrates ranges from less than 10 ppb to more than 55,000 ppb.

We have found that fewer than 30 percent of till concentrates from the Abitibi region yield gold assays lower than 10 ppb. Most samples give assays of 20 to 500 ppb, suggesting the presence of one to five gold particles in the 50 to 150 micron range or/and of auriferous sulphide minerals. Ten to fifteen percent of samples contain a coarser gold grain that produces an assay over 1000 ppb.

Thick gold particles do not separate well from magnetite on the table, and in more than 80 percent of the cases where a high assay has been reported for a sample in which we did not see gold, the assay was caused by a single thick gold particle coarser than 150 microns. This is relatively easy to prove by panning the retained 1/4 concentrate and assaying it (the 3/4 concentrate either is destroyed or is not available for four months after analysis), preferably by the non-destructive neutron activation method. If the 3/4 concentrate assay was caused by a single gold grain, the 1/4 assay will be low. If the assay was caused by fine gold, a large number of grains would be required. Several such grains will be visible when the 1/4 pan concentrate is panned and this concentrate should assay the same as the 3/4 concentrate . If the 3/4 assay was caused by invisible gold in sulphides, the 1/4 concentrate will normally contain more than 10 percent pyrite plus elevated levels of another sulphide mineral such as arsenopyrite, galena, chalcopyrite or molybdenite, and will assay the same as the 3/4 concentrate.

6.2 Gold and Base Metal Anomaly Threshold Levels

Gray (1983) observed that heavy mineral gold assays in a number of dispersion trains tested by Asarco were 3000 ppb or higher. We have arrived at the same 3000 ppb threshold figure in a different manner. As early as 1976, we recognized that the grade of our concentrates within 1 km of source on base metal and uranium dispersion trains was similar to the grade of the source provided the source was of normal width (5 to 10 metres) and was oriented perpendicular to the direction of glacial ice advance. We have since proved that the same relationship applies to gold dispersion trains. Thus, assuming that gold mineralization must grade a minimum of 3 g/tonne (3000 ppb) to be significant, the anomaly threshold level in our concentrates is 3000 ppb.

It is not uncommon for gold deposits in the Abitibi belt to have a subcropping strike length of only 100 metres. Most of these deposits strike sub-parallel to bedrock stratigraphy and sub-perpendicular to glaciation. Using the 3000 ppb anomaly threshold level, a cross-ice reverse circulation drill hole separation of 100 metres would be needed to detect the deposits. However, most of the deposits have sub-ore strike extensions that increase the total mineralized length to three to four times the deposit length. If a low anomaly threshold is used and careful gold grain counts are made, the mineralized zones can be detected with confidence using a 300-400 metre hole separation. This greatly reduces exploration costs. We therefore consider any gold values over 1000 ppb to be potentially anomalous, and we prefer to pan concentrates in which any gold is seen or in which pyrite levels are sufficient (+20 percent) to interfere with the table gold count.

The base metal background of a heavy mineral concentrate, and particularly of a high-density methylene iodide concentrate, is higher than that of a whole sample, ranging up to several hundred ppm, because base metals tend to substitute to a significant extent for other metal ions in the structures of heavy silicate and sulphide minerals such as pyroxene and pyrite. The established anomaly threshold level for Cu and Zn, indicating the presence of ore-type minerals such as chalcopyrite and sphalerite in the sample, is 700 ppm. Because methylene iodide concentrates from dispersion train samples tend to grade the same as the bedrock source mineralization, massive sulphide deposits which typically grade 50,000 ppm (5 percent) combined Cu-Zn often produce anomalies over 10,000 ppm in each metal. The same deposits average 35 ppm (1 ounce/ton) silver, and the silver anomaly threshold corresponding to 700 ppm Cu or Zn is about 2 ppm. The anomaly threshold level for arsenic is about the same as for Cu and Zn but only those anomalies having a gold association are significant.

6.3 Stratigraphic Properties of a Dispersion Train

Glacial processes are systematic and heavy mineral dispersion trains in tills have specific configurations (Averill, 1978). For example, dispersed material tends to be sheeted progressively upward in the ice with increasing distance from source, causing the trains to rise in the till and thicken down-ice. Lateral spreading, in contrast, is minimal and most trains are tapered ribbons rather than fans.

ODM has traced nine gold dispersion trains (Table 1) and several base metal and uranium trains to source on both new discoveries and known deposits. These trains have had the following properties:

1. At a specific distance from source, the mineralization in adjacent drill holes was at a specific level within a specific till unit.

2. The train was at least two samples (2-3 m) thick unless:
   (a) The host till was very thin.

or (b) The train was intersected within 100 m of source.

3. The width of the train was not more than twice the cross-ice length of the source mineralization.

4. The maximum length of the train for deposits oriented perpendicular to glaciation was 1 km (gold) to 5 km (base metals/uranium).

6.4 Properties of a Free Gold Dispersion Train

Ten to fifteen percent of background till samples over the Abitibi belt produce heavy mineral gold anomalies higher than our 1000 ppb threshold due to the nugget effect. For the reverse circulation/heavy mineral method to be effective, free gold dispersion trains, which are relatively rare, must be differentiated with confidence from the numerous nugget anomalies. This is done on the basis of the gold grain counts rather than the assays. We have found that the gold particles in significant dispersion trains have the following properties:

1. At least 10 gold particles are present per 7 kg of till matrix.

2. The gold particles are of a common size, reflecting the size of crystallization at source.

3. The gold particles are of a common shape, reflecting a common distance of transport from source.

4. Since most gold dispersion trains are traceable for less than one km (Table 1) and gold particles become abraded after one km of ice transport (Fig. 5), the shape of the gold particles is either irregular or delicate.

Background nugget anomalies, unlike dispersion trains, do not normally repeat in the section, although with 10 to 15 percent of samples containing anomalies of this type, chance repetition does occur. Another property common to dispersion trains of all types is the presence of pathfinder minerals because most mineralized zones are multi-metallic. Even deposits that are considered to be strictly free gold occurrences generally have halos containing sufficient pyrite, arsenopyrite, galena, chalcopyrite or molybdenite for a pathfinder association to be evident in the dispersion train. Nugget anomalies have no pathfinder association.

6.5 Properties of an Invisible Gold Dispersion Train

We have encountered only one invisible gold dispersion train among nine gold trains tested. In one other train, the gold was very fine and more was recovered as composite gold/sulphide grains than as free grains.

In invisible gold trains it is not possible to use gold particle shape to predict distance to source. The distance must be gauged from the vertical positions of the anomaly in the host till and of the till in the stratigraphic succession. In most other respects, however, invisible gold dispersion trains are easier to trace than free gold dispersion trains. The following specific advantages are cited:

1. A pathfinder mineral association is always present.

2. The pathfinder minerals occur in sufficient concentrations that they can be seen in pebbles as well as in the heavy mineral fraction, and the host rock can therefore be determined.

3. The source mineralization is generally conductive and can be located by geophysical methods.

4. Gold/pathfinder metal ratios in the concentrates are relatively constant, and any interference from background nuggets is readily recognized.

5. The dispersion trains are longer and more uniform than free gold trains.

Some of these advantages apply only to unoxidized till samples from drill holes. Invisible gold is chemically reconstituted into the clay fraction if the host sulphides are destroyed by oxidation. Thus, in surface pit sampling programs, heavy mineral analysis will detect only the free gold. Conventional geochemical analysis should be used if sulphide gold targets are expected.

6.6 Carpentier Heavy Mineral Gold Anomalies

Gold Assays exceeding the 1000 ppb anomaly thereshold were reported for seven of the one hundred eighty-eight overburden samples (4%). Two of these samples also exceeded the 10 gold grain anomaly threshold. Six additional samples (3%) containing visible gold would have given assays over 1000 ppb if the coarsest grain(s) had entered the 3/4 analytical split of the heavy mineral concentrate. Nine other samples (5 percent) met or exceeded the 10 gold grain anomaly threshold but yielded less than 1000 ppb gold because all of the grains were very small. Thus, a total of 12 percent of the Carpentier samples are anomalous. This is within the normal 10-15 percent range for the Abitibi region.

The low anomaly frequency at Carpentier is somewhat misleading as visible gold is present in 55 percent of the samples (average of 2.2 grains/sample) and the mean gold value for all concentrates is approximately 250 ppb (obtained after cutting all assays of greater than 1,000 ppb to 1,000 ppb). A similar elevated gold background has been noted in the Val d'Or area, where, on one project, a mean value in excess of 500 ppb Au was calculated. This contrasts sharply with areas such as Selbaie—Casa-Berardi where the mean gold background of heavy mineral concentrates is in the order of 100 ppb.

Glaciofluvial and littoral sands and gravels at Carpentier contain an average of two grains of visible gold per sample and give a mean assay of 200 ppb. Tills, on the other hand, contain an average of 2.5 grains of V.G. per sample and produce a mean assay of approximately 330 ppb. Comparing the mean assays to the average gold grain sightings is not very meaningful as not all concentrates were panned to isolate "all" of the visible gold, and high concentrations of V.G. in tills of Holes 40 and 41 tend to bias the average gold content of the tills. The variation in the mean assay results, however, may suggest a partial contribution to the till assays by invisible sulfide gold - a type not commonly found in sands and gravels as the sulfide minerals are often destroyed in the abrasive glaciofluvial environment. The elevated gold background is present throughout the drill area and appears to be a regional feature not merely restricted to the high strain aluminous alteration zone.

The high frequency of gold particles in the overburden of the area results in an unusually high number of samples containing ten or more gold grains (11 of the 188 samples, or 6 percent). Many other samples contain multiple, but less than ten, gold grains. The majority of the gold-particles, in both tills and sediments, are characterized by a fine grain size (less than 200 microns) and abraded morphology.The fine grain size of the visible gold in tills probably reflects the primary grain size of gold in the source areas. Within the glaciofluvial and glaciolacustrine sections the gold grain size often mirrors the grain size of the host sediment - a feature that has been noted in Missinaibi placers in the Kirkland Lake and Casa-Berardi areas. Thus the glaciofluvial and glaciolacustrine sedimentary processes appear to have reworked the till and locally concentrated the gold. These gold concentrations cannot be traced to a specific source but do reinforce the elevated regional background.

Fig. 10 is a diagrammatic representation of the Carpentier overburden gold anomalies. In this figure the sixteen holes that contain anomalous levels of gold are plotted INPUT-fashion. Where two or more anomalies are present in a hole, the best anomaly is shown. The cross-hair indicates a gold content greater than or equal to the 1,000 ppb (measured or calculated) or 10 grain/sample anomaly threshold levels. Quadrants one through four (clockwise from upper right) represent greater than or equal to one thousand ppb Au, greater than or equal to ten grains of visible gold, greater than 50 percent of the visible gold being delicate and stratigraphic continuity, respectively.

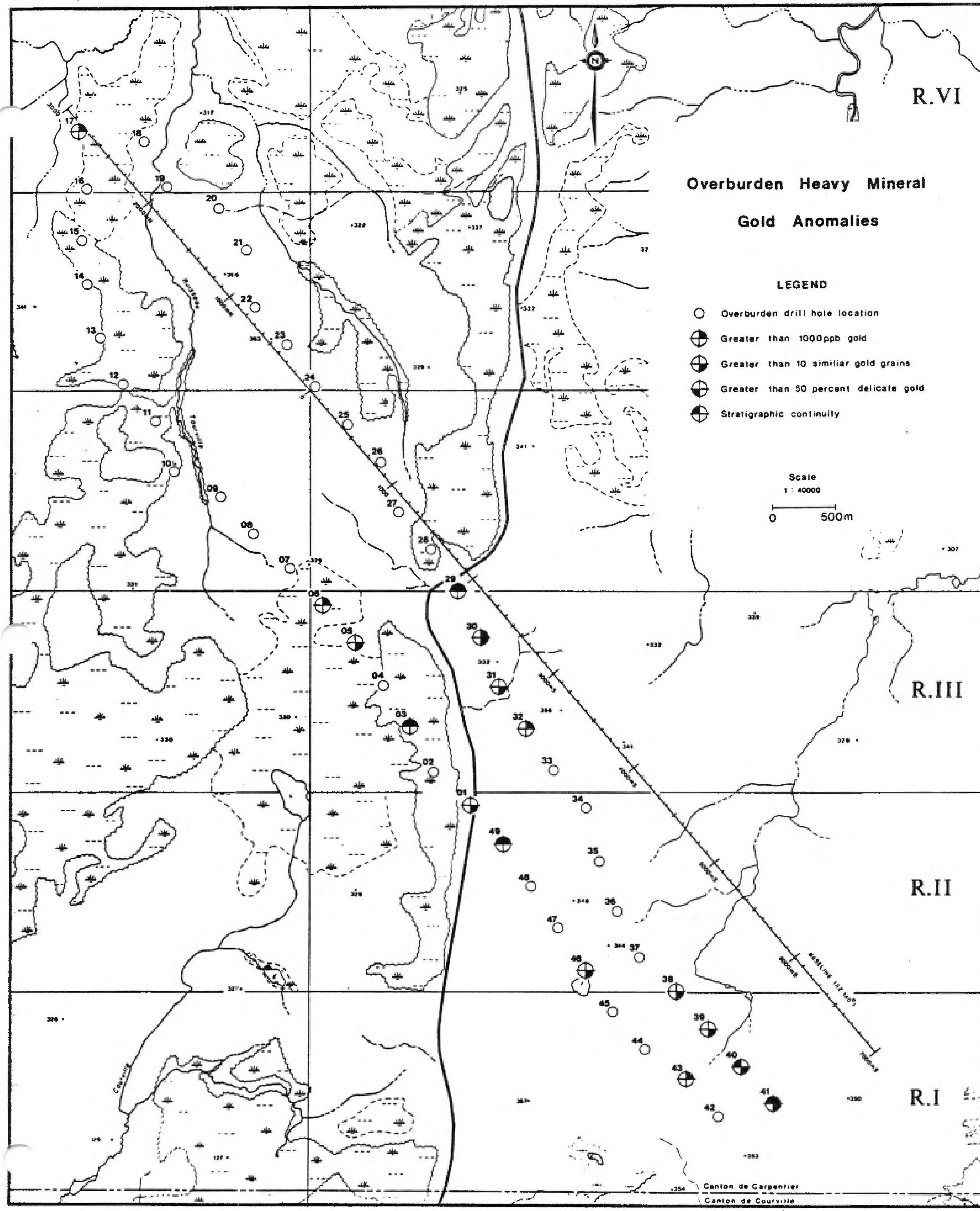


Figure 10 - Overburden Heavy Mineral Gold Anomalies

As numerous anomalous samples and holes are present, various screening processes are used to separate background noise from those anomalies which are, or may be, caused by dispersion from significant mineralized sources. The screening processes and anomalies discounted are listed in Table 6. In some cases anomalies are discounted for more than one reason.

One screening method is to eliminate anomalies which have no stratigraphic continuity. In this regard, an anomaly at the base of a till horizon is assumed to have stratigraphic continuity as is an anomaly in a single sample till horizon. A lack of stratigraphic continuity is displayed by a single, isolated anomalous sample within or at the top of a multi-sample till horizon. A lack of stratigraphic continuity may be due to the presence of a single nugget or an erratic, high concentration of gold grains, especially in placer beds in Missinaibi gravels or at the washed surfaces of till horizons.

A second phase of anomaly screening is the calculation of assays (Appendix C) using the formula/parameters discussed in a previous chapter. In this case the calculated and measured (geochemical) assays are compared. Either good correlation or a low measured assay is indicative of sufficient visible gold being seen initially to account for the anomaly. We consider the correlation between calculated and measured assays to be "good" if the calculated assays are not more than twice as high as or fifty percent less than the measured assays. This allows for a doubling or halving of the normal thickness factor for flake gold particles used in the calculation. A low measured assay indicates that the largest grain of visible gold or a disproportionate number of the grains remained in the retained 1/4 split of the concentrate. Thus either good correlation of measured and calculated assays or a low measured assay generally indicates background noise if the 10 gold grain threshold for dispersion trains is not met.

A third screening method is the direct elimination of nugget anomalies by check panning and analysis. Table 6, in addition to Low Assays and Good Correlation, includes another category - High Assays - which refers to those samples in which the number of gold grains sighted was not sufficient to explain the anomalies obtained. High Assays can be caused by any one of the following:

Gold Anomalies				Grains V.G. (*Not Panned)	1st Phase Screening (No. Strat. Cont.)	2nd Phase Screening (Good Corr./ Low Assay)	3rd Phase Screening (Inferred Nugget)	Remarks
Hole No.	Sample No.	Au Assay (ppb) Meas.	Au Assay (ppb) Calc.					
CA-86- 01	02	220	294	11	X	X	NA	Fine grained sand sample
03	04	1,410	1,842	1*	Basal	X	NA	Till sample
05	02	734	796	12	X	X	NA	Fine to medium grained sand sample
	04	1,690	-	0*	Basal	High	X	Till sample; check panned 1/4 split, 1D @ 100x75, 1A @ 75x75, 5% pyrite
06	03	755	1,163	6	X	X	NA	Till sample
17	01	2,153	2,003	1*	X	X	NA	Till sample
29	03	6,450	1,204	3	Basal	High	NA	Till and fine to medium grained sand sample; check panned 1/4 split, 1A @ 50x25; 1A @ 200x175, 15% pyrite
30	08	54	116	11	X	X	NA	Fine grained sand sample
	11	1,640	343	8	X	High	X	Fine to medium grained pebbly sand sample; check panned 1/4 split, 1A @ 150x100, 7% pyrite
	13	658	1,294	14	X	X	NA	Fine to medium grained pebbly sand sample; gold grains from 25 to 250 microns in size
31	08	390	158	12	X	X	NA	Fine to medium grained sand sample
32	02	687	3,677	2	X	X	NA	Medium to coarse grained sand sample
	08	410	3,527	4	X	X	NA	Fine to medium grained sand and gravel sample
38	01	100	104	10	X	X	NA	Fine grained sand sample
39	11	380	396	10	X	X	NA	Till sample
40	02	280	430	18	Vertical	X	Poss. train	Till sample; Au grains abraded approaching irregular in shape
41	01	220	1,170	15	Vertical	X	Poss. train	Till sample; Au grains abraded approaching irregular in shape
	02	310	269	23	Vertical	X	Poss. train	Till sample; Au grains abraded approaching irregular in shape
43	06	2,280	3,413	1*	X	X	NA	Fine to medium grained sand sample
46	03	150	169	15	X	X	NA	Fine to medium grained sand and pebble sample
49	05	1,460	1,590	2	Chance	X	NA	Gravel sample
	06	410	2,787	5	Basal	X	NA	Till and gravel sample; gold grains vari-sized (50 to 375 microns)

Table 6: Gold Anomaly Discrimination For Samples With Calculated or/and Measured Assays Over 1000 ppb or/and More Than 10 Grains Visible Gold

1. A missed nugget.

2. A sighted nugget for which the actual thickness is greater than the assumed thickness (0.1-0.2 x diameter) used in the assay calculation.

3. The difference in weight between the total concentrate on which the calculation is based and the 3/4 concentrate that is assayed (applies only to samples in which a nugget is present and a pulp and metallics assay is not done, as fine gold is evenly distributed and a metallics assay overcomes the problem of uneven gold distribution).

4. A large number of missed fine gold grains.

5. Invisible gold in pyrite or other heavy minerals.

Missed nuggets normally account for about 80 percent of High Assays, the thickness and weight factors for 10-20 percent, and fine gold and invisible gold for less than 10 percent. Only the fine gold and invisible gold anomalies are significant.

One method of evaluating anomalies in the High Assay category is to pan the retained 1/4 concentrates (Table 6). An absence or minimal amount of fine visible gold or less than ten percent sulfides in the 1/4 concentrate precludes the occurrence of fine gold or sulphide gold in anomalous concentrations in the 3/4 analytical split, and such anomalies can be assumed to have been caused by a missed or unusually thick nugget. Samples which apparently contain multiple gold particles but do not meet the ten grain minimum (assuming visible gold in the 1/4 and 3/4 is directly proportional) are grouped with nugget anomalies provided sulphide levels are low. Where uncertainty exists the 1/4 concentrate can be analyzed by INA with the hope of duplicating the 3/4 analysis.

Using the screening processes described, the majority of Carpentier anomalies can be confidently discounted. Single sample anomalies are most easily discounted. If three adjacent anomalous samples in a thick overburden section are considered, more difficulty may be encountered in relegating the results because of their apparent stratigraphic continuity. However, one anomaly may be due entirely to a single nugget observed initially. Another may be due to five or six background grains with a good correlation of measured and calculated assays. This leaves a single sample anomaly now having no stratigraphic continuity. The high frequency of background gold grains makes chance repetition of nugget anomalies in adjacent samples common. For multiple sample anomalies to be considered dispersion from a unique source, each anomalous sample must have the same parameters (i.e. type, size and shape of gold, pathfinder elements, etc.).

6.6.1 Interpretation of Heavy Mineral Gold Anomalies in Sediments

Twenty-two anomalous samples are present in the Carpentier drill area (based on a 1000 ppb Au measured or calculated assay and/or ten grains of visible gold per sample). Of these anomalies, twelve occur in glaciofluvial or littoral sediments and ten in Chibougamau Till.

Of the twelve anomalous samples in glaciofluvial and littoral sediments, eleven have no stratigraphic continuity and one has chance continuity with a basal till sample (Table 6). Eleven of the samples also display Good Correlation of measured and calculated assays indicating sufficient visible gold was present to account for the anomalies. A single sample (CA-86-30-11) produced a high measured assay (1,640 ppb measured versus 343 ppb calculated). Eight grains of visible gold were initially found in the sample but only a single grain was recovered in check panning of the 1/4 split, and sulfide concentrations were only seven percent - features probably indicating the presence of an additional, undetected medium to coarse gold grain in the analytical split. Alternatively one or more of the sighted grains in the analytical split may have been thicker than we assumed.

The eleven samples which display Good Correlation or Low (measured) Assays contain two to fifteen grains of visible gold - six of these contain ten or more grains. As discussed in an earlier section, this is not believed to indicate traceable dispersion but rather secondary concentration by glaciofluvial and/or glaciolacustrine processes. Extreme examples of this concentration are present in Holes 30 and 46. Samples 07 to 13 of Hole 30 contain three to fourteen grains of mostly abraded gold. This section covers approximately twenty metres of glaciofluvial sands and pebbly sands. Similarly, Samples 03, 04 and 05 of Hole 46 contain 15, 5 and 7 grains of abraded gold recovered from a four metre sand/gravel section in the middle of the thick glaciofluvial sequence.

The gold anomalies in sediments generally have no associated base metal component. Samples 11 to 13 at the base of Hole 30 do contain elevated levels of cobalt (180-220 ppm), arsenic (109-169 ppm) and antimony (1.2-1.7 ppm) but overlying samples with similar concentrations of visible gold do not display any such association suggesting that the gold concentrations and Co, As, and Sb values are unrelated.

6.6.2 Interpretation of Heavy Mineral Gold Anomalies in Till

Ten samples of Chibougamau Till are anomalous (CA-86-03-04, 05-04, 06-03, 17-01, 29-03, 39-11, 40-02, 41-01, 02, and 49-06). Of these, 06-03, 17-01 and 39-11 have no stratigraphic continuity and the degree of correlation indicates that all the visible gold (6, 1, and 10 grains, respectively) was found in processing and panning. Elevated values of cobalt (270 ppm) and arsenic (112 ppm) in 06-03, and chromium (2500 ppm), cobalt (350 ppm), arsenic (186 ppm), molybdenum (11 ppm) and antimony (2.2 ppm) in 17-01 appear unrelated to gold enrichment as similar levels of these elements occur in surrounding samples, whereas gold is restricted to single samples. Sample 39-11 has no metal association.

Four anomalous samples occur overlying bedrock and therefore have basal continuity (03-04, 05-04, 29-03 and 49-06). Samples 03-04 and 49-06 contained one and five Au-grains, respectively. The Sample 03-04 anomaly is due to the single grain being in a small concentrate and is thus of no importance. The 49-06 anomaly displays a low laboratory analysis (410 ppb Au) as opposed to the 2,787 ppb

Au calculated value indicating that some of the visible gold particles remained in the 1/4 split. As the sample contained only five grains of gold of various shapes (delicate to abraded) and sizes (50 to 375 microns) and the sample was composed of both till and overlying gravel (probably accounting for the two medium sized grains) the anomaly is insignficant. Elevated cobalt (290 ppm) and antimony (1.7 ppm) is unrelated to the gold.

The two remaining samples with basal continuity (05-04, 29-03) gave unexpectedly high measured assays. Sample 05-04 assayed 1,690 ppb; no visible gold was found in initial processing. Check panning of the 1/4-split produced two small gold grains (100 x 75D, 75 x 75A) and the concentrate contained only five percent pyrite. By inference the 3/4 analytical split would contain an additional six grains of gold. The ten grain per sample dispersion threshold would not be reached and the low percentage of pyrite would seem to preclude anomalous levels of invisible sulfide gold. The anomaly is undoubtedly due to visible gold in the 3/4 split with one or more of the grains being of a larger than normal (for the area) size.

Sample 29-03 contained three abraded gold grains, including one of medium size (275 x 225 microns), producing a calculated assay of 1204 ppb. An analytical result of 6,450 ppb was reported. Check panning of the 1/4-split revealed one additional, abraded grain of medium size (200 x 175A) and a small grain (50 x 25 Ir) which was probably found in the initial whole concentrate panning. The analytical concentrate thus contained the medium sized, abraded grain initially found. A grain of this size should produce an analytical result of approximately 1700 ppb in the 13.11 gram analytical split given the thickness (46 microns) assumed in our calculation. It is speculated that the grain may have been abnormally thick (150 + microns) which would account to the unexpectedly high assay. The sample is also a combination of till and glaciofluvial sand suggesting that the medium sized grains may have been derived from the sand section.

The three remaining anomalous samples (40-02, and 41-01, 02) occur in adjacent holes, are strictly visible gold anomalies, and occur one to three metres removed from bedrock. The samples contain eighteen (Plate 1), fifteen and twenty-three (Plate 2) grains of visible gold, respectively. The vast majority of the gold grains are less than 200 microns in size, and are described as abraded approaching irregular in shape. Although visible gold is abundant, assay results are low (220 to 310 ppb Au) as the concentrates are large (30-40 grams) and the gold grains small. The Sample 40-02 anomaly may appear to lack stratigraphic continuity but due to recovery problems when drilling, 40-02 covers a four metre interval and overlying Sample 01 does contain six grains of similar morphology in a sample covering 3.5 metres. The similarities of the anomalies in the two holes suggests dispersion from a single source area. Their position one to three metres above bedrock and the shape characteristics of the gold particles are consistent with 700+ metres of ice transport. Such a transport distance could also explain the low assays as glacial dilution would be expected. While the anomalies do appear to define systematic dispersion from a single source area, it is difficult to predict the economic importance, if any, of this area.

6.7 Carpentier Heavy Mineral Base Metal Anomalies

Appendix D lists the heavy mineral analyses for twenty-four elements in addition to gold. Weak dispersion of one or more of these elements is evident in a number of samples but the overall concentrations are too low to suggest significant sources. Rather, the results are directly attributable to weak concentrations of the elements in altered bedrock of the area, and the elements found are compatible with those found in other areas of epithermal aluminous alteration.

Poly-metallic dispersion is evident in the single sample of Hole 08. Elevated values of nickel (231 ppm), zinc (480 ppm), arsenic (343 ppm), molybdenum (19 ppm), and antimony (6.3 ppm) are reported. Corresponding values for scandium (3.2 ppm), chromium (less than 50 ppm), lanthanum (30 ppm), europium (less than 2 ppm), terbium (less than 1 ppm), ytterbium (less than 5 ppm), halfnium (9 ppm), tantalum (less than 1 ppm), thorium (2.3 ppm) and uranium (less than 0.7 ppm) are

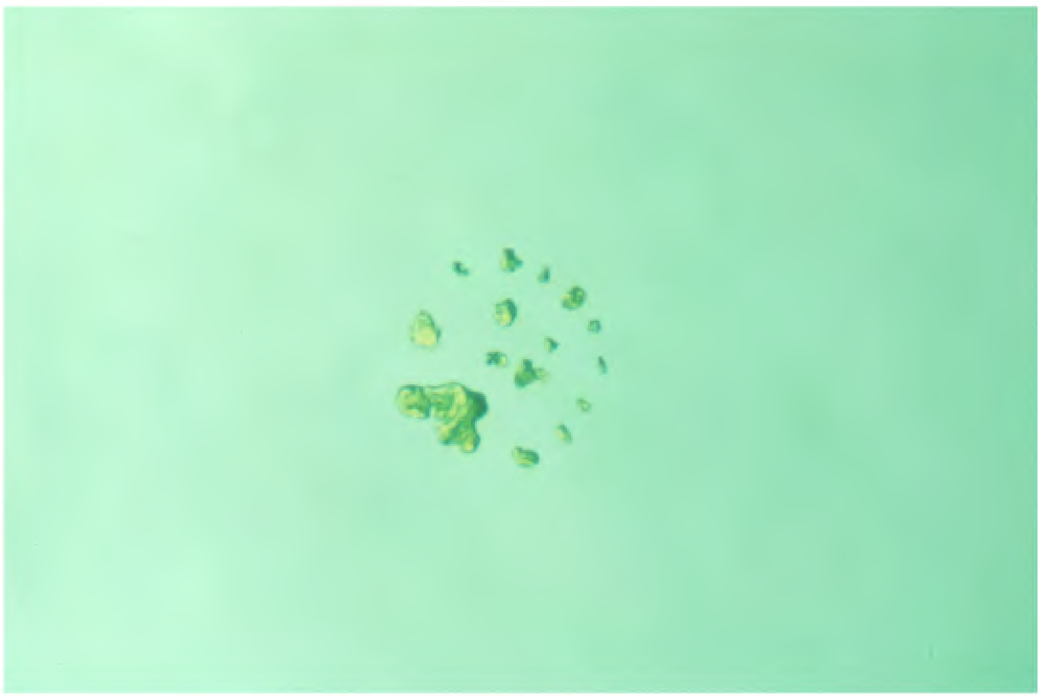


Plate 1 - Visible Gold
Sample CA-86-40-02

Plate 2 - Visible Gold
Sample CA-86-41-02

anomalously low. The heavy mineral concentrate prepared from this sample was very large (160 grams), containing greater than seventy percent massive to crystalline pyrite. Drill hole logs indicate Sample 08-01 to be composed of both till and bedrock cuttings. The bedrock sample is an intermediate crystal tuff with a very fine-grained, graphitic, "muddy" phase containing three to four percent pyrite as crystalline concentations and massive laminae (beds). The oversized heavy mineral sample is due to concentation of the sulfides liberated from bedrock. Elevated metal results are due to substitution of appropriate elements for iron in the pyrite crystal lattice, or minute concentrations of Ni, Zn, As, Mo, and Sb - bearing minerals. The elevated values are identical to those found in the sulfide replacement bedrock of Hole 13, although a genetic relationship between the two is not suggested. The results are of little exploration significance due to low absolute metal values. The abundance of sulfides also indicates similar mineralization of this type could be easily detected by IP and/or EM geophysical methods.

In other holes, non-anomalous but slightly elevated levels of cobalt, nickel and arsenic (100 - 300 ppm), molybdenum (10 - 20 ppm), and antimony (1 - 3 ppm) are present. The elevated results occur mostly in till, with a few present in concentates from high energy glaciofluvial gravels. The metal levels are too low to be of exploration significance without an associated precious metal component, and the metals involved are those that commonly substitute for iron in pyrite (Ni, Co) or occur in epithermal mineralizing systems (As, Mo, Sb).

Elevated levels of chromium are present in till samples from Holes 15, 16 and 17 (1900-2500 ppm). Cobalt, nickel, arsenic and antimony are also elevated. The heavy mineral concentrates contain fifteen to forty percent pyrite which may account for the elevated levels of Co, Ni, As, and Sb. The samples also contain higher than normal levels of magnetite (5%) as well as magnetic rock chips composed predominantly of black amphibole or pyroxene. The elevated levels of chromium may be due to substitution of chromium for iron in the magnetite and amphibole/pyroxene crystals lattices, or some magnetite may have been misidentified and could be chromite. Chromium is an element which may be either resistant to or concentrated by acid leaching associated with aluminous alteration

(Spence, Moye, year unknown). The presence of fuchsite elsewhere in the drill area is suggestive of local chromium enrichment.

7. CONCLUSIONS

The Carpentier drill area is underlain by highly strained, predominantly intermediate volcanic rocks. Significant felsic volcanics and intermediate tuffs are also present. Intense leaching by hydrothermal acidic solutions has produced an alteration mineral assemblage and base metal geochemistry consistent with that noted in gold prospects of the Carolina Slate Belt and with Selco's Chetwynd gold deposit. This alteration occurs in two zones at the northern and southern ends of the property that may be separated by a northeasterly trending fault.

The overburden heavy mineral geochemistry over the alteration zones is not particularly exciting but this could be largely due to the poor preservation of till over much of the area. Many holes contain no till or limited thicknesses of till so that reliable conclusions as to bedrock potential are not possible. Moreover, the reconnaissance nature of the drilling pattern precludes a direct assessment based on bedrock lithology and geochemistry although weakly anomalous gold values in sulfide rich bedrock of Hole 13 (180 ppb Au) and in silicified bedrock of Hole 20 (140 ppb) do suggest that such horizons have the greatest potential for significant gold deposition.

Another factor to consider is the high analytical gold background and abundance of fine, visible gold in overburden. This appears to be a regional feature not merely restricted to the deformation/alteration zone. Both till and sediment samples display above normal abundances of gold although till samples do have a slightly higher background (330 ppb versus 200 ppb in sediments) suggesting a contribution from invisible, sulfide gold. Elevated, but non-anomalous, base metal (Co, Ni, As, Mo, Sb) values compatible with the geochemistry of the silica-alumina alteration zones are restricted to till samples and to high-energy sediments (gravel) of apparent local derivation. This indicates that the base metals have a more restricted provenance than the gold.

The only overburden gold anomalies that appear to warrant further attention occur in Holes 40 and 41. The anomalies in both holes are strictly visible gold types as the gold grains are too small to produce a geochemical anomaly. The gold particles display similar shape characteristics, and lack any element association. Although certain of these characteristics also extend to anomalies in other holes that are considered insignificant, the overall consistency and similarty of the Hole 40-41 anomalies is suggestive of a single source area contributing gold to the till. The apparently long transport distance (700 + metres), as determined from the position of the anomalies within the till section and degree of abrasion of the gold grains, may have resulted in a dilution of both the number of gold particles and corresponding analytical values. Thus, generalizations as to the size or grade of the source are not presently justified.

8. RECOMMENDATIONS

A total of ten reverse circulation drill holes along two profiles is proposed to evaluate and trace the apparent dispersion in Hole 40-41 (Fig. 11). The profiles are positioned to take into account the poorly defined glacial direction (N 10°E to N40°E), and holes along each profile are spaced only 200m apart to accurately define the cross-ice limits of the possible dispersion train. The initial profile, along a line at 500m West, is 400m up-ice from the Holes 40-41. The second profile, along the Baseline, is a further 500m up-ice and 900m from the Hole 40-41 area. This program is an initial follow-up phase and, dependent upon results, additional reverse circulation work may be required at a later date to pinpoint a specific source or target area for diamond drilling.

In addition to the ten follow-up holes in the south, eight holes are proposed along the northeast side of the bedrock ridge in the north. (Fig 11). The 1986 drill holes in this area were spotted too high along the bedrock slope and failed to intersect significant thicknesses of till. The proposed holes are located only 100 metres northeast of the 1986 holes with the objective of staying within the alteration zone while hopefully being far enough downslope to intersect a more complete till profile.

Microfilm

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MICROFILMÉE SUR 35 MM ET

POSITIONNÉE À LA SUITE DES

PRÉSENTES PAGES STANDARDS

Numérique

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SUITE DES PRÉSENTES PAGES STANDARDS

Elsewhere in the 1986 drill area, the till cover is so poor that additional overburden work is not recommended. However, the presence of known gold associates (tourmaline, fuchsite, poorly reactive carbonate, etc.) and the high degree of deformation and alteration in both the northern and southern parts of the area does indicate an environment suitable to gold deposition. The weak gold anomalies in sulfide-rich bedrock of Holes 13 (180 ppb) and silicified bedrock of Hole 20 (140 ppb) are significant in that gold in aluminous alteration systems is often associated with sulfide and silica rich horizons. Geophysical methods (IP and EM) should be used to define the sulfide rich units, and IP/Resistivity to aid in defining silicified zones; the IP component may be especially effective if the tenuous association of silicification with sulfide enrichment is correct.

The reverse circulation drilling phase of the program will cost $32,400.00. The figure is based on a total of eighteen holes, an average hole depth of 18 metres, and all inclusive costs of $100/metre.

Kenzie MacNeil

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APPENDIX A

REVERSE CIRCULATION DRILL HOLE LOGS

elevation 334m

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE March 16, 17 19 86

HOLE NO CA-86-01 LOCATION L 34 S ; 12 W (Site # 9)

GEOLOGIST MacNeil DRILLER ______ BIT NO. L000500 BIT FOOTAGE 0 - 27

SHIFT HOURS ______ TO ______

MOVE TO HOLE 9:00 - 10:30

DRILL 1:30 - 5:30

TOTAL HOURS ______

MECHANICAL DOWN TIME ______

DRILLING PROBLEMS ______

CONTRACT HOURS ______

OTHER Mob to end of truck road to 9:00 AM; 10:30 - 1:30 Setup; build

~~MOVE TO NEXT HOLE~~ drill enclosure ; 3:15 - 4:00 wait for water

Page 1 of 2

* New Bit * New Sub

DEPTH IN METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
1				0 - 1.5 No Return - oxidized sand at surface
2				1.5 - 24.3 <u>Matheson Sediments</u>
3–6			01	1.5 - 6.5 sand - predominantly fine grained with minor medium grained sand and occasional pebbly layers; beige in color - lightly oxidized - thin, beige gritty clay seam at 5.9m
7–8				6.5 - 8.0 sand and silt - slightly oxidized, beige very fine sand and silt
9			02	
10				8.0 - 10.2 sand - as from 1.5 - 6.5
11–13				10.2 - 11.5 sand - subtle change to grey to grey-beige color; sand is fine to medium grained and rare, thin grey clay seams are present
14–15			03	11.5 - 14.2 sand - fine to medium grained; beige - lightly oxidized
16–17				~14.2 - 14.8 sand - thin grey clay seam at 14.2; sand is very fine grained and grey-beige in color
18–20			04	14.8 - 20.4 sand - fine to medium grained - medium grained predominant(?); beige to grey beige in color

<u>March 17</u>

6:30 - 7:00 Drive to drill

7:00 - 8:30 Drill

24.9m (83') - 27m (90')

<u>Note</u> :-

Throughout the R.C. drill hole logs, the single till sheet is referred to as Matheson Till and the overlying sediment as Matheson Sediments. In the text of the report till is referred to as Chibougamau Till and sands, gravels & clays as Ojibway II Sediments. The distinction between Matheson and Chibougamau Till is based solely on their position relative to the Harricana Moraine - that is, east of the moraine we call the till Chibougamau and west of the moraine, Matheson. The tills, however, are stratigraphically equivalent. We have also replaced the term Matheson Sediments with the more descriptive name Ojibway II Sediments - no distinction in sediment types or environments is intended.

The "errors" in terminology were made in initial logging and carried through the entire program.

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE March 16,17 19 86

HOLE NO CA-86-01 LOCATION L 34S ; 12 W (Site #9)

GEOLOGIST ______ DRILLER ______ BIT NO. ______ BIT FOOTAGE ______

SHIFT HOURS ______ TO ______

MOVE TO HOLE ______

DRILL ______

TOTAL HOURS ______

MECHANICAL DOWN TIME ______

DRILLING PROBLEMS ______

CONTRACT HOURS ______

OTHER ______

MOVE TO NEXT HOLE ______

DEPTH IN METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG	
21–24			04 (continued)	20.4 - 24.3 sand: - fine to medium grained - medium grained sand predominant to 21.7, fine grained sand predominant below 21.7 - sand below 20.4 is grey in color - unoxidized - a minor number of wood chips are present in the sand section below 20.4 but they may been circulated through the water tank	
28–29				24.3 - 25 boulder - intermediate - mafic volcanic	* 24.9 m (83') - stop for day / March 16
25			05	25 - 25.7 Matheson Till grey-beige, fine to medium grained sand matrix; cobbly; clast composition - 50% intermediate to mafic volcanics and sediments; 20% intermediate - felsic volcanics - light grey to beige in color; 25% intrusive material - oxidation evident in some cobbles - minor amounts of fuschite noted in one felsite(?) cobble	
26–27			06	25.7 - 27 Bedrock: - felsic to intermediate volcanic - cream to light beige in color; fine grained; poorly foliated - ~10% chlorite along foliation and disseminated within rock	

Depth scale: 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20

27 m (90') EOH

elevation 329m

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE March 17 1986

HOLE NO CA-86-02 LOCATION L 30S, 12+50 W Site #10

GEOLOGIST MacNeil DRILLER ______ BIT NO. L000500 BIT FOOTAGE 27-42

SHIFT HOURS ______ TO ______

MOVE TO HOLE 8:30-8:45

DRILL 8:45-10:30

TOTAL HOURS ______

MECHANICAL DOWN TIME ______

DRILLING PROBLEMS ______

CONTRACT HOURS ______

OTHER ______

MOVE TO NEXT HOLE ______

DEPTH IN METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
0–15			01 (≈4 m), 02 (≈9 m), 03 (≈13 m), 04 (≈14 m)	see below

0-2.4 No Return

2.4-12.9 Matheson Sediments

2.4-12.9 sand - grey to grey-beige in color - unoxidized

7.2-8.0 - fine to medium grained sand - grey-beige - may be slightly oxidized; below 8.0m, sand is grey and unoxidized

9.5-11.0 medium grained sand - unoxidized

11.0-12.9 - fine grained, unoxidized sand

- rare thin clay seams within sand section

12.9 - 13.4 Matheson Till

grey, fine to medium grained sand matrix; cobbly; clast composition - 75% intermediate-mafic volcanics and sediments - minor (<5%) felsic material present as well

20% intrusive material

13.4 - 15 Bedrock - intermediate volcanic - medium green in color; fine to very fine grained; foliated; some chips possess an indistinct, apparently discontinuous banding - tuffaceous(?);

13.4-14 total of 2-3% pyrite - predominantly occurring in thin (<0.5cm) pyrite-rich bands parallel to foliation

- below 14.2 m - banding occurs with thin (1-2mm) aphanitic bands and slightly coarser bands

15 m (50') EOH

elevation 329 m

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE March 17 1986

SHIFT HOURS
______ TO ______

TOTAL HOURS
______

CONTRACT HOURS
______

HOLE NO CA-86-03 LOCATION L 26 S ; 11+50 W Site #11

GEOLOGIST MacNeil DRILLER ______ BIT NO. L000500 BIT FOOTAGE 42-58

MOVE TO HOLE 10:30 - 10:45

DRILL 10:45 - 12:00

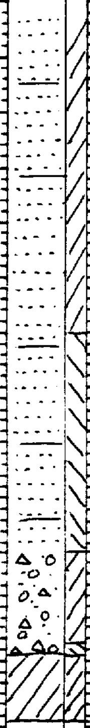
MECHANICAL DOWN TIME ______

DRILLING PROBLEMS ______

OTHER ______

MOVE TO NEXT HOLE ______

DEPTH IN METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
0–3.3				0-3.3 No Return
3.3–13				3.3 - 13 Matheson Sediments
				3.3 - 8.0 grey, fine grained sand; rare thin clay seams; poor sample return
				8.0 - ~9.0 grey-beige, slightly oxidized, medium grained sand
6			01	~9.0 - 13.0 grey, fine grained sand; rare clay partings
11			02	13.0 - 14.9 Matheson Till
				grey, fine to medium grained sand matrix with common coarse granules; below 14.0 m, little fine material is present - section resembles gravel; pebbly; clast composition - 80% intermediate-mafic volcanics and sediments, 15% intrusive material, <5% light colored, felsic(?) volcanics
14			03	
14.9			04	14.9 - 16.1 Bedrock: - intermediate volcanic - medium green color; fine grained; foliated-schistose; light colored alteration - bleaching and stringers of quartz and/or carbonate along fractures(?)
15.5			05	
				16.1 m (54') EOH



Depth scale: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

elevation 329 m

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE Nov. 17 19 86

HOLE NO CA-86-04 LOCATION Site #12 L 22 S; 11+00 W

GEOLOGIST Edwards DRILLER ______ BIT NO. L000560 BIT FOOTAGE 58-76 m.

SHIFT HOURS ______ TO ______

MOVE TO HOLE 12:00 - 12:15

DRILL 12:15 - 1:30

TOTAL HOURS ______

MECHANICAL DOWN TIME ______

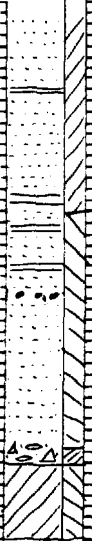
DRILLING PROBLEMS ______

CONTRACT HOURS ______

OTHER ______

MOVE TO NEXT HOLE 1:30 - 1:45

DEPTH IN METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
0–20 (scale: 1, 2, 3, … 20)			01 (≈10 m), 02 (≈14 m), 03 (≈16.5 m), 04 (≈17.5 m)	see below



0-8.5 m. No Return

8.5 - 16.3 m SEDIMENTS (Matheson)

8.5 - 9.8: SAND, fine, grey-beige, unoxidized

9.8 - narrow seam grey clay

9.8 - 11.7: SAND, very fine, grey-beige

11.7 - 13.6: series of grey clay seams (slightly gritty) throughout fine, grey sand.

13.6 - 16.3: SAND, very fine, grey-beige
- thin layer of pebbles at 13.6 m.

16.3 - 16.6 m. TILL (Matheson)
- fine to medium-grained grey to grey-beige sand matrix
- cobbles: 70% Volcanics/Sediments, 30% Granitics

(washed rods to retain enough sample)

16.6 m BEDROCK (Intermediate Volcanic)
- colour: pale green
- fine grained to very fine grained
- trace chlorite on fractured surfaces
- trace epidote along quartz stringer boundaries
- foliated

18.0 m E.O.H.

JE

elevation 329 m

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE Mar. 17 19 86

HOLE NO CA-85-05 LOCATION Site #13 185; 10+50 W

GEOLOGIST Edwards DRILLER ______ BIT NO. L000500 BIT FOOTAGE 76.0-95.6 m

SHIFT HOURS ______ TO ______

MOVE TO HOLE 1:30 - 1:45

DRILL 1:45 - 3:15

TOTAL HOURS ______

MECHANICAL DOWN TIME ______

DRILLING PROBLEMS ______

CONTRACT HOURS ______

OTHER ______

MOVE TO NEXT HOLE 3:15 - 3:30

DEPTH IN METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG							
				0-5.0 No Return							
				5.0 - 14.8 m SEDIMENTS (Matheson)							
				5.0 - 5.4 : SAND fine, grey-beige unoxidized - few grey, slightly gritty clay lumps.							
				5.4 - 6.0 : CLAY grey, gritty							
				6.0 - 7.9 : CLAY/SILT : grey, slightly gritty clay in grey silt							
				7.9 - 12.0 : SAND : fine, grey · intermittent grey clay seams throughout							
8			01								
				12.0 - 14.8 : fine to medium grey-beige sand - few pebbles							
				14.8 - 18.1 m TILL (Matheson)							
				14.8 - 15.6 : fine, grey beige sand matrix pebbles 70% Volcanics/Sediments 30% Granitics				*Sample 02 : poor return of sand - sample is ~95% till			
14			02*	15.6 - 17.1 : 80% Volcanics/Sediments 20% Granitics							
				17.1 - 17.2 : sand lens, medium-grained ; grey-beige							
17			03	17.2 - 17.6 : fine grey-beige sand matrix -cobbles 80% V/S 20% Granitics							
18			04	17.6 - 18.1 reduction in matrix/fines fraction - cobbly 70% V/S 30% Granitics (Gravel?)							
19			05	17.8 - 18.0 : very tough, slow drilling · may be washing the till matrix away in the process of drilling thereby making it appear coarser than it really is.							

18.1 m. BEDROCK (Intermediate Mafic Volcanic)
- very light green/white silicified
18.4 - 18.5 : soft, white clay-like (pyrophyllite/Kaolinite?)
18.5 - 18.8 light grey/green, fine-grained, foliated; trace chlorite on fractures
18.8 - 19.1 shear zone (overburden material in sample)
19.1 - 19.4 soft grey/white pyrophyllite/Kaolinite ?
Below 19.4 : as at 18.5 m.

19.6 m EOH.

elevation 329m

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE Mar. 17 1986

SHIFT HOURS ______ TO ______

TOTAL HOURS ______

CONTRACT HOURS ______

HOLE NO CA-86-06 LOCATION Site #14 14S, 10+50W.

GEOLOGIST Edwards DRILLER ______ BIT NO. L000500 BIT FOOTAGE 95.6 - 117.7m

MOVE TO HOLE 3:15 - 3:30

DRILL 3:30 - 4:45

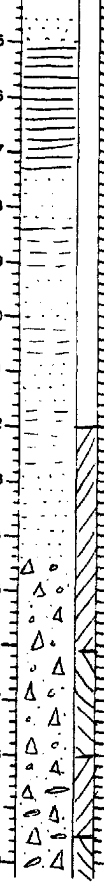
MECHANICAL DOWN TIME ______

DRILLING PROBLEMS ______

OTHER 4:45 - 5:15 To truck road; 5:15 - 5:45 to [illegible]

MOVE TO NEXT HOLE ______

DEPTH IN METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
				0-4.6m No return
				4.6 - 14.5 m SEDIMENTS (Matheson)
				4.6-5.1m SAND: very fine, grey
				5.1 - 7.3m CLAY: grey, soft, gritty
				7.3 - 14.5 SAND/SILT - very fine sand and silt; grey. - thin grey clay seam at 11.4m.
				14.5-21.2m TILL (Matheson)
				14.5 - 16.7m: fine grey-beige sand matrix - very sandy, loose; easy to drill initially – washed? or water-lain? - pebbles: 65% Volcanics/Sediments 35% Granitics
14			01	16.7 - 18.6: fine grey beige sand matrix pebbles. 75% Volcanics/Sediments 25% Granitics
				18.6 - 19.1: cobbly; minimal matrix of grey-beige sand.
17			02	19.1 - 21.2: fine to med-grained sand matrix; grey-beige to beige cobble: 80% V/S 20% Granitics - rotted fuchsite associated with quartz
19			03	
20			04	



OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

HOLE NO CA-86-06 LOCATION Page 2 of 2

DATE ______ 19 __

GEOLOGIST ______ DRILLER ______ BIT NO. ______ BIT FOOTAGE ______

SHIFT HOURS ______ TO ______

MOVE TO HOLE ______

DRILL ______

TOTAL HOURS ______

MECHANICAL DOWN TIME ______

DRILLING PROBLEMS ______

CONTRACT HOURS ______

OTHER ______

MOVE TO NEXT HOLE ______

DEPTH IN METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
	Δ ○		04 (con't)	
21	Δ ○		05	21.2m. BEDROCK. (Int. Mafic Volcanic)
			06	- bedrock surface very altered to 21.4m.
22				- grey/white, clayey, soft
23				21.4: medium grey/green
24				- fine-grained
25				- strongly schistose
26				- trace pyrite
27				
28				22.1 m E.O.H.
29				
30				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				

elevation 329m

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE March 18 19 86

HOLE NO CA-86-07 LOCATION L10S ; 10+50W Site #15

GEOLOGIST MacNeil DRILLER ______ BIT NO. L000520 BIT FOOTAGE 117.7-132.7

SHIFT HOURS ______ TO ______

MOVE TO HOLE 10:00 - 10:15

DRILL 10:15 - 12:00

TOTAL HOURS ______

MECHANICAL DOWN TIME ______

DRILLING PROBLEMS ______

CONTRACT HOURS ______

OTHER 6:30 - 7:00 To drill road; 7:00 - 8:45 Drillers to town to report stolen

~~MOVE TO NEXT HOLE~~ fuel, equipment to Timmins; 8:45 - 9:15 Move extra fuel, etc into bush; 9:15 - 9:45 Travel to drill; 9:45 - 10:00 pull rods from hole #06

DEPTH IN METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
				0 - 0.9 No Return
1				0.9 - 10.6 Matheson Sediments
2				0.9 - 2.5 sand - very fine sand; intermittent to no return; sand is grey in color
3–4				2.5 - 2.9 clay - grey; soft; minor grit
5				2.9 - 3.4 sand - fine to very fine (silty); grey
6–7				3.4 - 4.7 sand and clay - bedded; grey
8				4.7 - 6.0 sand - grey; fine grained; minor clay interbeds
9–10				6.0 - 10.6 sand/silt - very fine grained; grey in color with rare clay seams
11			01	10.6 - 14 Matheson Till
12–15			02, 03	grey-beige, fine sand and silt matrix; pebbly to 12m and cobbly below 12m; clast composition - 80% intermediate-mafic volcanics and sediments; 10-15% intrusive material; <5% light colored, beige, felsic (?) volcanics
16–17				12 - 12.9 lose return - compressor stalls
18–19				13.4 - 14 intersect intermediate-felsic boulder at 13.4, followed by granitoid cobble boulder - little matrix return
20				14 - 15 Bedrock :- greywacke

light to medium grey color; schistose; fine grained - slightly granular (?) texture - sedimentary or tuffaceous (?); distinct grains/fragments not visible with hand lens; very fine grey, micaceous foliation surfaces - grey chlorite (?); mafic content of sample probably less than 10%; 1-2% pyrite as local concentrations along foliation; below 14.8m, rock is coarser with stretched sand grains or fragments to 2.0mm

15m (50') EOH

elevation 329m

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE Mar. 18 1986
HOLE NO CA-86-08 LOCATION Site #16 L 6S, 11+00W
GEOLOGIST Edwards DRILLER ______ BIT NO. L6005006 BIT FOOTAGE 132.7-141.9m
SHIFT HOURS ___ TO ___
MOVE TO HOLE 12:00 - 12:15
DRILL 12:15 - 1:45
TOTAL HOURS
MECHANICAL DOWN TIME
DRILLING PROBLEMS
CONTRACT HOURS
OTHER
MOVE TO NEXT HOLE 1:45 - 2:00

DEPTH IN METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG							
				0 - 1.7 No Return							
				1.7 - 5.9 SEDIMENTS (Matheson)							
				1.7-5.2 Clay/Silt - beige + grey slightly gritty clay - below 2.0m, grey clay with grey silt							
				5.2 - 5.9 Sand/Silt/Clay @ 5.2m thin bed of cobbles - grey, slightly gritty clay interbedded with fine grey-beige sand.							
			01								
			02	5.9 - 7.0 TILL (?) - 95% Sediments/Volcanics 5% Granitics - little to no matrix - massive sulfide seams along fractures of sedimentary cobbles - a washed till, or perhaps a very thin initial layer of till worked up into bedrock rubble. (washed rods twice to retain sample)				DH August 13, 1986 Sample 01 character sample and heavy mineral concentrate contaminated by sample 02 bedrock sample. Probably thin till horizon over bedrock.			
				7.0(?) BEDROCK. - greywacke - medium grey colour - schistose; fine grained - in initial return (0.2m) massive pyrite seams (to 1cm) are present. ~3 to 4% pyrite along fractures below 7.2m. ~3% quartz stringers - very schistose below 9.1m - massive pyrite seams present again.							

9.2m EOH.

elevation 329m

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE March 18 19 86

SHIFT HOURS
____ TO ____

TOTAL HOURS

CONTRACT HOURS

HOLE NO CA-86-09 LOCATION L2S; 11+00W Site #17

GEOLOGIST MacNeil DRILLER ____ BIT NO. L000500 BIT FOOTAGE 141.9-152.3

MOVE TO HOLE 1:45-2:00

DRILL 2:00-2:45

MECHANICAL DOWN TIME

DRILLING PROBLEMS

OTHER

MOVE TO NEXT HOLE

DEPTH IN METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG	
				0-2.5 No Return	
				2.5-7.1 Matheson Sediments	
				2.5-4.5 clay/silt - grey in color; limited return	
				4.5-7.1 silt/sand - grey silt and very fine sand; minor clay seams	
				7.1-8.6 Matheson Till	sample 01 includes some sand and silt from Matheson Sediments overlying till unit
				7.1-7.4 lose return - drill resistance indicates till or gravel	
			01*	7.4-7.6 rock chips - little matrix	
				7.6-8.3 - return of rock chips (cobbles) and moderately well sorted matrix sand - washed till(?)	DH August 13, 1986 Character sample analysis of sample 01 indicates the unit to be Chibougamau Till as logged.
			02	8.3-8.6 grey-beige, fine sand and silt matrix; cobbly; clast composition - 85% intermediate - mafic volcanics and sediments; 10%, or less, intrusive material	
				8.6-10.4 Bedrock :- greywacke light to medium grey in color; schistose with grey, micaceous, chlorit(?) along schistosity planes; fine grained; unable to observe individual sand-grit grains with hand lens but whole sample appears slightly granular;	
				9.2-9.7 mudstone - dark grey-black; finely schistose to fissile, slightly graphitic	
				- below 9.7 - greywacke	
				bedrock contains 1% pyrite as stringers of less than 1mm in thickness and as schistosity plane coating	

10.4m (35') EOH

elevation 329m

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE March 16 1986

SHIFT HOURS
____ TO ____
TOTAL HOURS
____
CONTRACT HOURS
____

HOLE NO CA-86-10 LOCATION Site #18 L2N; 12+50W
GEOLOGIST Edwards DRILLER ____ BIT NO. L005606 BIT FOOTAGE 152.3-166.3m
MOVE TO HOLE 2:45 - 3:00
DRILL 3:00 - 4:30
MECHANICAL DOWN TIME
DRILLING PROBLEMS
OTHER 4:30 - 5:10 take 6T to truck road; 5:10 - 5:45 to Scenotine
MOVE TO NEXT HOLE

DEPTH IN METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
				0-2.0m No return
				2.0 - 10.8 SEDIMENTS (Matheson)
				CLAY/SILT: grey, soft slightly gritty clay, with grey silt.
				10.8 - 12.8 m. TILL
				- very stoney till, with little to no matrix. Washed till, or possibly a gravel
				10.8-11.0: 90% Volcanics/Sediments (30% of this is felsic volcanic)
				11.0 - 11.1: 10% Granitic; Intermediate Volcanic Cobble (100% of sample)
11			01	11.1 - 12.0: minimal grey-beige medium to coarse sand matrix - appears somewhat sorted. 80% Volcanics/Sediments 20% Granitics
12			02	12.0 - 12.7: fine grey-beige sand matrix (minimal amount) cobbles: 70% Volcanics/Sediment 30% Granitics
13			03	12.7 - 12.8: Volcanics/Sediments increase to 95% with 5% Granitics
				12.8m BEDROCK (Intermediate Volcanic)
				- medium to light green colour
				- very schistose; fine-grained - appears almost sedimentary in texture
				- sulfide seams @ bedrock surface to 13.1m (up to 0.5 cm width)
				- Below 13.1m trace pyrite along fractured surfaces
				- trace sericite alterations

14.0m E.O.H.

elevation 329m

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE Mar 19 19 86

SHIFT HOURS
_____ TO _____

TOTAL HOURS
_____

CONTRACT HOURS
_____

HOLE NO CA-86-11 LOCATION Site #19 L6N; 11+00W

GEOLOGIST Edwards DRILLER Johnson BIT NO. L000500 BIT FOOTAGE 166.3 - 176.9m

MOVE TO HOLE 12:00 - 12:15

DRILL 12:15 - 2:00

MECHANICAL DOWN TIME

DRILLING PROBLEMS Drilled to 9m, no return. Moved ahead 5', redrill

OTHER 9:45 - 10:45 to end of truck road, 11:00 - 11:45 to drill; Also

~~MOVE TO NEXT HOLE~~ made report to police of theft 9:00 - 11:15 am.

DEPTH IN METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
1–2				0-5.2 m. No return (probably due to a combination of ice in hoses and very soft clay being blown aside by the bit)
3–4				5.2 - 9.3 SEDIMENTS (Matheson) CLAY/SILT: 5.2 - 6.0: grey, soft, only slightly gritty clay.
5–9				6.0 - 9.3: very little clay returned in sample (- again due to bit blowing clay aside)
9–10			01	9.3 m. BEDROCK (Intermediate Mafic Volcanic) - medium to dark green colour - weathered in appearance - very schistose to phyllitic - fine-grained @ 9.9 m: ~10% carbonate (calcite?) veinlets to 10.1 m. with pervasive Fe-alteration along boundaries. Below 10.2 m: no longer weathered-looking. @ 10.5 m: ~25% quartz/carbonate veining
17				10.6 m E.O.H. JE.

elevation 329m

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE Mar. ~~20~~ 19, 1986

HOLE NO CA-86-12 LOCATION Site #20 L 10N; 11+00W

GEOLOGIST Edwards DRILLER Jadsun BIT NO. L000500 BIT FOOTAGE 176.9 - 191.6m

SHIFT HOURS ______ TO ______

MOVE TO HOLE Mar. 19 · 2:00 - 2:15

DRILL 2:15 - 2:45

TOTAL HOURS ______

MECHANICAL DOWN TIME 2:45 - 3:15 Water pump blew at 6.0m.

DRILLING PROBLEMS

CONTRACT HOURS ______

OTHER 3:15 - 4:00 GT to truck road; 4:00 - 5:00 truck

~~MOVE TO NEXT HOLE~~ to Senneterre

Mar. 20/86: 7:30 - 8:00 to drill road (wait in Senneterre for water pump)
8:30 - 9:15 GT to drill
fix pump 9:15 - 11:30 - Drill 11:30 - 2:00 (had difficulty hauling out equipment)

DEPTH IN METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
0				Mar. 19 0-3.0 No return
1				3.0-6.0(?) SEDIMENTS (Matheson) CLAY/SILT - soft, slightly gritty; - grey in grey silt
4				Mar. 20 Redrill 6-12.5 m No return (washed rods; only got minimal return of clay + few rock chips)
8				~12.5 m. BEDROCK. (Intermediate Mafic Volcanics) - medium green colour - very schistose, to phyllitic - fine-grained - trace chlorite along schistosity surfaces ~3% clay mineral (grey/white, soft) present along fractures + foliations
12.5-14.8			01	
17				14.7 m E.O.H.

JE.

elevation 329m

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE March 20 1986

SHIFT HOURS ____ TO ____

TOTAL HOURS ____

CONTRACT HOURS ____

HOLE NO CA-86-13 LOCATION L 14N ; 1000W Site # 21

GEOLOGIST MacNeil DRILLER Jedaun BIT NO. L000501 BIT FOOTAGE 0-11

MOVE TO HOLE 12:00-12:15

DRILL 12:15-2:00

MECHANICAL DOWN TIME

DRILLING PROBLEMS

OTHER 12:45-1:15 wait for water

MOVE TO NEXT HOLE

DEPTH IN METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
0–3.5				0 - 3.5 No Return
3.5–9.7				3.5 - 9.7 Matheson Sediments 3.5-6.0 clay - grey; soft; non-gritty 6.0-9.7 silt - minor clay seams
9.7–9.8			01	9.7 - 9.8 Till (?) - may be less than 0.1 m. thick - too thin to observe fully; wash through the section several times to obtain a small sample
9.8–11			02*	9.8 - 11 Bedrock 9.8-10.3 light grey to off white, fine grained, altered volcanic (??) original texture obliterated by alteration (silicification) and the formation of disseminated to semi-massive pyrite (5-10% pyrite) 10.3-11.0 > 70% massive to semi massive pyrite - minor dark green to black, fine grained, schistose intermediate - mafic volcanic rock chips

11m (37') EOH

* sample of +10 bedrock chips and also a sample of -10 bedrock fines collected

elevation 328m

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE March 20 1986

HOLE NO CA-86-14 LOCATION L18N ; 800W Site #22

GEOLOGIST MacNeil DRILLER [illegible] BIT NO. L000501 BIT FOOTAGE 11

SHIFT HOURS ______ TO ______

MOVE TO HOLE 2:00-2:15

DRILL 2:15-4:00

TOTAL HOURS ______

MECHANICAL DOWN TIME

DRILLING PROBLEMS

CONTRACT HOURS ______

OTHER 3:00-3:15 wait for water; 4:15-4:45 drain lines; 4:45-5:15 To Truck road; 5:15-5:45 To Town

MOVE TO NEXT HOLE 4:00-4:15

DEPTH IN METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
				0 - 3.5 No Return
				3.5 - 4.8 Matheson Sediments: clay and silt - grey in color
			01	4.8 - 4.9 Till: grey-beige, fine sand matrix; [illegible] pebbles; clast composition - 90% intermediate-mafic volcanics and sediments
				- washed till section several times to obtain sample; sample includes some overlying clay/silt and some bedrock cuttings
			02	4.9 - 6.6 Bedrock: intermediate-mafic volcanic (?) fine grained, beige to cream colored - completely altered; schistose
				- below 5.3 to 5.5m - minor green volcanic (mafic?) rock chips - original, unaltered rock (?);
				- 5.5-5.8 green, schistose mafic volcanic rock chips with local bleaching/alteration to beige-cream color
				- 5.8-6.6 - beige to cream colored, wholly altered/bleached rock as from 4.9-5.3
				- rock contains 0-5% pr [illegible], disseminated pyrite - usually in less altered rock chips; bedrock is locally oxidized - along fracture zones (?); a very faint trace of fuschite was observed at 6.0m

6.6m (22') EOH

elevation 327m

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE Mar 21 1986

SHIFT HOURS ______ TO ______

TOTAL HOURS ______

CONTRACT HOURS ______

HOLE NO CA-86-15 LOCATION Site #23* L21N; 6+00W.

GEOLOGIST Edwards DRILLER Jodouin BIT NO. L000501 BIT FOOTAGE 17.7-33.1

MOVE TO HOLE 6:30-7:00 Lakeshore to truck road; 7:00-8:45 GT to drill.

DRILL 8:45 - 11:15

MECHANICAL DOWN TIME

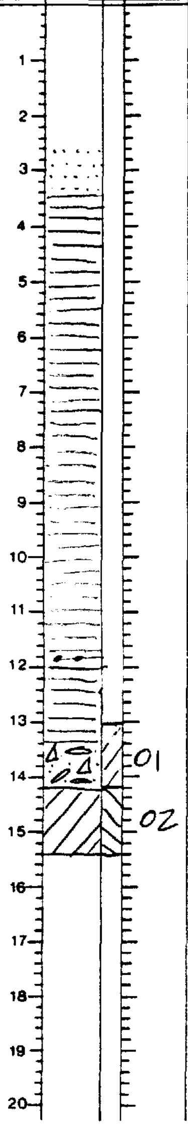
DRILLING PROBLEMS

OTHER

MOVE TO NEXT HOLE 11:15 - 11:30.

*Original site #23 was only ~200 m from site 23 - unable to tell if it's on a line. Moved site 180 m along road to intersect line between pickets visible along line.

DEPTH IN METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG	



0-2.6 m. No Return

2.6-13.4 m SEDIMENTS (Matheson)
- lacustrine sediments
2.6-3.4: minimal return of fine grey sand + soft grey, slightly gritty clay
3.4-13.4 clay/silt
- soft, slightly gritty clay - grey.
- few pebbles returned @ 11.9 m.

*rods dropped 6 m to 9 m - no return.

13.4-14.2 m. TILL
13.4-14.0 fine grey/beige sand matrix
- cobbly:
80% Volcanics/Sediments
20% Granitics
- larger percentage of matrix below 13.9 m.
14.0-14.2: very stoney till
- little matrix (fine grey sand)
- cobbles:
85% Volcanics/Sediments
15% Granitics

14.2 m BEDROCK.
- original colour medium to dark green, fine-grained ~15% white/pink feldspar veinlets/amygdules?
14.5 m: 100% feldspar porphyry
- pink K-feldspar phenocrysts to 2.0 mm. in fine quartz-feldspathic matrix.
abundant random hairline fractures obliterate most of the texture.
14.9-15.2 dark green mafic volcanic as @ 14.2 m.
15.2: feldspar porphyry once again.

15.4 m E.O.H. JE

elevation 324 m

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE March 21 1986
HOLE NO CA-86-16 LOCATION L 24 N; 300 W Site #24*
GEOLOGIST MacNeil DRILLER Jodouin BIT NO. L00050 BIT FOOTAGE 33.1-46.8

SHIFT HOURS ____ TO ____
MOVE TO HOLE 11:15-11:30
DRILL 11:30-12:30

TOTAL HOURS ____
MECHANICAL DOWN TIME ____
DRILLING PROBLEMS ____

CONTRACT HOURS ____
OTHER ____
MOVE TO NEXT HOLE ____

* Site #24 approximately 250 m along bush road from Site #23

DEPTH IN METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
0–2.0				0 - 2.0 No Return
2.0–11.9				2.0 - 11.9 Matheson Sediments
				2.0 - 3.0 clay - grey; soft; minor sand beds
				rods drop from 3 to 5 m
				5.0 - 6.0 clay - as before
				rods drop from 6 to 7.5 m
				7.5 - 11.9 silt with lesser amounts of clay
11.9–12.3			01	11.9 - 12.3 Till (Matheson) - grey-beige, fine to medium grained sand matrix; pebbly; 90%, or greater, of clasts are of intermediate-mafic volcanics and sediments
12.3–13.7			02	12.3 - 13.7 Bedrock:- altered intermediate to felsic volcanic - beige to cream colored; fine grained; schistose; <5% mafic minerals (chlorite); rock is completely altered/bleached - relatively soft; faint dusting of grey metallic, very fine grained mineral - hematite (?); trace disseminated pyrite; oxidized at 13.3 m
13.7				13.7 m (46') EOH

elevation 324m

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE Nov. 21 1986

SHIFT HOURS ____ TO ____

TOTAL HOURS ____

CONTRACT HOURS ____

HOLE NO CA-86-17 LOCATION Site #25 L28N; 0+50 W.

GEOLOGIST Edwards DRILLER Jodouin BIT NO. L000501 BIT FOOTAGE 468-638

MOVE TO HOLE 12:30-12:45

DRILL 12:45-2:15

MECHANICAL DOWN TIME ____

DRILLING PROBLEMS ____

OTHER ____

MOVE TO NEXT HOLE 2:15-2:30

DEPTH IN METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG							
0–4.6				0-4.6m. No return							
4.6–13.8				4.6 - 13.8 m. SEDIMENTS (Ojibway) SAND/SILT/CLAY (lacustrine) 4.6 - soft, slightly gritty clay in grey silt 6 to 9m: rods dropped - no return 9 - 13.8m clay: slightly more compact than @ 4.6m - note presence of very fine sand & silt							
13.8–15.8			01, 02	13.8 - 15.8m GRAVEL (possibly Till) - matrix deficient - cobbles: 50% Volcanics/Sediments 20% Granitics 30% light coloured mineral (pale pink/cream/green) - noted fuchsite Below 15.6 m: 20% light minerals 70% V/S 10% Granitics			DH August 13, 1986 The character samples and heavy mineral concentrates for both samples 01 and 02 were analyzed. They were found to have unsorted sand matrices 50 to 350µ gray colour, abundant angular pebbles and cobble cuttings. The heavy mineral grains are poorly sorted, angular and include up to 40% pyrite. Both samples 01 and 02 appear to be Chibougamau Till.				
15.8–17.0			03	15.8 m BEDROCK (Mafic Volcanic) - medium to dark green colour - fine grained - very schistose ~1% carbonate (calcareous) along schistosity surfaces with trace chlorite alteration. - trace brown alteration mineral along foliations (altered biotite?)							

17.0 m E.O.H. (out of water)

OE

elevation 324m

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE March 21 19 86

HOLE NO CA-86-18 LOCATION L24N; 300E Site #26

GEOLOGIST MacNeil DRILLER Jodouin BIT NO. L000501 BIT FOOTAGE 638-83.6

SHIFT HOURS ______ TO ______

MOVE TO HOLE 2:15-2:30

DRILL 2:30-3:30

TOTAL HOURS ______

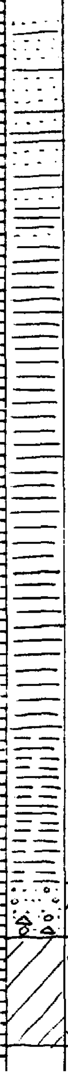
MECHANICAL DOWN TIME ______

DRILLING PROBLEMS ______

CONTRACT HOURS ______

OTHER ______

MOVE TO NEXT HOLE ______

DEPTH IN METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
1–20		17.4–17.8; 17.8–19.8	01; 02	see below

0-1.2 No Return

1.2 - 17.4 Matheson Sediments
oxidized initially
1.2-3 clay/sand - grey; bedded clay (gritty) and fine sand
rods drop from ~3 to 5.5
5.5-6.0 clay - grey; soft
6.0 - ~11.0 return of minor amounts of clay - rods drop much of the way from 6.0-11.0m due to lack of resistance from soft sediments
~11.0-14 clay - grey; soft
14.0-16.8 clay/silt
16.8-17.4 sand - fine grained; minor pebbles - limited return

17.4-17.8 Till (Matheson)
no matrix in initial 0.2 metres - washed till (or gravel)
- below 17.6 - grey-beige, fine sand and silt matrix; pebbly; clast composition 75% intermediate-mafic volcanics and sediments
5-10% light colored, felsic to intermediate volcanics
10-15% intrusives

17.8 - 19.8 Bedrock - altered intermediate-felsic volcanic - beige to cream-white in color; fine grained; highly schistose volcanic/tuff(?); very light colored mica-like schistosity surfaces - sericite or pyrophyllite(?);
18.3-18.6 medium green, highly schistose volcanic - intermediate to mafic volcanic - original unaltered rock type
18.6 - 19 similar to altered rock from 17.8 - 18.3
19 - 19.5 appearance of soft white mineral - possibly associated with silica alteration - pyrophyllite(?); this mineral appears to form 10-20% of the rock; trace fuchsite at 19.2
19.5-19.8 medium green, fine grained intermediate volcanic with associated beige-cream alteration

19.8m (66') EOH

elevation 324m

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE Nov. 21 1986

SHIFT HOURS ____ TO ____

TOTAL HOURS ____

CONTRACT HOURS ____

HOLE NO CA-86-19 LOCATION Site #27 L20N, 2+00E.

GEOLOGIST Edwards DRILLER Godoun BIT NO. L000501 BIT FOOTAGE 83.6-105.0

MOVE TO HOLE 3:30-3:45

DRILL 3:45-5:00

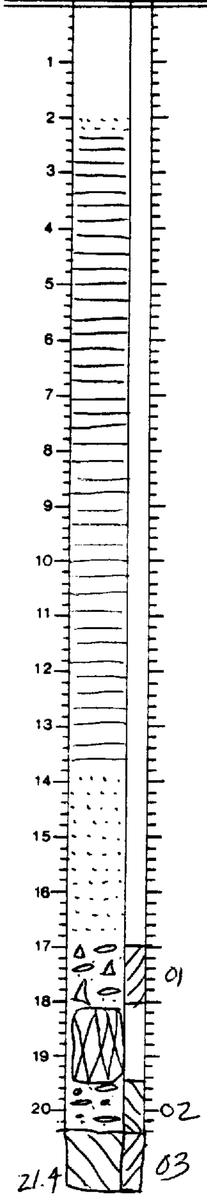
MECHANICAL DOWN TIME

DRILLING PROBLEMS

OTHER 5:00-6:00 to truck road (GT); 6:00-6:30 truck to Senneterre

MOVE TO NEXT HOLE

DEPTH IN METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG



0 - 2.0 No Return

2.0 - 17.0 SEDIMENTS (Matheson)

2.0 - 2.4: SAND.
- very fine, grey.

2.4 - 14.9 CLAY/SILT:
- grey; slightly gritty
- soft
- less compact below 9.6 m.

14.9 - 17.0 SAND
- fine, grey.

17.0 - 18.1 m TILL
- fine, grey-beige sand matrix
- cobbles:
55% Volcanics/Sediments
20% Granitics
25% light mineral (pale pink, green)

18.1 - 19.5: BOULDER (Felsic Volcanic)

19.5 - 20.4: GRAVEL (Till?)
- 75% Felsic Volcanic cobbles
- minimal fine grey-beige sand matrix
- cobbles 15% V/S
10% Granitics

20.4 m. BEDROCK.
- oxidized to 20.5 m.
- very pale pink/grey colour below 20.5 m.
- very schistose
- highly altered (possibly a pyrophyllitic-altered volcanic).

21.4 m E.O.H. ME.

DH August 13 1986 character sample analysis of sample 01 indicates a coarse till as logged. Sample 02 was found to have a gray-beige unsorted matrix 50-350µ and angular cuttings which indicates a till.

elevation 325m

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE March 22 1986
SHIFT HOURS ____ TO ____
TOTAL HOURS ____
CONTRACT HOURS ____

HOLE NO CA-86-20 LOCATION L 16 N ; 400 E Site #28
GEOLOGIST MacNeil DRILLER Todoum BIT NO. 6000501 BIT FOOTAGE 105.0-111.0
MOVE TO HOLE 9:30-9:45
DRILL 9:45-10:45
MECHANICAL DOWN TIME
DRILLING PROBLEMS
OTHER 6:45-7:15 To drill road; 7:15-8:15 Load Fuel and Fuel up Cat; 8:15-9:15
~~MOVE TO NEXT HOLE~~ Travel to drill; 9:15-9:30 Pull rods from hole #19

DEPTH IN METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
			01	0 - 1.6 No Return
			02	1.6 - 4.1 Matheson Sediments
			03	

0 - 1.6 No Return

1.6 - 4.1 Matheson Sediments

- 1.6-2.0 sand - fine grained; minor clay interbeds
- 2.0-2.3 pebbly zone - no matrix material
- 2.3-3.0 sand / minor clay (gritty)
- 3.0-3.5 pebbly to cobbly zone
  - 70% of clasts are of light colored, altered, intermediate-Felsic volcanics
  - little or no "natural" matrix ∴ not till
- 3.5-4.1 sand (fine) and minor clay

- this zone appears to be lacustrine sediments along with pebbles, cobbles washed from bedrock ridge immediately to the ~~east~~ west

4.1 - 4.9 Matheson Till :- grey-beige; fine sand and silt matrix; cobbles; clast composition 85% intermediate-mafic volcanics and sediments (minor light colored Felsic(?) material) 10-15% intrusives

4.9 - 6.0 Bedrock :- altered intermediate-Felsic(?) volcanic :- beige to cream color; fine grained; schistose; relatively soft (pyrophyllite?) to locally quite hard (silica?); although the rock is schistose, alteration products along foliation are not finely micaceous - i.e. not sericite; rock is locally oxidized and contains a faint trace disseminated pyrite

6 m (20') EOH

elevation 333m

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE Mar. 22 1986

SHIFT HOURS ____ TO ____

TOTAL HOURS ____

CONTRACT HOURS ____

HOLE NO OA-86-21 LOCATION Site 29 L12N; 3+50E

GEOLOGIST Edwards DRILLER Jodouin BIT NO. L000501 BIT FOOTAGE 111.0-120.6

MOVE TO HOLE 10:30 - 10:45

DRILL 11:45 - 1:00

MECHANICAL DOWN TIME 10:45 - 11:45 repair compressor

DRILLING PROBLEMS

OTHER

MOVE TO NEXT HOLE 1:00 - 1:15

DEPTH IN METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
1				0-1.4 m. No return
2			01	1.4-8.3 m TILL (Matheson)
3				1.4-2.0 - pebbles - very oxidized sand matrix - oxidized gritty clay balls
4			02	
5				2.0-3.3 fine beige to grey-beige sand matrix (unoxidized) - cobbles: 70% Volcanics/Sediments 30% Granitics
6			03	
7				3.3-4.9: fine grey sand matrix cobbles: 90% V/S 10% Granitics
8			04	
9			05	4.9-5.6 m: fine grey-beige sand matrix: Cobbles: 70% V/S 30% Granitics
10				5.6-6.3: very stoney till with minimal fine grey sand matrix cobbles: 90% V/S 10% Granitics
11				6.3-8.3: soft grey gritty clay lumps in till as @ 5.6m.
12				8.3 m. BEDROCK - Intermediate to felsic Volcanic - very oxidized, ochre colour - highly altered to clay
13				Below 8.8m: beige/white colour - clasts are a dark brown colour - strongly schistose - fine-grained
14				Below 9.5m: unoxidized - pale green/white clay and rock chips
15				9.6 m E.O.H.
16				
17				
18				
19				
20				

JE

elevation 340m

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE March 22 1986

SHIFT HOURS
____ TO ____

TOTAL HOURS
____

CONTRACT HOURS
____

HOLE NO CA-86-22 LOCATION L 8N ; 100E Site #30

GEOLOGIST MacNeil DRILLER Tadaum BIT NO. L000502 BIT FOOTAGE 0-9.4

MOVE TO HOLE 1:00-1:15

DRILL 1:15-3:15

MECHANICAL DOWN TIME

DRILLING PROBLEMS

OTHER 2:15-2:45 wait for water

MOVE TO NEXT HOLE

New Bit

DEPTH IN METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
				0-1.2 No Return - l. H6 resistance to penetration but probably till at surface as till was noted beneath some uprooted trees between Sites 29 and 30
2			01	
				1.2 - 7.7 Matheson Till
				1.2 - 1.8 minimal return of oxidized gritty clay and pebbles
4-5			02	1.8 - 7.7 till - grey, gritty clay matrix; cobbly; clast composition - 80% intermediate-mafic volcanics and sediments; 15% intrusives
6-7			03	3.1-3.5 boulder - intermediate volcanic - medium green, fine grained, schistose
				- below 3.5 - only limited return due to loss of water
8-9			04	6.6-7.0 - no return
				7.7 - 9.4 Bedrock:- altered intermediate-Felsic volcanic; light grey to white; schistose; fine grained; relatively soft - soft, white micaceous mineral along foliation - remainder of rock may be silicified to a slight extent; 2% disseminated and stringer-like pyrite; minor local oxidation
				9.4m (33') EOH

elevation 335m

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE Mar. 22 19 86
SHIFT HOURS ______ TO ______
TOTAL HOURS ______
CONTRACT HOURS ______

HOLE NO CA-86-23 LOCATION Site 31 L4N; 1+00 E
GEOLOGIST Edwards DRILLER Jodoin BIT NO. L000502 BIT FOOTAGE 9.4-11.8
MOVE TO HOLE 3:15 - 3:30
DRILL 3:30 - 4:30
MECHANICAL DOWN TIME
DRILLING PROBLEMS
OTHER
MOVE TO NEXT HOLE 4:30 - 4:45 move drill to Site 32
4:45 - 5:15 to truck road (6T); 5:15 - 6:00 truck to Senneterre

DEPTH IN METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
1			01 *	0 - 0.8 No Return
2			02	0.8 - 1.1 m TILL (Matheson) * Not a large enough sample returned, therefore dug a sample of till showing beside drill hole.
3				- oxidized - cobbly - beige gritty claylumps present - fine beige sand matrix
5				1.1 m BEDROCK. - initially highly altered felsic to intermediate volcanic - altered to clay, ochre colour
8				1.2 m: light grey colour - fine-grained; schistose - trace disseminated pyrite - fairly soft - white, greasy, talc-like mineral present along some schistosity surfaces (~2%)
13				2.1 m: brown alteration of quartz stringers
15				2.4 m E.O.H. DE

Depth scale: 1–20

elevation 329m

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE Mar. 23 1986

HOLE NO CA-86-24 LOCATION Site #32 0 ; 0+50E

GEOLOGIST Edwards DRILLER Jodouin BIT NO. L008502 BIT FOOTAGE 118-203m

SHIFT HOURS ____ TO ____

MOVE TO HOLE 6:30-7:45 truck to drill rod (stuck); 7:45-8:00 (GT)

DRILL 8:00 - 9:30.

TOTAL HOURS ____

MECHANICAL DOWN TIME

DRILLING PROBLEMS

CONTRACT HOURS ____

OTHER

MOVE TO NEXT HOLE 9:30 - 9:45.

DEPTH IN METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
0–2.8				0-2.8 No return
2.8–5.6			01	2.8 - 5.6m SEDIMENTS (Matheson) SAND: fine, grey - ~5% grey gritty clay 4.5m - lumps in sand. - cobble in sample.
5.6–6.8			02	5.6 - 6.8m * TILL (Matheson) (possibly also a gravel sequence with fine grey sand washed in from above) 5.6-6.4: fine grey sand matrix -cobbles: 70% Volcanics/Sediments 30% Granitics 6.4-6.8: Gravel bed - medium-grained - very well-sorted *(washed rods twice to retain enough till sample)
6.8–8.5			03	6.8m BEDROCK. - felsic volcanic - light grey/white colour - <5% mafics; trace chlorite alteration rimming some mafic minerals - highly schistose; fine-grained - white, greasy talc-like mineral (pyrophyllite?) along schistosity surfaces. - much of original mineralogy has been altered (bleached) - @8.4m: oxidized.

Depth scale: 1–20 m

8.5m E.O.H.

DE

elevation 329m

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE Mar. 23 1986

HOLE NO CA-86-25 LOCATION Site #33 L4S, 0+50E

GEOLOGIST Edwards DRILLER Jodenin BIT NO. L000502 BIT FOOTAGE 20.3-37.3m

SHIFT HOURS ______ TO ______

MOVE TO HOLE 9:30-9:45

DRILL 9:45-10:45

TOTAL HOURS ______

MECHANICAL DOWN TIME ______

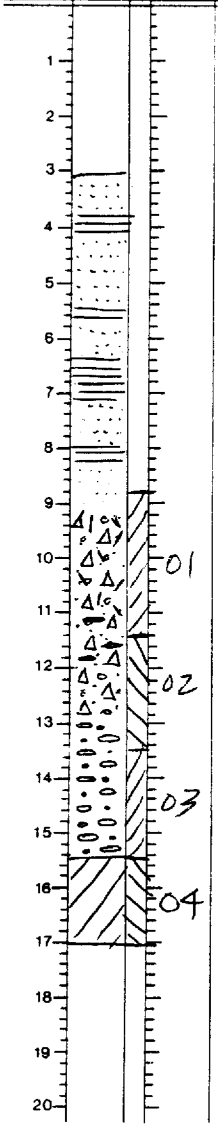
DRILLING PROBLEMS ______

CONTRACT HOURS ______

OTHER ______

MOVE TO NEXT HOLE 10:45-11:00.

DEPTH IN METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG



0-3.1 m No return

3.1-9.1 m. SEDIMENTS (Matheson)
SAND/SILT/CLAY
- lacustrine
- soft, only slightly gritty CLAY with fine, grey SAND
8.8-9.1 SAND: fine, grey

9.1-15.5 m TILL (Matheson)
9.1-11.2 m: fine grey-beige sand matrix
- pebbles: 65% Volcanics/Sediments
35% Granitics
- grey gritty clay lumps
11.2-12.1 m: clast composition changes to 80% V/S (Cobbles)
20% Granitics
12.1-13.0: fine grey-beige sand matrix
- pebbles: 60% V/S
40% Granitics
13.0-14.8: Gravel bed
13.0-13.5: medium-grained gravel.
13.5-14.8: minimal coarse sand matrix (grey)
- sorted
14.8-15.5: 90% V/S
10% Granitics

Sample nos.: 01 (approx. 10 m), 02 (approx. 12 m), 03 (approx. 14 m), 04 (approx. 16 m)

15.5 m BEDROCK Intermediate to Felsic Volcanic
- light grey colour
< 10% Mafics
- fine-grained, schistose
1% pyrophyllite (white, soft, clay-mineral) along schistosity surfaces
16.3 m medium green colour - probably original mineralogy
~5% pyrophyllite

KMN July 24, 1986
character sample analysis shows sample 01 to be gray, moderately to well sorted 150-300µ with minor granules/pebbles. Sample 01 sample interval is probably layered sediments, primarily sand.
Sample 02 appears to be till with a gray, unsorted matrix <100 to 400µ and sub-angular granules, sub-rounded pebbles.
Sample 03 consists of beige-oxidized well sorted sand 250-450µ with common granules (500-1000µ) and sub-angular to sub-rounded pebbles; minor organics. This indicates 03 to be gravel as logged.

elevation 329 m

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE Dec. 23 1986
SHIFT HOURS
_____ TO _____
TOTAL HOURS
CONTRACT HOURS

HOLE NO CA-86-26 LOCATION Site #34 L 8S; 0+50 E.
GEOLOGIST Edwards DRILLER Jodouin BIT NO. L00502 BIT FOOTAGE 373-473 m
MOVE TO HOLE 10:45 - 11:00
DRILL 11:00 - 12:00
MECHANICAL DOWN TIME
DRILLING PROBLEMS
OTHER
MOVE TO NEXT HOLE 12:00 - 12:15

DEPTH IN METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
				0-2.3 No return
				2.3-8.5 SEDIMENTS (Matheson)
				2.3-2.9 GRAVEL
				- medium gravel to 2.9m
			01	- oxidized, coarse sand matrix
				2.9-5.4. gravel with no natural matrix
				- 90% Volcanics/Sediment clasts 10% Granitics.
				5.4-7.9 SAND
			02	- oxidized medium-grained sand bed.
				- rounded clasts
				7.9-8.5 GRAVEL
				- angular clasts
			03	- no natural matrix
				8.5 m BEDROCK (Felsic to Int. Volcanic)
				- pale grey/white colour
				- highly schistose; fine-grained
				- trace disseminated pyrite
				<10% mafics
				- trace chlorite (green) alterations along quartz stringers
				~2% white, soft, greasy pyrophyllite along schistosity surfaces
				- fairly soft, easily drilled.
				10.0 m E.O.H.
				DHE.

Depth scale: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

elevation 329m

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE Mar. 23 1986
HOLE NO CA-86-27 LOCATION Site #35 L12S; 1+00W.
GEOLOGIST Edwards DRILLER Godcinn BIT NO. L00502 BIT FOOTAGE 47.3-55.5

SHIFT HOURS ____ TO ____
MOVE TO HOLE 12:00 - 12:15
DRILL 12:15 - 1:00

TOTAL HOURS ____
MECHANICAL DOWN TIME
DRILLING PROBLEMS

CONTRACT HOURS ____
OTHER
MOVE TO NEXT HOLE 1:00 - 1:15

DEPTH IN METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG							
0–1.5				0-1.5 No return (However, could see till at surface beside drill hole)							
1.5–6.4			01	1.5-6.4 m TILL (Matheson) - cobbly till; oxidized - fine, ochre sand matrix - 65% Volcanics/Sediments 35% Granitics 4.4-5.1 m: fine grey sand matrix; unoxidized cobbles: 75% V/S 25% Granitics 5.1-6.4: fine grey sand (matrix) - pebbles: 70% V/S 30% Granitics	(Poor return - washed rods to retain enough sample)						
6.4–8.2			02	6.4m. BEDROCK. Intermediate Volcanic - light grey/white colour - very schistose; fine-grained 7.0m - highly altered to CLAY - unable to distinguish texture 7.4m → oxidized to brown ~20% of sample has been altered to white CLAY - very soft; easily drilled							

8.2m E.O.H.

OKE.

elevation 329m

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE Mr. 23 1986

SHIFT HOURS
______ TO ______

TOTAL HOURS
______

CONTRACT HOURS
______

HOLE NO CA-86-28 LOCATION Site #36 L16S, 1+00 W.

GEOLOGIST Edwards DRILLER Jodouin BIT NO. L000502 BIT FOOTAGE 55.5-71.3.

MOVE TO HOLE 1:00 - 1:15

DRILL 1:45 - 3:15

MECHANICAL DOWN TIME

DRILLING PROBLEMS

OTHER 1:15 - 1:45 Wait for Water.

MOVE TO NEXT HOLE 3:15 - 3:30.

DEPTH IN METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
				0-3.5 No return
				3.5 - 14.4 m SEDIMENTS (Matheson)
				SAND / SILT / CLAY
				3.5 - 6.0 CLAY: soft, grey (only slightly gritty) in grey fine sand
				6.0 - 14.4 SAND.
				6.0 - 13.6: fine to medium; grey
				8.2: narrow seam of compact grey clay; non-gritty
			01	10.9 → few pebs in return.
				12.8 m. narrow seam of compact grey, non-gritty clay.
				- again @ 14.0
				13.6: medium grey-beige Sand - very well-sorted
			02	14.4 m. BEDROCK. (Intermediate Mafic Volcanic)
				- medium green colour
				- fine - grained
			03	- schistose
				~ 2% carbonate (calcite), calcareous - veinlets
				- alteration (sericite?) along schistosity surfaces.
				15.8 m E.O.H.
				DE

elevation 330m

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE Mar. 23 19 86

SHIFT HOURS

_____ TO _____

TOTAL HOURS

_____

CONTRACT HOURS

_____

HOLE NO CA-86-29 LOCATION Site #37 L205, 1+50W.

GEOLOGIST Edwards DRILLER Jodouin BIT NO. L000502 BIT FOOTAGE 71.3 - 100.9 : 1

MOVE TO HOLE 3:15 - 3:30

DRILL 3:30 - 5:00

MECHANICAL DOWN TIME

DRILLING PROBLEMS

OTHER

MOVE TO NEXT HOLE 5:00 - 5:15 GT to trucks; 5:15 - 6:00 truck to Senneterre.

DEPTH IN METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
				0-2.1 No return
2				2.1 - 28.1 m SEDIMENTS (Matheson)
3		2.1-4.6	01	2.1 - 3.2 GRAVEL - very oxidized; coarse cobbly -
4				3.2 - 5.5 SAND - ochre, fine sand interbedded with gravel.
6				5.5 - 22.5: CLAY - grey compact; slightly gritty

Depth scale: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE ________ 19 __

SHIFT HOURS ______ TO ______

TOTAL HOURS ______

CONTRACT HOURS ______

HOLE NO CA-86-29 LOCATION ________

GEOLOGIST ______ DRILLER ______ BIT NO. ______ BIT FOOTAGE ______

MOVE TO HOLE ________

DRILL ________

MECHANICAL DOWN TIME ________

DRILLING PROBLEMS ________

OTHER ________

MOVE TO NEXT HOLE ________

DEPTH IN METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
				SEDIMENTS (Con't)
21, 22				22.5 - 28.1 SAND - fine, grey-beige clay seam @ 25.2 - 25.5
23, 24, 25, 26			02	28.1 m - 28.5 TILL (Matheson) - fine grey sand matrix pebbles: 60% Volcanics / Sediments 40% Granitics
27, 28			03	28.4 - 28.5 fine grey sand matrix - cobbles: 80% V/S 20% Granitics
29			04	
10, 11, 12, 13, 14				28.5 m. BEDROCK (Intermediate - Mafic Volcanic) - medium green colour - very fine-grained - schistose ~3% carbonate (calcareous) with trace of pervasive Fe-alteration below 29.1 m.
15, 16, 17				29.6 m EOH. OE.
18, 19, 20				

elevation 335m

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE Nov. 24 1986

HOLE NO CA-86-30 LOCATION Stk #38 L24S; 2+50S

GEOLOGIST Edwards DRILLER Jodoin BIT NO. L000502 BIT FOOTAGE 1009-1475

SHIFT HOURS ______ TO ______

TOTAL HOURS ______

CONTRACT HOURS ______

MOVE TO HOLE 6:45-7:15 truck to drill road. 7:15-7:30 GT to drill

~~DRILL~~ 7:30-8:00 pull rods from Hole 29; 8:00-8:15 move

~~MECHANICAL DOWN TIME~~ Drill: 8:15-4:30

DRILLING PROBLEMS

OTHER

MOVE TO NEXT HOLE 4:30-4:45; 4:45-5:00 to drill road; 5:00-5:30 truck to Senneterre

DEPTH IN METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
1				0-1.5 No return
2				1.5-37.1 m SEDIMENTS (Matheson)
3				1.5-3.2 SAND: very coarse, granular - oxidized
4			01	3.2-5.8 GRAVEL: coarse, sorted - oxidized
5				5.8-16.2 SAND: medium to fine, beige; oxidized - few beige gritty clay lumps
6				
7				
8			02	16.2-26.8 m: medium-grained Sand, beige 16.2 - narrow seam of beige gritty clay.
9				
10				
11			03	
12				
13				
14			04	
15				
16				
17			05	
18				
19			06	
20				

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE ________ 19 __

SHIFT HOURS

______ TO ______

TOTAL HOURS

______

CONTRACT HOURS

______

HOLE NO CA-30 LOCATION ________

GEOLOGIST ________ DRILLER ________ BIT NO. ________ BIT FOOTAGE ________

MOVE TO HOLE ________

DRILL ________

MECHANICAL DOWN TIME ________

DRILLING PROBLEMS ________

OTHER ________

MOVE TO NEXT HOLE ________

DEPTH IN METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
			06	26.8 - 31.4 SAND fine, grey; 26.9 - seam of compact dark grey, non-gritty clay (poor return between 24.0 - 30.0m)
21				
22				
23			07	
24				31.4 - 34.7 medium-grained sand; grey - few grey gritty clay lumps
25				
26				34.7 - 36.1 medium grey-beige sand - occasional pebble
27				
28			08	
29				36.1 - 37.1 m BOULDER (Intermediate Volcanic)
30				37.1 - 45.3m TILL (Matheson)
31				37.1 - 39.3 : fine grey sand matrix - cobbles: 70% Volcanics/Sediments 30% Granitics
32			09	
33				39.3 - 39.8 : fine grey-beige sand matrix 90% Volcanics/Sediments 10% Granitics
34				
35			10	
36				
37				
38			11	
39			12	
40			13	

KMN July 24, 1986

Character sample analysis for samples 11 to 14 indicated that no till was intersected and that the samples are of interlayed sediments. Sample 11 consists of grey moderately well sorted sand 100 - 350μ and occasional subrounded to subangular pebbles. Sample 12 similar to sample 11 but the matrix range changes to 150μ to 1000μ with most of the sand in the 150 to 400μ range. Samples 13 and 14 are sand with pebbles similar to the interval described for sample 11.

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE ______ 19 __

SHIFT HOURS ______ TO ______

TOTAL HOURS ______

CONTRACT HOURS ______

HOLE NO CA-30 LOCATION ______

GEOLOGIST ______ DRILLER ______ BIT NO. ______ BIT FOOTAGE ______

MOVE TO HOLE ______

DRILL ______

MECHANICAL DOWN TIME ______

DRILLING PROBLEMS ______

OTHER ______

MOVE TO NEXT HOLE ______

DEPTH IN METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
				Till (Con't)
			13	40.2 - 40.3 : fine grey-beige sand matrix - pebbles : 65% Volcanics/Sediments 35% Granitics
41			14	40.3 - 40.5 : cobbly : 90% V/S. 10% Granitics
42				40.5 - 40.8 BOULDER (Mafic Volcanic)
43				40.8 - 41.2 TILL, fine beige sand matrix - cobbles : 80% V/S 20% Granitics
44				
45				
46			15	
47				41.2 - 42.6 : BOULDER (Int. Mafic Volcanic)
48				42.6 - 42.8 : same till as @ 40.8 m. (unable to retain a sample)
49				42.8 - ~~43~~44.1 BOULDER (Int. Volcanic)
50				44.1 - 45.1 BOULDER (Int.-Mafic Volcanic)
51				45.1 - 45.3 TILL - washed till with very little natural matrix - 60% felsic volcanics 20% volcanics/sediments 20% granitics
52				
53				
14				
15				45.3 m BEDROCK (Mafic Volcanic) - dark green colour - very fine-grained to aphanitic - foliated - 2% quartz stringers - trace disseminated pyrite
16				
17				
18				
19				
20				

46.6 m E.O.H.

OME.

elevation 335m

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE Mar. 25 1986

SHIFT HOURS ____ TO ____

TOTAL HOURS ____

CONTRACT HOURS ____

HOLE NO CA-86-31 LOCATION Site # 39 L28S, 4+00W.

GEOLOGIST Edwards DRILLER Jodouin BIT NO. L000503 BIT FOOTAGE 0-32.2

MOVE TO HOLE 6:30-7:00 (truck to drill road); 7:00-7:30 walk to drill

DRILL 7:30-11:00

MECHANICAL DOWN TIME

DRILLING PROBLEMS

OTHER

MOVE TO NEXT HOLE 11:00-11:15

New Bit L000503.

page 1 of 2

DEPTH IN METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
0–2.8				0-2.8m No return
2.8–4.8			01	2.8-29.1m SEDIMENTS (Matheson)
				SAND: beige, oxidized
				2.8-3.2: fine, beige, oxidized
				3.2-4.6: coarse, granular, oxidized
				4.6-6.0: fine, beige, oxidized
5.8–8.8			02	6.0-7.5: coarse, beige
				7.5-8.1: fine, beige
				8.1-25.2: medium-fine-grained beige sand - few pebbles
8.8–11.8			03	
11.8–14.8			04	
14.8–17.8			05	
17.8–20.8			06	

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE ______ 19 __

HOLE NO CA-86-31 LOCATION ______

GEOLOGIST ______ DRILLER ______ BIT NO. ______ BIT FOOTAGE ______

SHIFT HOURS ______ TO ______

MOVE TO HOLE ______

DRILL ______

TOTAL HOURS ______

MECHANICAL DOWN TIME ______

DRILLING PROBLEMS ______

CONTRACT HOURS ______

OTHER ______

MOVE TO NEXT HOLE ______

DEPTH IN METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
21			06	25.2 - 29.1 : fine grey-beige SAND unoxidized
22				
23			07	26.2 m : narrow seam of grey, compact non-gritty clay
24				
25				29.1 m - 30.6 TILL (Matheson)
26			08	29.1 - 29.8 : fine grey-beige sand matrix
27				- cobbly : 50% light green felsic volcanic, 20% mafic volcanic/sediments, 30% granitic
28			09	
29				29.8 - 30.6 : very stoney till with minimal amount of grey-beige matrix
30			10	- Cobbles : 50% felsic volcanic, 40% mafic volcanic/sediment, 10% granites
31			11	
32				
33				
34				30.6 m BEDROCK
35				- very light white/green colour - bleached
36				- highly schistose
37				- altered → most of original mineralogy obliterated
38				- numerous random hairline fracture
39				~5% very white clay mineral (pyrophyllite) along schistosity surfaces
40				- trace disseminated pyrite
				@ 32.0 m slightly oxidized

32.2 m E.O.H

[signature]

elevation 345m

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE Mar 25 1986

SHIFT HOURS
_____ TO _____

TOTAL HOURS
_____

CONTRACT HOURS
_____

HOLE NO CA 86-32 LOCATION Site #40 L32S; 4+50W
GEOLOGIST Edwards DRILLER Adams BIT NO. 4000503 BIT FOOTAGE 32.2-64.2
MOVE TO HOLE 11:00 - 11:15
DRILL 11:45 - 3:15
MECHANICAL DOWN TIME
DRILLING PROBLEMS
OTHER Wait for water 11:15 - 11:45
MOVE TO NEXT HOLE 3:15 - 3:30

page 1 of 2

DEPTH IN METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
1				0-2.1m No return
2				2.1-28.2: SEDIMENTS (Matheson)
3				2.1-4.6 SAND; coarse, beige, oxidized
4			01	4.6-5.1 Gravel bed - medium-grained - oxidized
5–6				5.1-10.3 SAND coarse to medium grained; oxidized - few pebbles
8			02	10.3-10.5 Gravel seam - coarse, oxidized
9–10				10.5-20.3: SAND. coarse to medium-grained; oxidized - very well-sorted
11			03	
14			04	
16			05	
19			06	
20				

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE ________ 19 __

SHIFT HOURS ______ TO ______

TOTAL HOURS ______

CONTRACT HOURS ______

HOLE NO CA-86-32 LOCATION ______

GEOLOGIST ______ DRILLER ______ BIT NO. ______ BIT FOOTAGE ______

MOVE TO HOLE ______

DRILL ______

MECHANICAL DOWN TIME ______

DRILLING PROBLEMS ______

OTHER ______

MOVE TO NEXT HOLE ______

DEPTH IN METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
				SEDIMENTS (con't)
21			06	20.3 - 20.5 Gravel bed; coarse, oxidized
22				20.5 - 23.9 SAND; coarse, beige oxidized - approximately a 10-mesh grain-size
23			07	23.9 - 25.6 Gravel - rounded clasts in a very coarse beige sand matrix
24				
25				25.6 - 26.2 SAND - medium to fine beige - drilled through a large mafic volcanic cobble
26			08	
27			09	26.2 - 27.9 SAND - fine to medium grained below 27.0 - fine only
28			09	
29			10	27.9 - 28.2 BOULDER (Intermediate Volcanic)
30			11	28.2 - 30.6 m TILL (Matheson)
31			12	28.2 - 28.3: fine, beige, slightly oxidized sand matrix - cobbles: 70% Volcanics/Sediments 30% Granites
32				28.3 - 28.4 - large granitic cobble
33				28.4 - 28.6: fine, beige sand matrix cobbles: 30% Volcanics/Sediments 70% Granites
34				28.6 - 29.3 gravel bed; very well-sorted - coarse; little, to no, matrix
35				29.3 - 30.6: till with fine beige sand matrix, only slightly oxidized cobbles: 70% Volcanics/Sediments 30% Granites
36				
37				
38				
39				
40				

KMN July 24 1986
character sample analysis indicates sample 08 to be sand as logged. Samples 09, 10 and 11 appear to be intervals of interlayered sediments. Sample 09 is gray to gray-beige (minor pure clay partings) sand 100 to 200µ with lesser amounts of 250 - 400µ and minor pebble and cobble cuttings. Samples 10 and 11 similar to sample 09.

30.6 m BEDROCK (Intermediate Volcanic)
- medium to light green colour
- very schistose, fine-grained
- pervasive Fe-alteration along schistosity surfaces to 30.9m
- less of a bleached appearance below 31.5m.

32.0m E.O.H. [initials]

elevation 355m

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE Mar. 25, 1986

SHIFT HOURS
____ TO ____

TOTAL HOURS
____

CONTRACT HOURS
____

HOLE NO CA-86-33 LOCATION ____
GEOLOGIST Edwards DRILLER Godouin BIT NO. L000503 BIT FOOTAGE 64.2 - 101.6 m
MOVE TO HOLE 3:15 - 3:30
DRILL 3:30 - 4:45
MECHANICAL DOWN TIME ____
DRILLING PROBLEMS ____
OTHER ____
MOVE TO NEXT HOLE 4:45 - 5:00 GT to truck; 5:00 - 5:30 truck to Senneterre

DEPTH IN METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
1				0-1.5 No return
2				1.5 - 35.9 m. SEDIMENTS
3				1.5-2.9 Sand: beige, fine, oxidized 2.9-3.3 Gravel: coarse, oxidized
4			01	3.3-5.9 Sand: fine to medium, beige; oxidized
5				5.9- 11.3: Gravel: - rounded clasts
6				- coarse, beige
7				- beige gritty clay @ 8.8m
8			02	11.3 - 14.8: SAND; coarse, beige
9				14.8 - 21.1 SAND: fine, beige
10			03	- thin bed of pebbly gravel 16.1 to 16.7
11				
12				
13			04	
14				
15				
16				
17			05	
18			06	
19				
20			07	

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE March 19__
SHIFT HOURS
_____ TO _____
TOTAL HOURS
_____
CONTRACT HOURS
_____

HOLE NO CA-86-33 LOCATION ______
GEOLOGIST ______ DRILLER ______ BIT NO. ______ BIT FOOTAGE ______
MOVE TO HOLE ______
DRILL ______
MECHANICAL DOWN TIME ______
DRILLING PROBLEMS ______
OTHER ______
MOVE TO NEXT HOLE ______

DEPTH IN METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG							
21			07	21.1 - 24.0 : GRAVEL: beige, coarse - angular clasts. - rounded clasts below 23.0 m.			March 25 : Stop drilling 4:45 @ 24.0 m. Start Mar. 26 : 10 am. Down time : 7:00 - 10:00 Service compressor				
22			08								
23											
24				24.0 - 25.9 : SAND: coarse, beige 25.9 - 27.0 : Gravel: rounded clasts, medium-grained							
25			09	27.0 - 28.7 : SAND: coarse, beige							
26				28.7 - 35.9 : GRAVEL : coarse, beige; rounded clasts - higher mafic content. - 30.7 - 31.0 ⇒ coarse beige sand and again 32.2 to 32.4.							
27											
28											
29											
30			10	35.9 m. BEDROCK - (feldspar porphyry) - dirty white colour, altered - original mineralogy obliterated due to bleaching. - fine-grained; slightly schistose - multiple hairline fractures ~5% fuchsite (bright green) - feldspar phenocrysts (colourless) - slightly pink below 36.5 m (K-feldspar) - trace white alteration clay mineral (pyrophyllite) along fractures							
31											
32											
33											
34			11								
35											
36											
37			12	- slow, difficult drilling.							
38											
39				37.4 m E.O.H. DE.							
40											

elevation 345m

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE Mar. 26 19 86

SHIFT HOURS ____ TO ____

TOTAL HOURS ____

CONTRACT HOURS ____

HOLE NO CA-86-34 LOCATION S, t #42 ; L40S; 5+00W.

GEOLOGIST Edwards DRILLER Cadieux BIT NO. L00503 BIT FOOTAGE 101.6 - 122.1 m

MOVE TO HOLE 1.00 - 1.15

DRILL 1.15 - 3.45

MECHANICAL DOWN TIME

DRILLING PROBLEMS

OTHER

MOVE TO NEXT HOLE 3.45 - 4.00

DEPTH IN METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
1				0-1.5 No return
2				1.5 - 18.7 SEDIMENTS (Matheson)
3			01	1.5 - 8.8 SAND fine beige; @ 2.8 m seam of beige gritty clay
5				8.8 - 11.3 SAND medium to coarse grained, beige
6				11.3 - 15.7 sand coarse, beige
7				15.7 - 17.0 grey beige, coarse to medium grained sand
9			02	17.0 - 18.7 grey beige, medium & fine sand
10–11				18.7 - 19.0 m TILL (Matheson)
12				- firm grey sand matrix; cobbles: 80% volcanics/sediments, 20% Granitics
13–14			03	(washed rods to return enough sample)
15–16				19.0 m. BEDROCK (mafic volcanic)
17			04	- dark to medium green colour; - fine grained
18				- slightly siliceous; - foliated
19				- narrow vein of chert (cream coloured) @ 19.0 - 19.1 m.
20			05	- trace carbonate along foliations

20.5 m E.O.H.

elevation 345m

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE Mar 28 1986

HOLE NO CA-86-35 LOCATION Site #43 L 44S; 7+00W

GEOLOGIST Edwards DRILLER Godwin BIT NO. L000503 BIT FOOTAGE 122.1-145.6

SHIFT HOURS ____ TO ____

MOVE TO HOLE 7:00-7:30 to drill road; 7:30-12:00 downtime to service

DRILL pump + compressor Drill: 12:00 - 2:00

TOTAL HOURS ____

MECHANICAL DOWN TIME ____

DRILLING PROBLEMS ____

CONTRACT HOURS ____

OTHER ____

MOVE TO NEXT HOLE 2:00 - 2:15

DEPTH IN METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
1–20			01, 02, 03	

0-2.0 No return

2.0-19.2 SEDIMENTS (Matheson)

2.0-3.0 CLAY: beige, gritty, compact

3.0-7.1 CLAY: grey, gritty, soft

7.1-8.3 SAND/SILT: fine, grey Sand; grey silt

8.3-12.4: SAND: fine, grey
- occasional soft, grey clay seam.

12.4-13.3: Sand; grey fine to medium-grained

13.3-13.4: cobble in fine grey sand

13.4-17.6: Sand (beige) oxidized slightly
- fine to medium-grained

17.6-19.2: SAND (beige)
- coarse grained.

19.2 m. TILL (Matheson) possibly a gravel with fine grey Sand washed into it from above sequence.

19.2-19.8 fine grey sand matrix
- cobbles: 70% Volcanics/Sediments 30% Granitics

19.8-20.0: fine beige (minimal) Sand matrix
- pebbles: 50% Volcanics/Sediments 50% Granitics

20.0-21.0: fine grey-beige Sand matrix
- cobbles: 80% Volcanics/Sediments 20% Granitics

KMN July 24 1986
character sample analysis of samples 03 and 04 indicate that no till was intersected. Sample 03 consists of abundant rock chips and 'drill dust' which imparts a gray colour to sample. Sand in the 100 to 300µ range may be from above unit. Sample 04 is a gravel similar to 03 and may include some bedrock.

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE ________ 19 __

SHIFT HOURS

______ TO ______

TOTAL HOURS

______

CONTRACT HOURS

______

HOLE NO CA-86-35 LOCATION ____________

GEOLOGIST ________ DRILLER ________ BIT NO. ________ BIT FOOTAGE ________

MOVE TO HOLE ____________

DRILL ____________

MECHANICAL DOWN TIME ____________

DRILLING PROBLEMS ____________

OTHER ____________

MOVE TO NEXT HOLE ____________

DEPTH IN METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
21			03	21.0-22.1: Gravel (possibly a washed till)
			04	- 85% Volcanics/Sediments
22				15% Granitics
				- little to no grey sand matrix
23			05	- more volcanic below 21.9 m.
				(95% V/S
24				5% Granitics)
25				
				22.1 m BEDROCK (Mafic Volcanic)
26				- dark green colour
27				- narrow beige carbonate (calcareous) veinlets (~3%)
28				@ 22.3 m: quartz veinlet (~5%)
29				- fine-grained, foliated
				- slightly schistose.
30				- trace pyrite.
11				
12				23.5 m E.O.H.
13				DME.
14				
15				
16				
17				
18				
19				
20				

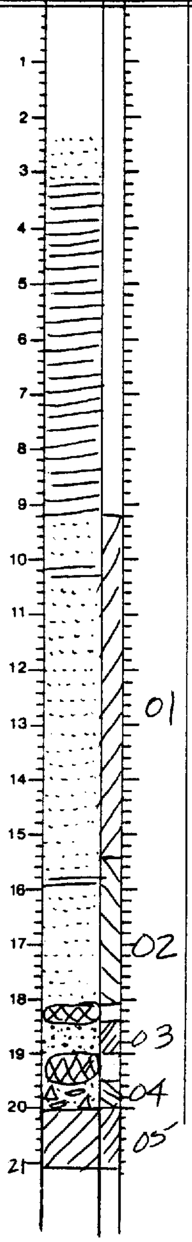
elevation 345m

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE Mar. 28 19 86
SHIFT HOURS ____ TO ____
TOTAL HOURS ____
CONTRACT HOURS ____

HOLE NO CA-86-36 LOCATION Site #44 L48S; 8+50W.
GEOLOGIST Edwards DRILLER [illegible] BIT NO. L000503 BIT FOOTAGE 1456-166.7m
MOVE TO HOLE 2:00-2:15
DRILL 2:15-5:00
MECHANICAL DOWN TIME ____
DRILLING PROBLEMS ____
OTHER ____
MOVE TO NEXT HOLE 5:00-5:15 to trucks (ski-doo), 5:15-5:45 to Senneterre.

DEPTH IN METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG



0-2.5 No return

2.5-18.9: SEDIMENTS (Matheson)

2.5-3.2 m sand: medium-grained, beige; oxidized

3.2-4.9: beige gritty clay lumps. CLAY (beige, gritty, soft)

4.9-9.4 : CLAY : grey, soft, non-gritty

9.4-14.6: SAND: fine, grey
- occasional grey soft non-gritty clay seam

14.6-17.2 : SAND: fine to medium-grained
- grey-beige colour
- narrow grey gritty clay seam @ 15.8m.

17.2-18.1 : Sand; fine, grey

18.1-18.4 BOULDER (Granite)

18.4-18.9 : SAND; fine, grey

18.9-20.0 m. TILL (Matheson) (noted an increase in sulfides visible in +10)
- fine grey sand matrix
- Cobbles: 70% Volcanics / Sediments, 30% Granites

19.0-19.5 BOULDER (Gabbro)

19.5-20.0 : cobbly till:
80% V/S; 20% Granites
- fine grey sand matrix

20.0 m BEDROCK - (feldspar porphyry?)
colour: medium to dark green
- fine-grained; slightly schistose
- feldspar phenocrysts (pink below 20.2m)
- trace brown alteration mineral along fractured surfaces (altered biotite)
- 5% carbonate veinlets
- trace pyrite

21.1 m E.O.H.

elevation 340m

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE Jan. 29 1986

HOLE NO CA-86-37 LOCATION Site #45 L 52S; 9+50W.

GEOLOGIST Edwards DRILLER [illegible] BIT NO. L600504 BIT FOOTAGE 0-15.2m

SHIFT HOURS ____ TO ____

MOVE TO HOLE 6:45-7:15 Kenetin to drill road, 7:15-7:30 ski-doo

DRILL to drill; Move to #37 7:30-7:45; Drill 7:45-10:15.

TOTAL HOURS

MECHANICAL DOWN TIME

DRILLING PROBLEMS

CONTRACT HOURS

OTHER

MOVE TO NEXT HOLE 10:15-10:30.

* New Bit *

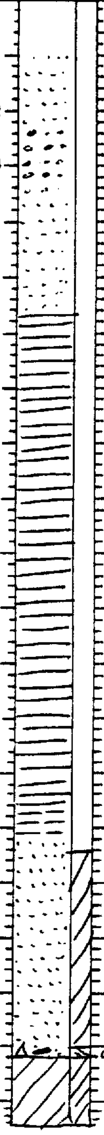
DEPTH IN METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
				0-1.2 No return
				1.2 - 13.9 m SEDIMENTS (Matheson)
				1.2-3.3: sand, fine, beige, oxidized
				3.3-4.6: sand: fine-medium - beige, oxidized
				4.6-5.1: clay: beige, gritty, compact - in beige fine to medium sand
				5.1-9.5: clay: grey, compact, non-gritty - less compact below 6.0 m
				9.5-13.1: sand: fine, grey
				13.1-13.8: BOULDER (Granite)
				13.8-13.9: Sand: fine, grey
			01	13.9 m. BEDROCK (Intermediate - Mafic Volcanic) - medium green colour - fine-grained - schistose - trace carbonate stringers (calcareous) - trace alteration (possibly sericite) along fractured surfaces ~3% quartz veinlets with trace chlorite alteration
			02	
				15.2m E.O.H. (out of water)
				CKE

elevation 340m

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE Mar. 29 19 86
SHIFT HOURS ____ TO ____
TOTAL HOURS ____
CONTRACT HOURS ____

HOLE NO CA-86-38 LOCATION Site #46 L56S; 9+00W.
GEOLOGIST Edwards DRILLER Jodouin BIT NO. L00C504 BIT FOOTAGE 15.2-35.7m
MOVE TO HOLE 10:15-10:30
DRILL 10:30-12:15
MECHANICAL DOWN TIME
DRILLING PROBLEMS
OTHER
MOVE TO NEXT HOLE 12:15-12:30

DEPTH IN METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
1–20			01 (17.5), 02 (19.2), 03 (20)	see below

0-1.0 No return

1.0 - 19.0 SEDIMENTS (Matheson)

1.0-2.4 Sand (medium-grained) - oxidized

2.4-3.5 Sand: coarse, beige

3.5-5.7 Sand: fine, beige - grey below 4.6m.

5.7-6.2 Clay: compact - grey, gritty, in fine grey sand.

6.2-14.6: Clay: soft, grey, non-gritty

14.6-15.2: Silt, grey.

15.2-18.8: Sand, grey, fine

18.8-19.0m: Sand; grey, medium

19.0m - 19.2m TILL (Matheson)
- fine grey sand matrix
- cobbles: 80% Volcanics/Sediments 20% Granites
- grey gritty clay lumps.

*Washed rods 3X to retain enough sample

19.2m BEDROCK. (Intermediate Volcanic)
- medium green colour
- feldspar amygdules (colourless to pale pink) in fine-grained groundmass
- moderately schistose
- trace carbonate along schistosity surfaces
- trace pyrophyllite - alteration along schistosity surfaces (white clay, greasy)

20.5m E.O.H.

[signature]

elevation 340m

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE Mar. 29 1986

SHIFT HOURS ____ TO ____

TOTAL HOURS ____

CONTRACT HOURS ____

HOLE NO CA-86-39 LOCATION Site #47 L 60S; 9+00W.

GEOLOGIST Edwards DRILLER Godwin BIT NO. L000504 BIT FOOTAGE 35.7-64.2m

MOVE TO HOLE 12:15-12:30

DRILL 12:30 - 4:30

MECHANICAL DOWN TIME

DRILLING PROBLEMS

OTHER

MOVE TO NEXT HOLE 4:30-5:00 GT to trucks, 5:00-5:30 trucks to Senneterre

DEPTH IN METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
				0-1.1 No Return
1				1.1-8.1 m SEDIMENTS (Matheson)
2				1.1-3.1 fine beige sand, with beige gritty clay lumps.
3				3.1-4.2: clay; grey, slightly gritty
4				4.2-8.1: fine grey sand
5				8.1 - 26.9 m TILL (Matheson)
6				8.1-9.2 m: fine, grey-beige sand matrix - cobbles: 75% Volcanics/Sediments 25% Granitics
7				- few grey, gritty clay lumps
8			01	9.2-10.6 m: very cobbly till, 30% Volcanics/Sediments 70% Granitics -fine grey-beige sand matrix
9			02	- few grey, non-gritty clay lumps.
10			03	10.6-12.0: fine grey sand matrix -pebbles: 75% Volcanics/Sediments 25% Granitics
11				- grey gritty clay lumps.
12			04	12.0-13.0: grey, gritty sand/clay matrix pebbles: 75% Volcanics/Sediments 25% Granitics
13			05	13.0 - 13.3 BOULDER (Gabbro)
14			05	13.3 - 13.9: till; fine grey sand matrix -cobbles: 90% Volcanics/Sediments 10% Granitics
15			06	13.9-15.0: fine grey-beige sand matrix cobbles: 70% Volcanics/Sediments 30% Granitics
16			07	15.0-15.3: BOULDER (Mafic Volcanic)
17			08	15.3-17.5: Till; fine grey-beige sand matrix -cobbles. 95% Volcanics/Sediments 5% Granitics
18				Below 15.8 m: 70% Volcanics/Sediments 30% Granitics
19			09	17.5-17.9 m: Bed of grey clay and medium-grained grey sand worked in together.
20			10	17.9-22.8: fine grey-beige sand matrix cobbles: 75% Volcanics/Sediments 25% Granitics - few grey gritty clay lumps.

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE ________ 19 __

SHIFT HOURS

______ TO ______

TOTAL HOURS

______

CONTRACT HOURS

______

HOLE NO CA-86-39 LOCATION ______

GEOLOGIST ______ DRILLER ______ BIT NO. ______ BIT FOOTAGE ______

MOVE TO HOLE ______

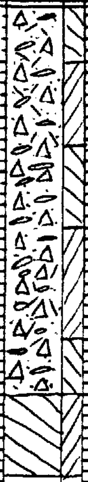
DRILL ______

MECHANICAL DOWN TIME ______

DRILLING PROBLEMS ______

OTHER ______

MOVE TO NEXT HOLE ______

DEPTH IN METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
21			10	22.8 - 23.5 : large granitic cobbles (90% Granitics 10% Volcanics / Sediments) with fine grey-beige sand worked up with it.
22			11	
23			12	23.5 - 24.5 : fine grey-beige sand matrix - cobbles : 50% Volcanics/Sediments 50% granitics
24				
25			13	24.5 - 26.0 : clast size changes to pebbles (50% Volcanics/Sediments 50% Granitics) - few grey gritty clay lumps.
26			14	26.0 - 26.9 : fine grey sand matrix cobbles : 60% Volcanics/Sediments 40% Granitics
27				
28			15	
29				26.9 m. BEDROCK (Mafic Volcanic)
30				- dark green colour
31				- fine-grained, very schistose
32				- trace amount of alteration mineral along schistosity surfaces (possibly pyrophyllite)
33				~ 3% mafic volcanic rock chips altered to grey/white clay mineral (pyrophyllite)
34				- very soft, easy drilling
35				
36				28.5 m E.O.H.
37				
38				
39				
40				

elevation 341m

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE Mar 30 19 86

SHIFT HOURS ____ TO ____

TOTAL HOURS ____

CONTRACT HOURS ____

HOLE NO CA-86-40 LOCATION Site #48 L64S, 9+00W

GEOLOGIST Edwards DRILLER Jodouin BIT NO. L000504 BIT FOOTAGE 64.2-108.6

MOVE TO HOLE 6:45-7:15 Service to drill rod.

DRILL 7:15-7:45 G.T. to drill

~~MECHANICAL DOWN TIME~~ 7:45-8:00 Pull rods from #39

~~DRILLING PROBLEMS~~ 8:00-8:15 Move to Hole.

OTHER Drill: 8:15-10:15

MOVE TO NEXT HOLE 10:15-10:30.

DEPTH IN METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG	
0–2.5				0-2.5 No return	* Poor return to 10.0m - washed rods to retain enough sample
2.5–12.9				2.5-12.9m TILL (Matheson)	
2.5–5.4			01*	2.5-5.4: fine beige sand matrix - grey below 2.7m - pebbles: 60% Volcanics/Sediments 40% Granitics	
5.4–11.1			02*	5.4-11.1: fine grey sand matrix cobbles: 60% Volcanics/Sediments 40% Granitics	
11.1–12.9			03	11.1-12.9: fine grey-beige sand matrix cobbles: 75% V/S 25% Granitics	
12.9			04, 05	12.9m: BEDROCK (Intermediate Volcanics) - medium green colour - highly altered to pink and white clay (soft) pyrophyllite (~10% of sample altered to clay) - very schistose; fine-grained - cream to pale pink alteration minerals along schistosity surfaces - trace carbonate along fractured surfaces	
14.4				14.4 m E.O.H.	

JE.

elevation 340m

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE Mar. 30 1986

SHIFT HOURS
______ TO ______

TOTAL HOURS
______

CONTRACT HOURS
______

HOLE NO CA-86-41 LOCATION Site #49 L68S; 9+00W.
GEOLOGIST Edwards DRILLER Johnson BIT NO. L000504 BIT FOOTAGE 108.6-117.2
MOVE TO HOLE 10:15-10:30
DRILL 10:30-2:00
MECHANICAL DOWN TIME
DRILLING PROBLEMS
OTHER Wait for water: 11:15-11:30; 1:00-1:30
MOVE TO NEXT HOLE 2:00-2:30

DEPTH IN METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
				0-3.0 Peat and organics
				3.0-3.4 SEDIMENTS (Matheson)
				- Sand: fine, grey
				3.4-8.5 TILL (Matheson)
			01	3.4-5.1 fine grey sand matrix Cobbles: 75% Volcanics/Sediments 25% Granitics
			02	5.1-8.2: fine grey-beige Sand Matrix - pebbles: 70% V/S 30% Granitics
			03	
			04	8.2-8.5: fine grey-beige Sand matrix cobbles: 80% V/S 20% Granitics
				8.5m. BEDROCK (Mafic Volcanic) - medium to dark green - fine-grained, slightly schistose - very well-developed foliations - narrow vein (~10%) of fine-grained, beige mineral (chert?) to 8.7m. ~1% carbonate stringers (calcareous) ~5% quartz veinlets with a trace of chlorite along boundaries - trace pyrite - slow, difficult drilling

9.6m E.O.H.
ONE

elevation 345m

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE ________ 19 __

SHIFT HOURS

______ TO ______

TOTAL HOURS

______

CONTRACT HOURS

______

HOLE NO CA86-42 LOCATION Site#1 L66S; 13+00W.

GEOLOGIST D. Parnham DRILLER Jodouin BIT NO. L000505 BIT FOOTAGE 0-5.3m

MOVE TO HOLE 2:00-2:30

DRILL 2:30-4:15 4:15-5:00 to trucks; 5:00-5:30 to Senneterre

MECHANICAL DOWN TIME

~~DRILLING PROBLEMS~~ Mar. 31 → 7:00-7:30 Senneterre to drill road

OTHER 7:30-8:00 fuel-up; 8:00-8:45 GT to drill. (↑ report 2 stolen drums to police)

MOVE TO NEXT HOLE (Drill: 8:45-10:15

* New Bit *

DEPTH IN METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
				0-3.2 No Return (Sample was blowing out the top of the hole (initially) - Drilled the bedrock, then washed the rods before pulling to get a till sample - Sampled between 2.7-4.0m).
3-4	Δ:o ∘4 A∘		01	3.2-4.0 Till (Matheson) - fine beige sand matrix - oxidized - pebbles: 60% Volcanics / Sediments 40% Granitics
4-5.3	//////		02	4.0 m. Bedrock (Mafic Volcanics) - dark green colour - fine-grained ~20% quartz veining - massive sulfides (in ~3mm seams) @ 4.3 m: change to medium grey colour - aphanitic, dyke or intrusive - sulphides present throughout sample - difficult drilling in this zone 4.8m: dark to medium green - weathered appearance - very oxidized contact. Below 5.1m: same rock as @ 4.0-4.3m
				5.3m E.O.H.

KMN July 24, 1986

Character sample analysis of sample 01 indicates that the interval consists of a till which contains a high local clast component subsequently washed by wave action resulting in loss of fines - beach log deposition.

elevation 340m

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE Mar. 31 1986

SHIFT HOURS ____ TO ____

TOTAL HOURS ____

CONTRACT HOURS ____

HOLE NO CA-86-43 LOCATION Site #2 L62S, 1300W

GEOLOGIST Edwards DRILLER Godouin BIT NO. L000505 BIT FOOTAGE 53-26.3

MOVE TO HOLE 10:15 - 10:30

DRILL 10:30 - 12:45

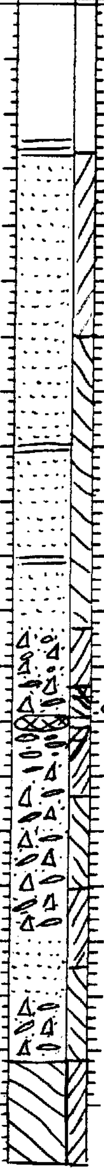
MECHANICAL DOWN TIME ____

DRILLING PROBLEMS ____

OTHER ____

MOVE TO NEXT HOLE 12:45 - 1:00

DEPTH IN METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG



Depth in metres: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21

Sample No.: 01, 02, 03, 04, 05, 06, 07, 08, 09

0-2.5 No return

2.5-11.3 SEDIMENTS (Matheson) - lacustrine

2.5-2.7: CLAY; grey, soft, gritty

2.7-3.4: SAND: fine, grey

3.4-11.3: SAND: medium-grained, grey, with a few grey gritty clay lumps.

11.3-19.2 TILL (Matheson)

11.3-12.2: fine grey-beige sand matrix
pebbles: 60% Volcanics/Sediments
40% Granitics

12.2-12.5: fine grey sand matrix
cobbles: 75% Volcanics/Sediments
25% Granitics

12.5-12.9: very stoney till
- minimal amount of grey-beige sand matrix
cobbly: 85% V/S
15% Granitics

12.9-13.1: BOULDER (Diorite)

13.1-13.6: Gravel bed
- very coarse; angular clasts
- minimal coarse grey-beige sand matrix

13.6-15.7: till; fine grey-beige sand matrix
cobbles: 70% V/S; 30% Granitics
Below 14.9m: 85% V/S
15% Granitics

15.7-16.1: fine grey sand matrix
70% V/S; 30% Granitics

16.1-17.0: fine grey-beige sand matrix

17.0-18.0: sand bed; fine, grey-beige

18.0-19.2 Till, fine grey-beige sand matrix
- cobbles: 88% V/S 20% Granitics
- noted seams of pyrite throughout mafic clasts

19.2m BEDROCK (Intermediate Volcanic) (possibly tuffaceous)
- medium to light grey colour
- very fine grained; foliated
- banded, with pervasive Fe-alterations along banding boundaries
Below 20.2m ~50% of sample altered to beige, slightly oxidized clay mineral (pyrophyllite); very soft.

21.0m E.O.H.

KMN July 24, 1986
Analysis of Conaster samples indicates that no till was intersected. Sample 03 consists of subrounded pebble gravel and gray sand from overlying unit. Sample 04 consists of gravel with a gray 'matrix' of rock flour drill dust. Also sand 100-150μ and 200-400μ common. Sample 05 also a gravel but much coarser than sample 04. Sample 06, 07 and 08 gray to gray-beige colour sand ~100 to 300μ and 300-750 with occasional sub-rounded to angular pebbles.

elevation 340m

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE May 31 19 86

SHIFT HOURS

____ TO ____

TOTAL HOURS

____

CONTRACT HOURS

____

HOLE NO CA-86-44 LOCATION Site #3 L585; 14+00W.

GEOLOGIST Edwards DRILLER Jodouin BIT NO. L000505 BIT FOOTAGE 26.3 523

MOVE TO HOLE 12:45 - 1:00

DRILL 1:00 - 2:30

MECHANICAL DOWN TIME

DRILLING PROBLEMS

OTHER

MOVE TO NEXT HOLE 2:30 - 2:45

Page 1 of 2

DEPTH IN METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
0–20		15–20	01 (~17 m); 02 (con't) (~19.5 m)	0-4.1 No return 4.1-24.5 m. SEDIMENTS (Matheson) 4.1-4.8: Sand: fine, beige 4.8-9.2: Clay: grey, slightly gritty, fairly compact & very soft, soapy below 7.9m 9.2-19.1: Sand: - fine, grey - occasional seam of soft grey clay @ 17.5m: few cobbles. 19.1m Sand: medium to fine-grained, grey.

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE ________ 19 __

SHIFT HOURS
______ TO ______

TOTAL HOURS
______

CONTRACT HOURS
______

HOLE NO CA-86-44 LOCATION ________
GEOLOGIST ________ DRILLER ________ BIT NO. ________ BIT FOOTAGE ________
MOVE TO HOLE ________
DRILL ________
MECHANICAL DOWN TIME ________
DRILLING PROBLEMS ________
OTHER ________
MOVE TO NEXT HOLE ________

DEPTH IN METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
21				23.5 - 24.5: Coarse bed of grey-beige sand
22			02	
23				24.5 m TILL: (Matheson) fine grey-beige sand matrix. pebbles: 60% Volcanics / Sediments, 40% Granitics
24			03	
25			04	(washed rods to retain enough sample)
26				
27				24.6 m BEDROCK (Intermediate - Mafic Volcanics)
28				24.6 - 24.7 - black colour; ~10% quartz veining
29				- massive sulfides in ~0.5cm seams
30				- fine-grained, trace chlorite along quartz veining
11				(narrow shear zone; some overburden material)
12				24.7 - highly altered and weathered-looking
13				~20% of sample altered to clay (beige, soft) - pyrophyllite
14				- light grey clay below 25.0 m.
15				- clasts: medium-green colour - fine-grained
16				& very schistose - ~2% carbonate stringers (calcareous)
17				- soft, easily drilled
18				
19				26.0 m E.O.H.
20				

elevation 340m

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE Mar 31 19 86

SHIFT HOURS ____ TO ____

TOTAL HOURS ____

CONTRACT HOURS ____

HOLE NO CA-86-45 LOCATION Site #4 L54S, 14+00W

GEOLOGIST Edwards DRILLER Godouin BIT NO. L000505 BIT FOOTAGE 523-753m.

MOVE TO HOLE 2:30 - 2:45

DRILL 2:45 - 4:15

MECHANICAL DOWN TIME

DRILLING PROBLEMS

OTHER

MOVE TO NEXT HOLE 4:15-4:30, Set-up for #46 4:30-4:45

GT to trucks 4:45-5:00.

5:00 - 5:30 trucks to Scrnetiere

DEPTH IN METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
1–20			01 (≈9.5), 02 (≈15), 03 (≈18.5)	0-1.0. No return 1.0 - 21.5 m SEDIMENTS (Matheson) - lacustrine 1.0-1.1 Sand; fine, grey-beige 1.1-5.1: Clay: grey, compact, gritty 3.6 - beige clay, soft. 5.1-6.0. Sand: fine, grey-beige with beige gritty clay 6.0-6.5: Sand: beige, very oxidized, fine 6.5-14.0. Sand; fine, grey 14.0-21.5: Sand; medium-grained - grey-beige - narrow compact gritty clay seam @ 14.1m.

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE ________ 19 __

SHIFT HOURS

______ TO ______

TOTAL HOURS

______

CONTRACT HOURS

______

HOLE NO CA-86-45 LOCATION ______

GEOLOGIST ______ DRILLER ______ BIT NO. ______ BIT FOOTAGE ______

MOVE TO HOLE ______

DRILL ______

MECHANICAL DOWN TIME ______

DRILLING PROBLEMS ______

OTHER ______

MOVE TO NEXT HOLE ______

DEPTH IN METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
			03	21.5-21.8m: TILL (Matheson)
21			04	- fine, grey-beige sand matrix
22			05	- cobbles: 70% Volcanics/Sediments
23				30% Granitics
24				(note: ~10% of Volcanics is a felsic mineral altered to a pale green or pink)
25				
26				21.8m BEDROCK - (felsic Volcanic)
27				- light to medium green
28				- very schistose
				- fine-grained
29				- pervasive Fe-alteration along schistosity surfaces (to 22.6 m, and again below 23.0m)
30				
11				
12				- trace carbonate stringers
				- trace disseminated pyrite
13				- pale green colour below 22.6 m.
14				
15				23.1 m E.O.H.
16				ONE.
17				
18				
19				
20				

elevation 340m

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE Apr. 1 1986
HOLE NO CA-86-46 LOCATION Site #5 L50S; 13+50S
GEOLOGIST Edwards DRILLER Godouin BIT NO. L000505 BIT FOOTAGE 75.3-104.2m

SHIFT HOURS
____ TO ____
MOVE TO HOLE 6:30-7:00 trucks to drill road; 7:00-7:30 to drill
DRILL 7:30-11:00

TOTAL HOURS
MECHANICAL DOWN TIME
DRILLING PROBLEMS

CONTRACT HOURS
OTHER
MOVE TO NEXT HOLE 11:00-11:15

DEPTH IN METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
				0-1.5 NO RETURN
1–9				1.5 - 9.1 m SEDIMENTS (Matheson)
				1.5-3.0 : Sand, fine, ochre, oxidized
				3.0-5.5 : Sand, beige, oxidized beige gritty clay lumps
				5.5-8.8 : CLAY : compact, non-gritty - beige to 5.6m grey below 5.6m - soft clay below 8.0m
				8.8-9.1 : Sand : fine to medium - grey-beige
9				9.1 - 27.4 m. TILL (Matheson)
10–11			01	9.1-12.6 ; fine, grey-beige sand matrix pebbles: 65% Volcanics/Sediments 35% Granitics - intermittent seams of soft grey clay ← these seams of non-gritty clay may indicate that this section is one of sand + gravel beds being welded-in together
12			02	12.6-12.8 Boulder (Granitic)
13			02	12.8-14.3 Till: fine grey-beige sand matrix cobbly: 75% Volcanics/Sediments 25% Granitics
14–15			03	14.3-14.8: Gravel bed, coarse beige; rounded clasts
16			04	14.8-15.5: Till: fine grey-beige sand matrix, pebbles: 65% Volcanics/Sediments 35% Granitics - noted iron-banding in some mafic clasts
17–18			05	15.5-16.1: clast size changes to cobbles
				16.1-18.4: Sand bed, fine, grey-beige
19–20			06	18.4-18.9: till; fine grey-beige sand matrix pebbly. 60% V/S 40% Gr.
				18.9-21.3: Gravel bed; coarse, rounded clasts - very well-sorted

KMN July 24, 1986
Character sample analysis for samples 01 through 10 indicate that no till was intersected. Samples 01-04 consist of gray to gray-beige well sorted sand (100 to 300μ) and sub-rounded pebbles, also occasional clay seams in sample 01. Down section the internal changes from pebbly sand to a sorted beige sand 150-250μ and 400 to 800μ in sample 05. Samples 06, 07 are gravels and consist of sorted beige colour sand 200 to 1000μ and subrounded to rounded pebbles. Samples 08, 09 and 10 are pebbly sands/gravel

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE ________ 19 __

HOLE NO CA-86-46 LOCATION ________

GEOLOGIST ________ DRILLER ________ BIT NO. ________ BIT FOOTAGE ________

SHIFT HOURS ____ TO ____

MOVE TO HOLE ________

DRILL ________

TOTAL HOURS ________

MECHANICAL DOWN TIME ________

DRILLING PROBLEMS ________

CONTRACT HOURS ________

OTHER ________

MOVE TO NEXT HOLE ________

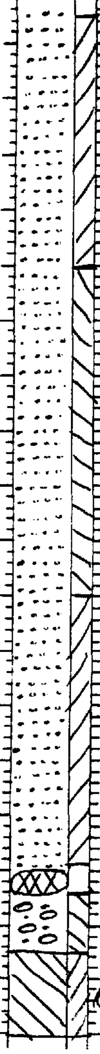
DEPTH IN METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
21			07	21.3 - 21.9 : till; fine beige sand matrix - pebbles: 60% V/S 40% Granitics
22			08	21.9 - 22.1 : Sand bed, coarse, beige
23				22.1 - 26.2 : Gravel bed, with coarse beige sand matrix
24				
25			09	26.2 - 26.8 : till; fine grey sand matrix cobbles: 80% V/S 20% Granitics
26				26.8 - 27.3 : gravel: with coarse grey-beige matrix
27			10	27.3 - 27.4 : till: fine grey-beige sand matrix cobbles: 80% V/S 20% Granitics
28			11	
29				27.4 m. BEDROCK.
30				- Intermediate Volcanic
31				- medium to light green
12				- fine-grained, slightly schistose - foliated
13				- trace carbonate along fractured surfaces
14				- 28.1 - 28.6 m: ∟15%
15				carbonate veining (calcareous)
16				
17				28.9 m E.O.H.
18				OK.
19				
20				

elevation 345m

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE April 1 1986
SHIFT HOURS ____ TO ____
TOTAL HOURS ____
CONTRACT HOURS ____

HOLE NO CA-86-47 LOCATION Site #6 L46S; 13+00W
GEOLOGIST Edwards DRILLER Jodouin BIT NO L000505 BIT FOOTAGE 104.2-124.2
MOVE TO HOLE 11:00 - 11:15
DRILL 11:15 - 1:30
MECHANICAL DOWN TIME
DRILLING PROBLEMS
OTHER
MOVE TO NEXT HOLE 1:30 - 1:45

DEPTH IN METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
1–20			01, 02, 03, 04, 05	see below

0-1.5 No return

1.5 - 18.5 m SEDIMENTS (Mathison)

1.5-12.2: Sand; coarse, granular
- ~10 mesh grain-size
- occasional pebble

12.2-14.4: fine, beige sand

14.4-16.9: coarse, beige sand

16.9-17.0: Gravel; very oxidized
- angular clasts; coarse

17.0-17.4: Boulder (Granitic)

17.4-18.5: Gravel; very weathered-looking
- coarse, oxidized sand matrix (minimal)

18.5m BEDROCK (Intermediate Volcanic)
- medium grey-green colour
- fine-grained, sugary texture
- massive sulfides to 0.5cm width
- ~40% quartz veining between 19.0-19.5
- trace green chlorite along quartz surfaces.
- 19.6 m: dark green colour
  - only trace of pyrite
  - schistose

20.0 m E.O.H.

OE.

elevation 355m

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE April 1 1986

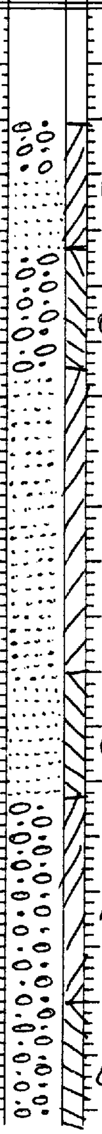
SHIFT HOURS
____ TO ____

TOTAL HOURS
____

CONTRACT HOURS
____

HOLE NO CA86-48 LOCATION Site #7 L42S; 12+50W
GEOLOGIST Edwards DRILLER Jodouin BIT NO. L000505 BIT FOOTAGE 124.2-152.2
MOVE TO HOLE 1:30 - 1:45
DRILL 1:45 - 4:45
MECHANICAL DOWN TIME ____
DRILLING PROBLEMS ____
OTHER ____
MOVE TO NEXT HOLE 4:45 - 5:00 GT to trucks; 5:00 - 6:00 trucks to Senneterre (stuck)

DEPTH IN METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
1				0-1.5 No return
2				1.5-2.1 Limited return (organics)
3			01	2.1-26.7 m: SEDIMENTS (Matheson)
4				2.1 - 3.0 Gravel, cobbly, weathered
5				3.0-4.3 Sand, fine, grey-beige
6			02	4.3-6.5: very coarse gravel
7				6.5 - 12.3: Sand, very coarse, granular (~10-mesh grain size)
8				
9			03	12.3-14.3 Sand, fine, beige
10				14.3-20.5 Gravel, coarse, rounded pebbles
11				
12				
13			04	
14				
15				
16			05	
17				
18				
19			06	
20				



OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE ________ 19 ___

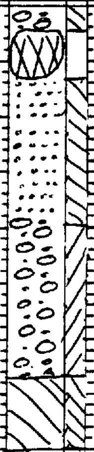
SHIFT HOURS
______ TO ______

TOTAL HOURS
______

CONTRACT HOURS
______

HOLE NO CA-86-48 LOCATION ________
GEOLOGIST ______ DRILLER ______ BIT NO. ______ BIT FOOTAGE ______
MOVE TO HOLE ________
DRILL ________
MECHANICAL DOWN TIME ________
DRILLING PROBLEMS ________
OTHER ________
MOVE TO NEXT HOLE ________

DEPTH IN METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
			06	20.5-21.3 BOULDER (Granite)
21				21.3-23.7 Sand; coarse, beige
22				
23			06	23.7-26.6 Gravel; rounded pebbles, coarse.
24				26.6-26.7: oxidized layer of till (?) or bedrock rubble - ochre coloured rock-flour.
25			07	
26				26.7 m. BEDROCK
27			08	Intermediate Volcanic - light to medium green colour - very fine-grained to aphanitic - slightly schistose
28				
29				
30				- trace chlorite (green) along foliations
11				~3% carbonate veinlets (calcareous)
12				- silicified
13				- very oxidized @ 27.6 m.
14				
15				28.0 m E.O.H.
16				
17				
18				
19				
20				



elevation 345m

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE ________ 19 __

SHIFT HOURS

______ TO ______

TOTAL HOURS

______

CONTRACT HOURS

______

HOLE NO CA-86-49 LOCATION Site #8 L38S; 12+00W.

GEOLOGIST Edwards DRILLER Jodouin BIT NO. L000506 BIT FOOTAGE 152.2-

MOVE TO HOLE 6:30-7:00 trucks to drill road; 7:00-7:15 walk to drill

~~DRILL~~ 7:15-7:45 pull rods from #48, 7:45-8:00 move to #49

MECHANICAL DOWN TIME Drill 8:00-12:15

DRILLING PROBLEMS ______

OTHER ______

MOVE TO NEXT HOLE 12:15 begin de-mob.

* New Bit *

page 1 of 2

DEPTH IN METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
				0-1.5. No Return
				1.5-22.6 m SEDIMENTS (Matheson) (noted fairly high sulfide content in sands)
			01	1.5-2.1: Sand: fine to medium beige sand.
				2.1-2.7: Sand; coarse, beige
				2.7-9.2: fine beige sand -few large granules -few beige gritty clay lumps.
			02	9.2-10.4: coarse, beige sand -few pebbles
				10.4-11.0: Gravel, coarse rounded pebbles.
			03	11.0-12.2 fine, beige sand
				12.2-14.0: clay, beige, gritty in medium beige sand
				14.0-14.5: Gravel bed. -rounded clasts
			04	14.5-16.2: Clay, beige gritty.
				16.2-16.8: Sand, coarse, beige
				16.8-22.6: Gravel -medium, rounded clasts, beige.
			05	

Depth scale: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE ________ 19 __

SHIFT HOURS
______ TO ______

TOTAL HOURS
______

CONTRACT HOURS
______

HOLE NO CA-86-49 LOCATION ________

GEOLOGIST ________ DRILLER ________ BIT NO. ________ BIT FOOTAGE ________

MOVE TO HOLE ________

DRILL ________

MECHANICAL DOWN TIME ________

DRILLING PROBLEMS ________

OTHER ________

MOVE TO NEXT HOLE ________

DEPTH IN METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
				22.6 - 23.2 TILL (Matheson)
21			05	- fine grey beige sand matrix
22				- cobbles: 80% Volcanics / Sediments
23			06	20% Granitics
24			07	- slightly weathered appearance.
25				23.2 m. BEDROCK (Mafic Volcanic)
26				- medium to dark green
27				(oxidized at surface)
28				- fine-grained, schistose
				~5% carbonate veining (calcareous)
29				- trace disseminated pyrite
30				- trace chlorite along
11				quartz stringers.
12				
13				24.7 m E.O.H.
14				[signature]
15				
16				
17				
18				
19				
20				

APPENDIX B

SAMPLE WEIGHTS - HEAVY MINERAL CIRCUIT

OVERBURDEN DRILLING MANAGEMENT LIMITED

LABORATORY SAMPLE LOG

SAMPLE NO.	WEIGHT (KG.WET) TABLE SPLIT	+10 CHIPS	TABLE FEED	WEIGHT (GRAMS DRY) TABLE CONC	M.I. LIGHTS	M. I. CONC: CONC. TOTAL	NON MAG	MAG	AU: NO. V.G.	CALC PPB	DESCRIPTION: CLAST SIZE	% V/S	GR	LS	OT	MATRIX S/U	SD	ST	CY	COLOR SD	CY	CLASS
CA-86																						
01-01	8.2	0.0	8.2	190.7	150.0	40.7	31.1	9.6	4	50	TR	NA	NA	NA	NA	S	F	Y	Y	BN	BN	SAND
-02	8.0	0.0	8.0	150.3	115.8	34.5	25.2	9.3	11	294	TR	NA	NA	NA	NA	S	F	Y	Y	BN	BN	SAND
-03	7.6	0.0	7.6	151.6	119.2	32.4	24.4	8.0	1	317	TR	NA	NA	NA	NA	S	M	Y	Y	B	B	SAND
-04	7.4	0.0	7.4	117.4	84.4	33.0	24.6	9.4	1	118	TR	NA	NA	NA	NA	S	F	Y	Y	GY	GY	SAND
-05	9.1	2.3	6.8	110.0	82.1	27.9	21.2	6.7	1	180	C	85	15	NA	NA	U	Y	Y	Y	GB	B	TILL
02-01	7.6	0.0	7.6	140.9	90.8	50.1	42.1	8.0	6	41	TR	NA	NA	NA	NA	S	F	Y	Y	GB	GB	SAND
-02	7.9	0.0	7.9	106.8	62.7	44.1	32.0	12.1	3	106	TR	NA	NA	NA	NA	S	F	Y	Y	GB	GB	SAND
-03	5.3	0.8	4.5	74.9	45.6	29.3	22.4	6.9	1	220	C	90	10	NA	NA	U	Y	Y	Y	GB	GB	TILL
03-01	7.7	0.0	7.7	181.9	142.7	39.2	29.9	9.3	0	NA	TR	NA	NA	NA	NA	S	F	Y	Y	GB	GB	SAND
-02	8.5	0.0	8.5	207.7	176.3	31.4	22.0	9.4	0	NA	TR	NA	NA	NA	NA	S	F	Y	Y	GB	GB	SAND
-03	8.9	2.1	6.8	196.8	167.4	29.4	20.8	8.6	1	72	P,C	85	15	NA	NA	U	Y	Y	Y	GB	GB	TILL
-04	1.8	0.4	1.4	148.8	143.1	5.7	4.2	1.5	1	1842	C,BR	95	5	NA	NA	U	Y	Y	Y	GB	GY	TILL&BDK
04-01	8.1	0.0	8.1	242.7	190.0	52.7	38.7	14.0	1	75	TR	NA	NA	NA	NA	S	F	Y	Y	GB	GB	SAND
-02	7.9	0.0	7.9	244.5	192.2	52.3	39.4	12.9	1	38	TR	NA	NA	NA	NA	S	F	Y	Y	GB	GY	SAND
-03	9.1	1.6	7.5	189.8	154.4	35.4	26.0	9.4	0	NA	P,C	90	10	NA	NA	U	Y	Y	Y	GB	GB	TILL
05-01	8.3	0.0	8.3	192.5	154.3	38.2	27.6	10.6	0	NA	TR	NA	NA	NA	3	S	F	Y	Y	B	GB	SAND
-02	8.6	1.0	7.6	239.9	204.8	35.1	24.8	10.3	12	796	P,C	90	10	NA	NA	U	Y	Y	Y	GB	GB	TILL
-03	9.1	1.2	7.9	212.2	173.6	38.6	26.8	11.8	1	184	P	90	10	NA	NA	U	Y	Y	Y	B	B	TILL
-04	8.8	1.8	7.0	165.4	136.8	28.6	20.6	8.0	0	NA	P,C	95	5	NA	NA	U	Y	Y	Y	GB	GB	TILL
06-01	8.4	1.1	7.3	152.9	119.8	33.1	23.7	9.4	0	NA	P	80	20	NA	NA	U	Y	Y	Y	GB	GY	TILL
-02	9.0	1.4	7.6	194.2	153.2	41.0	29.7	11.3	0	NA	P	90	10	NA	NA	U	Y	Y	Y	GB	GB	TILL
-03	8.7	2.1	6.6	188.2	140.3	47.9	34.5	13.4	6	1163	P	90	10	NA	NA	U	Y	Y	Y	B	B	TILL
-04	8.9	1.1	7.8	183.3	145.2	38.1	28.3	9.8	1	566	P	85	15	NA	NA	U	Y	Y	Y	B	B	TILL
-05	5.0	1.2	3.8	199.2	183.1	16.1	13.3	2.8	0	NA	P,C	85	15	NA	NA	U	Y	Y	Y	B	B	TILL
07-01	8.1	1.5	6.6	163.9	126.9	37.0	28.1	8.9	0	NA	P,C	70	30	NA	NA	U	Y	Y	Y	GB	GB	TILL
-02	8.2	1.3	6.9	129.8	100.4	29.4	23.3	6.1	3	75	C	80	20	NA	NA	U	Y	Y	Y	GB	GY	TILL
08-01	6.6	2.7	3.9	241.2	80.0	161.2	159.8	1.4	4	4	BR	95	4	NA	5	U	Y	Y	Y	GY	GY	TILL
09-01	7.4	2.0	5.4	244.2	218.0	26.2	21.0	5.2	2	2	P,C	990	10	NA	NA	U	Y	Y	Y	GB	GY	TILL
10-01	5.8	2.0	3.8	134.4	112.5	21.9	17.5	4.4	0	NA	C	80	20	NA	NA	U	Y	Y	Y	B	GNG	TILL
-02	5.6	2.4	3.2	146.3	125.1	21.2	16.7	4.5	3	130	P	80	20	NA	NA	U	Y	Y	Y	B	GB	TILL
13-01	3.4	1.2	2.2	81.8	36.3	45.5	41.6	3.9	2	33	C	90	10	NA	NA	U	Y	Y	Y	GB	GY	TILL
14-01	5.7	1.8	3.9	91.8	58.2	33.6	30.3	3.3	2	46	C	90	10	NA	NA	U	Y	Y	Y	GB	GB	TILL
15-01	8.6	2.8	5.8	198.1	161.2	36.9	27.8	9.1	4	24	P,C	80	20	NA	NA	U	Y	Y	Y	GB	GNG	TILL
16-01	5.8	2.1	3.7	153.4	131.0	22.4	17.3	5.1	0	NA	C	75	25	NA	NA	U	Y	Y	Y	B	B	TILL
17-01	8.7	4.3	4.4	171.4	147.6	23.8	18.2	5.6	1	2003	P,C	60	40	NA	NA	U	Y	Y	Y	B	B	TILL
-02	4.2	2.2	2.0	104.9	90.5	14.4	11.7	2.7	0	NA	P	65	35	NA	NA	U	Y	Y	Y	B	B	TILL
18-01	8.9	1.3	7.6	152.0	132.0	20.0	15.4	4.6	0	NA	P	70	30	NA	NA	U	Y	Y	Y	GB	GB	TILL
19-01	8.7	1.6	7.1	146.0	120.0	26.0	18.8	7.2	0	NA	C	80	20	NA	NA	U	Y	Y	Y	GY	GY	TILL
-02	9.2	2.0	7.2	131.0	114.9	16.1	12.1	4.0	1	239	C	90	10	NA	NA	U	Y	Y	Y	B	B	TILL
20-01	7.3	1.8	5.5	145.2	121.6	23.6	19.1	4.5	1	200	C	90	10	NA	NA	U	Y	Y	Y	B	B	TILL
-02	8.7	1.6	7.1	229.2	197.3	31.9	23.4	8.5	1	27	C	70	30	NA	NA	U	Y	Y	Y	B	B	TILL
21-01	8.2	1.1	7.1	181.3	166.5	14.8	11.5	3.3	0	NA	P	70	30	NA	NA	U	Y	Y	Y	B	B	TILL
-02	8.6	1.0	7.6	183.5	164.7	18.8	12.7	6.1	0	NA	P	85	15	NA	NA	U	Y	Y	Y	B	B	TILL
-03	6.1	0.9	5.2	140.6	123.7	16.9	12.7	4.2	0	NA	P	85	15	NA	NA	U	Y	Y	Y	B	B	TILL

OVERBURDEN DRILLING MANAGEMENT LIMITED

LABORATORY SAMPLE LOG

SAMPLE NO.	WEIGHT (KG. WET)			WEIGHT (GRAMS DRY)					AU		DESCRIPTION											CLASS
						M. I. CONC					CLAST					MATRIX						
												%								COLOR		
	TABLE SPLIT	+10 CHIPS	TABLE FEED	TABLE CONC	M.I. LIGHTS	CONC. TOTAL	NON MAG	MAG	NO. V.G.	CALC PPB	SIZE	V/S	GR	LS	OT	S/U	SD	ST	CY	SD	CY	
-04	6.0	1.0	5.0	126.7	106.2	20.5	15.4	5.1	1	740	P	85	15	NA	NA	U	Y	Y	Y	B	B	TILL
22-01	6.6	0.9	5.7	188.4	170.5	17.9	13.8	4.1	0	NA	P	85	15	NA	NA	U	Y	Y	Y	B	B	TILL
-02	7.2	1.6	5.6	149.5	128.0	21.5	16.3	5.2	0	NA	P	85	15	NA	NA	U	Y	Y	Y	B	B	TILL
-03	3.6	0.8	2.8	173.1	156.4	16.7	14.1	2.6	0	NA	P	75	25	NA	NA	U	Y	Y	,	B	B	TILL
23-01	6.1	4.0	2.1	91.1	85.3	5.8	5.1	0.7	0	NA	C,P	NA	NA	NA	3,4	U	Y	Y	Y	OC	OC	TILL
24-01	5.0	0.0	5.0	161.3	148.2	13.1	6.6	6.5	0	NA	TR	NA	NA	NA	1	S	F	Y	Y	B	GB	TILL
-02	4.5	1.2	3.3	180.9	153.0	27.9	22.5	5.4	0	NA	P	80	20	NA	NA	U	Y	Y	Y	B	GB	TILL
25-01	6.5	0.3	6.2	115.3	83.4	31.9	24.8	7.1	0	NA	P	70	30	NA	NA	U	Y	Y	Y	B	GB	TILL
25-02	7.2	3.5	3.7	173.9	144.2	29.7	23.0	6.7	0	NA	P	80	20	NA	NA	U	Y	Y	Y	B	GB	TILL

bpsl1jun.86

OVERBURDEN DRILLING MANAGEMENT LIMITED

LABORATORY SAMPLE LOG

SAMPLE NO.	WEIGHT (KG.WET) TABLE SPLIT	+10 CHIPS	TABLE FEED	WEIGHT (GRAMS DRY) TABLE CONC	M.I. LIGHTS	M. I. CONC CONC. TOTAL	NON MAG	MAG	AU NO. V.G.	CALC PPB	DESCRIPTION CLAST SIZE	% V/S	GR	LS	OT	MATRIX S/U	SD	ST	CY	COLOR SD	CY	CLASS
CA-86																						
25-03	9.1	2.1	7.0	137.2	126.8	10.4	9.2	1.2	0	NA	P	70	30	NA	NA	U	Y	Y	Y	GN	B	TILL
26-01	8.3	3.6	4.7	84.9	66.0	18.9	14.2	4.7	3	261	P	70	30	NA	NA	S	C	Y	Y	GB	GB	GRAVEL
-02	9.4	3.1	6.3	248.6	241.9	6.7	5.2	1.5	0	NA	P	50	50	NA	NA	S	C	Y	Y	B	B	GRAVEL
27-01	8.6	2.2	6.4	125.1	115.1	10.0	8.0	2.0	1	362	P	70	30	NA	NA	U	Y	Y	Y	GB	GB	TILL
28-01	8.1	0.0	8.1	103.5	61.0	42.5	32.7	9.8	4	28	TR	NA	NA	NA	NA	S	F	Y	Y	GB	GB	SAND
-02	8.6	0.1	8.5	61.2	32.1	29.1	20.4	8.7	0	NA	P	80	20	NA	NA	U	Y	Y	Y	GB	GB	TILL
29-01	8.9	1.9	7.0	131.9	125.5	6.4	4.6	1.8	0	NA	P	40	60	NA	NA	S	C	Y	Y	DC	B	GRAVEL
-02	8.2	0.0	8.2	71.7	30.0	41.7	29.4	12.3	1	22	TR	NA	NA	NA	NA	S	F	Y	Y	GY	GY	SAND
-03	9.1	1.4	7.7	219.8	193.2	26.6	18.6	8.0	3	1204	P	90	10	NA	NA	U	Y	Y	Y	GY	GY	TILL
30-01	7.9	1.6	6.3	143.3	123.3	20.0	15.2	4.8	0	NA	P	90	10	NA	NA	U	Y	Y	Y	B	B	TILL
-02	8.4	0.0	8.4	79.6	32.5	47.1	36.2	10.9	3	139	TR	NA	NA	NA	NA	S	M	Y	Y	B	B	SAND
-03	8.3	0.0	8.3	253.6	204.7	48.9	36.9	12.0	1	41	TR	NA	NA	NA	NA	S	M	Y	Y	B	B	SAND
-04	7.9	0.0	7.9	206.2	156.6	49.6	37.8	11.8	5	94	TR	NA	NA	NA	NA	S	F	Y	Y	B	B	SAND
-05	8.7	0.0	8.7	197.1	150.2	46.9	36.3	10.6	0	NA	TR	NA	NA	NA	NA	S	F	Y	Y	B	B	SAND
-06	8.4	0.0	8.4	178.1	124.2	53.9	42.6	11.3	1	15	TR	NA	NA	NA	NA	S	F	Y	Y	GY	GY	SAND
-07	8.1	0.0	8.1	175.5	129.7	45.8	35.5	10.3	9	94	TR	NA	NA	NA	NA	S	F	Y	Y	B	B	SAND
-08	8.4	0.0	8.4	163.7	114.1	49.6	38.0	11.6	11	116	NA	NA	NA	NA	NA	S	F	Y	Y	B	B	SAND
-09	8.0	0.0	8.0	139.0	91.5	47.5	36.4	11.1	5	46	NA	NA	NA	NA	NA	S	F	Y	Y	GY	GY	SAND
-10	8.7	0.0	8.7	192.9	162.3	30.6	21.0	9.6	6	155	TR	NA	NA	NA	NA	S	F	Y	Y	GB	GB	SAND
-11	9.1	2.4	6.7	162.1	130.8	31.3	25.2	6.1	8	343	C	80	20	NA	NA	U	Y	Y	Y	GB	GB	TILL
-12	9.0	3.0	6.0	171.4	129.0	42.4	34.8	7.6	3	684	C	80	20	NA	NA	U	Y	Y	Y	B	B	TILL
-13	10.0	2.2	7.8	172.9	134.3	38.6	29.9	8.7	14	1294	C	80	20	NA	NA	U	Y	Y	Y	GB	GB	TILL
-14	3.7	0.2	3.5	111.0	92.7	18.3	14.3	4.0	1	268	C/BD	90	10	NA	E	U	Y	Y	Y	GB	GB	TILL
31-01	6.5	0.0	6.5	155.7	125.4	30.3	21.4	8.9	0	NA	TR	NA	NA	NA	NA	U	Y	Y	Y	B	B	TILL
-02	6.4	0.1	6.3	136.6	99.3	37.3	28.8	8.5	4	181	P	70	30	NA	NA	U	Y	Y	Y	B	B	TILL
-03	8.1	0.0	8.1	135.9	113.1	22.8	14.4	8.4	0	NA	TR	NA	NA	NA	NA	U	Y	Y	Y	B	B	TILL
-04	8.0	0.0	8.0	175.2	145.9	29.3	23.5	5.8	4	927	TR	NA	NA	NA	NA	U	Y	Y	Y	B	B	TILL
-05	8.4	0.1	8.3	187.2	142.8	44.4	36.7	7.7	0	NA	P/G	70	30	NA	NA	U	Y	Y	Y	B	B	TILL
-06	8.4	0.0	8.4	148.0	112.7	35.3	26.3	9.0	3	56	TR	NA	NA	NA	NA	U	Y	Y	Y	B	B	TILL
-07	8.1	0.0	8.1	121.2	78.6	42.6	33.4	9.2	1	11	TR	NA	NA	NA	NA	S	F	Y	Y	B	B	SAND
-08	8.3	0.0	8.3	125.4	83.1	42.3	32.5	9.8	12	158	TR	NA	NA	NA	NA	S	F	Y	Y	B	B	SAND
-09	8.0	0.0	8.0	131.9	93.8	38.1	29.9	8.2	0	NA	TR	NA	NA	NA	NA	S	F	Y	Y	B	B	SAND
-10	2.8	1.0	1.8	60.5	49.7	10.8	8.9	1.9	0	NA	P	80	20	NA	NA	U	Y	Y	Y	GB	GB	TILL
32-01	9.2	0.5	8.7	191.4	161.1	30.3	25.4	4.9	0	NA	P	70	30	NA	NA	U	Y	Y	Y	B	B	TILL
-02	8.7	0.2	8.5	228.5	217.8	10.7	8.0	2.7	2	3677	P	70	30	NA	NA	U	Y	Y	Y	B	B	TILL
-03	8.8	0.2	8.6	174.6	148.6	26.0	20.1	5.9	0	NA	P	75	25	NA	NA	U	Y	Y	Y	B	B	TILL
-04	8.9	0.0	8.9	222.2	202.0	20.2	15.1	5.1	0	NA	TR	NA	NA	NA	NA	U	Y	Y	Y	B	B	TILL
-05	8.3	0.2	8.1	292.8	273.6	19.2	16.2	3.0	0	NA	P	60	40	NA	NA	U	Y	Y	Y	B	B	TILL
-06	8.2	0.2	8.0	167.2	143.8	23.4	17.9	5.5	1	84	P	60	40	NA	NA	U	Y	Y	Y	B	B	TILL
-07	8.8	0.2	8.6	158.8	142.8	16.0	13.1	2.9	0	NA	P	70	30	NA	NA	U	Y	Y	Y	B	B	TILL
-08	9.4	0.8	8.6	157.4	128.4	29.0	22.6	6.4	4	3527	P	50	50	NA	NA	U	Y	Y	Y	B	B	TILL
-09	6.9	0.3	6.6	66.2	40.9	25.3	19.2	6.1	1	199	C	70	30	NA	NA	U	Y	Y	Y	B	B	TILL
-10	8.8	1.8	7.0	64.7	42.7	22.0	15.6	6.4	1	185	C	50	50	NA	NA	U	Y	Y	Y	B	B	TILL
-11	9.0	1.0	8.0	85.2	54.1	31.1	22.8	8.3	0	NA	C	65	35	NA	NA	U	Y	Y	Y	B	B	TILL

bpsl1jun.86

OVERBURDEN DRILLING MANAGEMENT LIMITED

LABORATORY SAMPLE LOG

SAMPLE NO.	WEIGHT (KG.WET) TABLE SPLIT	+10 CHIPS	TABLE FEED	WEIGHT (GRAMS DRY) TABLE CONC	M.I. LIGHTS	M. I. CONC: CONC. TOTAL	NON MAG	MAG	AU: NO. V.G.	CALC PPB	DESCRIPTION: CLAST: SIZE	% V/S	GR	LS	OT	MATRIX: S/U	SD	ST	CY	COLOR SD	COLOR CY	CLASS
CA-86																						
33-01	9.0	2.6	6.4	172.2	160.9	11.3	8.5	2.8	0	NA	P	70	30	NA	NA	S	C	Y	Y	B	B	GRAVEL
-02	7.9	1.3	6.6	196.4	182.7	13.7	10.3	3.4	0	NA	P	70	30	NA	NA	S	C	Y	Y	B	B	GRAVEL
-03	8.2	0.2	8.0	222.0	207.9	14.1	10.7	3.4	0	NA	G/P	70	30	NA	NA	S	M	Y	Y	B	B	SAND
-04	8.6	0.3	8.3	215.2	200.0	15.2	11.6	3.6	0	NA	G/P	70	30	NA	NA	S	M	Y	Y	B	B	SAND
-05	8.9	1.6	7.3	169.7	155.4	14.3	11.1	3.2	0	NA	P	70	30	NA	NA	S	C	Y	Y	B	B	GRAVEL
-06	8.9	1.2	7.7	99.6	72.4	27.2	21.1	6.1	1	71	P	70	30	NA	NA	S	C	Y	Y	B	B	GRAVEL
-07	9.0	1.1	7.9	171.3	141.3	30.0	23.6	6.4	0	NA	P	70	30	NA	NA	U	Y	Y	Y	B	B	TILL
-08	8.8	1.6	7.2	129.5	105.8	23.7	17.9	5.8	1	84	P	75	25	NA	NA	U	Y	Y	Y	B	B	TILL
-09	9.0	1.1	7.9	104.8	86.3	18.5	13.4	5.1	0	NA	P	75	25	NA	NA	U	Y	Y	NA	B	NA	TILL
-10	8.7	2.0	6.7	74.7	67.7	7.0	5.2	1.8	0	NA	P	70	30	NA	NA	S	C	Y	NA	B	NA	GRAVEL
-11	8.8	2.9	5.9	90.9	77.0	13.9	9.9	4.0	0	NA	P	70	30	NA	NA	U	Y	Y	Y	B	B	TILL
34-01	8.3	0.0	8.3	153.9	109.9	44.0	32.3	11.7	1	46	TR	NA	NA	NA	B	S	F	Y	Y	B	B	SAND
-02	9.2	0.0	9.2	154.1	124.0	30.1	22.2	7.9	1	68	TR	NA	NA	NA	B	U	Y	Y	Y	B	B	TILL
-03	8.4	0.1	8.3	187.1	170.7	16.4	12.0	4.4	0	NA	P/G	70	30	NA	NA	S	M	Y	Y	B	B	SAND
-04	9.3	0.0	9.3	110.5	78.6	31.9	8.6	23.3	4	605	TR	NA	NA	NA	NA	U	Y	Y	Y	GB	GB	TILL
-05	6.6	1.3	5.3	135.9	110.2	25.7	19.3	6.4	0	NA	C	95	5	NA	NA	U	Y	Y	Y	GB	GB	TILL

ups15jun.86

OVERBURDEN DRILLING MANAGEMENT LIMITED

LABORATORY SAMPLE LOG

SAMPLE NO.	WEIGHT (KG.WET)			WEIGHT (GRAMS DRY)					AU		DESCRIPTION											CLASS
						M. I. CONC					CLAST					MATRIX						
	TABLE SPLIT	+10 CHIPS	TABLE FEED	TABLE CONC	M.I. LIGHTS	CONC. TOTAL	NON MAG	MAG	NO. V.G.	CALC PPB	SIZE	% V/S	% GR	% LS	% OT	S/U	SD	ST	CY	COLOR SD	COLOR CY	
CA-86																						
35-01	7.6	0.0	7.6	262.3	242.1	20.2	11.5	8.7	1	252	TR	NA	NA	NA	NA	S	M	Y	Y	GB	GB	SAND
-02	9.0	0.0	9.0	291.3	254.4	36.9	29.0	7.9	4	366	TR	NA	NA	NA	NA	U	Y	Y	Y	GB	GB	TILL
-03	5.9	2.5	3.4	135.4	112.8	22.6	18.5	4.1	3	425	P	80	20	NA	NA	U	Y	Y	Y	GN	GN	TILL
-04	3.6	2.0	1.6	58.4	52.4	6.0	5.1	0.9	2	75	C	85	15	NA	NA	U	Y	Y	Y	GN	GN	TILL
36-01	8.5	0.0	8.5	248.0	204.0	44.0	32.2	11.8	5	603	NA	NA	NA	NA	NA	S	F	Y	Y	GB	GB	SAND
-02	8.4	0.0	8.4	224.4	192.6	31.8	21.5	10.3	1	47	NA	NA	NA	NA	NA	S	F	Y	Y	GB	GB	SAND
-03	8.7	0.7	8.0	344.4	310.0	34.4	23.8	10.6	0	NA	C	70	30	NA	NA	S	F	Y	Y	GB	GB	SAND
-04	8.5	2.4	6.1	327.8	260.6	67.2	55.7	11.5	3	218	C	70	30	NA	NA	U	Y	Y	Y	GB	GB	TILL
37-01	8.2	0.0	8.2	262.0	238.3	23.7	16.9	6.8	7	257	TR	NA	NA	NA	NA	S	F	Y	Y	GB	GB	SAND
38-01	7.7	0.0	7.7	226.1	184.4	41.7	32.1	9.6	10	104	NA	NA	NA	NA	NA	S	F	Y	Y	GB	GB	SAND
-02	6.4	1.6	4.8	16.9	12.9	4.0	2.9	1.1	1	129	C	85	15	NA	NA	U	Y	Y	Y	GG	GG	TILL
39-01	9.5	1.7	7.8	148.8	122.3	26.5	20.5	6.0	7	152	C	65	35	NA	NA	U	Y	Y	Y	GB	GB	TILL
-02	7.0	1.3	5.7	168.8	145.5	23.3	17.9	5.4	0	NA	C	65	35	NA	NA	U	Y	Y	Y	GB	GB	TILL
-03	9.7	2.0	7.7	155.6	124.7	30.9	23.0	7.9	0	NA	C	65	35	NA	NA	U	Y	Y	Y	GB	GB	TILL
-04	7.1	1.6	5.5	171.4	137.8	33.6	22.4	11.2	0	NA	C	75	25	NA	NA	U	Y	Y	Y	GB	GB	TILL
-05	9.7	1.8	7.9	87.8	63.1	24.7	18.1	6.6	0	NA	C	95	5	NA	NA	U	Y	Y	Y	GB	GB	TILL
-06	9.1	1.4	7.7	92.9	66.7	26.2	19.4	6.8	1	149	C	95	5	NA	NA	U	Y	Y	Y	GB	GB	TILL
-07	9.3	1.8	7.5	150.5	132.8	17.7	12.5	5.2	0	NA	C	95	5	NA	NA	U	Y	Y	Y	GB	GB	TILL
-08	0.3	1.8	-1.5	98.4	81.9	16.5	11.8	4.7	0	NA	C	100	TR	NA	NA	U	Y	Y	Y	GB	GB	TILL
-09	9.7	1.0	8.7	85.2	62.4	22.8	16.4	6.4	1	176	P	80	20	NA	NA	U	Y	Y	Y	GB	GB	TILL
-10	7.8	0.9	6.9	82.3	59.8	22.5	17.0	5.5	1	59	P	90	10	NA	NA	U	Y	Y	Y	GB	GB	TILL
-11	9.6	1.3	8.3	63.5	46.2	17.3	12.1	5.2	10	396	P	90	10	NA	NA	U	Y	Y	Y	GB	GB	TILL
-12	9.0	1.1	7.9	96.0	71.3	24.7	16.9	7.8	1	126	P	80	20	NA	NA	U	Y	Y	Y	GB	GB	TILL
39-13	9.2	1.5	7.7	80.7	58.8	21.9	15.0	6.9	7	409	C/P	60	40	NA	NA	U	Y	Y	Y	GB	GB	TILL

ocaljul.86

OVERBURDEN DRILLING MANAGEMENT LIMITED

LABORATORY SAMPLE LOG

SAMPLE NO.	WEIGHT (KG.WET)			WEIGHT (GRAMS DRY)					AU		DESCRIPTION											CLASS
					M. I. CONC						CLAST					MATRIX						
	TABLE SPLIT	+10 CHIPS	TABLE FEED	TABLE CONC	M.I. LIGHTS	CONC. TOTAL	NON MAG	MAG	NO. V.G.	CALC PPB	SIZE	% V/S	GR	LS	OT	S/U	SD	ST	CY	COLOR SD	CY	
CA-86																						
39-14	9.0	1.0	8.0	202.8	162.6	40.2	31.3	8.9	1	20	C	80	20	NA	NA	U	Y	Y	Y	GB	GB	TILL
40-01	8.7	1.3	7.4	186.3	146.5	39.8	30.7	9.1	6	85	C	80	20	NA	NA	U	Y	Y	Y	GB	GB	TILL
-02	7.8	1.2	6.6	204.0	160.5	43.5	34.9	8.6	18	430	P	70	30	NA	NA	U	Y	Y	Y	GB	GB	TILL
-03	8.8	1.0	7.8	190.4	147.5	42.9	32.4	10.5	4	82	P	75	25	NA	NA	U	Y	Y	Y	GB	GB	TILL
-04	4.1	1.4	2.7	103.7	89.3	14.4	10.7	3.7	0	NA	P	95	5	NA	NA	U	Y	Y	Y	GG	GG	TILL
41-01	9.0	1.1	7.9	213.5	166.6	46.9	38.3	8.6	15	1170	P	95	5	NA	NA	U	Y	Y	Y	GB	GB	TILL
-02	9.0	1.5	7.5	190.7	140.8	49.9	40.1	9.8	23	269	P	90	10	NA	NA	U	Y	Y	Y	GB	GB	TILL
-03	3.0	0.6	2.4	129.5	114.3	15.2	12.7	2.5	3	95	P	85	15	NA	NA	U	Y	Y	Y	GB	GB	TILL
42-01	5.2	2.5	2.7	205.1	168.8	36.3	29.9	6.4	4	75	P	90	10	NA	NA	U	Y	Y	Y	BN	BN	TILL
43-01	9.0	0.0	9.0	203.0	154.0	49.0	36.9	12.1	0	NA	TR	NA	NA	NA	NA	U	Y	Y	Y	GB	GB	TILL
-02	8.3	0.0	8.3	280.8	242.9	37.9	25.3	12.6	0	NA	TR	NA	NA	NA	NA	U	Y	Y	Y	GB	GB	TILL
-03	9.1	1.9	7.2	235.2	197.5	37.7	28.5	9.2	0	NA	C	95	5	NA	NA	U	Y	Y	Y	GB	GB	TILL
-04	8.5	2.8	5.7	299.9	277.9	22.0	16.9	5.1	3	187	C	95	5	NA	NA	U	Y	Y	Y	GB	GB	TILL
-05	9.5	2.4	7.1	186.4	150.2	36.2	27.8	8.4	7	193	C	95	5	NA	NA	U	Y	Y	Y	GB	GB	TILL
-06	9.1	1.2	7.9	210.6	164.3	46.3	35.6	10.7	1	3413	P	85	15	NA	NA	U	Y	Y	Y	GB	GB	TILL
-07	8.8	0.4	8.4	214.3	166.9	47.4	36.9	10.5	5	125	C	80	20	NA	NA	U	Y	Y	Y	GB	GB	TILL
-08	8.9	0.5	8.4	173.9	139.2	34.7	26.3	8.4	0	NA	C	95	5	NA	NA	U	Y	Y	Y	GB	B	TILL
44-01	8.4	0.0	8.4	189.4	151.3	38.1	26.5	11.6	8	730	NA	NA	NA	NA	NA	U	Y	Y	Y	GB	GB	TILL
-02	8.5	0.0	8.5	217.5	157.5	60.0	47.4	12.6	0	NA	NA	NA	NA	NA	NA	U	Y	Y	Y	GB	GB	TILL
-03	2.7	0.4	2.3	61.6	46.0	15.6	13.5	2.1	3	103	C	90	10	NA	NA	U	Y	Y	Y	GB	GB	TILL
45-01	8.5	0.0	8.5	263.8	250.3	13.5	9.8	3.7	0	NA	NA	NA	NA	NA	NA	U	Y	Y	Y	GB	GB	TILL
-02	8.5	0.0	8.5	139.9	101.3	38.6	30.9	7.7	1	160	NA	NA	NA	NA	NA	U	Y	Y	Y	GB	GB	TILL
-03	9.2	0.0	9.2	166.9	117.4	49.5	39.2	10.3	0	NA	NA	NA	NA	NA	NA	U	Y	Y	Y	GB	GB	TILL
-04	9.9	1.8	8.1	182.7	143.7	39.0	30.9	8.1	7	178	C	85	15	NA	NA	U	Y	Y	Y	GB	GB	TILL
46-01	6.8	0.9	5.9	201.2	169.5	31.7	24.4	7.3	0	NA	P	80	20	NA	NA	U	Y	Y	Y	GB	GB	TILL
-02	9.5	2.8	6.7	162.2	108.5	53.7	40.5	13.2	1	71	P	75	25	NA	NA	U	Y	Y	Y	GB	GB	TILL
-03	9.1	2.2	6.9	151.2	107.2	44.0	33.5	10.5	15	169	P	75	25	NA	NA	U	Y	Y	Y	GB	GB	TILL
-04	9.1	0.8	8.3	120.2	80.5	39.7	30.5	9.2	5	149	P	70	30	NA	NA	U	Y	Y	Y	GB	GB	TILL
46-05	9.6	0.0	9.6	174.2	123.5	50.7	39.8	10.9	7	125	P	70	30	NA	NA	U	Y	Y	Y	GB	GB	TILL

SELCO - CARPENTIER

ca2Jul.86

OVERBURDEN DRILLING MANAGEMENT LIMITED

LABORATORY SAMPLE LOG

SAMPLE NO.	WEIGHT (KG.WET)			WEIGHT (GRAMS DRY)					AU		DESCRIPTION											CLASS
						M. I. CONC					CLAST					MATRIX						
	TABLE SPLIT	+10 CHIPS	TABLE FEED	TABLE CONC	M.I. LIGHTS	CONC. TOTAL	NON MAG	MAG	NO. V.G.	CALC PPB	SIZE	% V/S	% GR	% LS	% OT	S/U	SD	ST	CY	COLOR SD	COLOR CY	
CA-86																						
46-06	8.7	3.7	5.0	246.3	233.2	13.1	9.1	4.0	0	NA	C	60	40	NA	NA	U	Y	Y	Y	B	B	TILL
-07	9.1	2.5	6.6	260.3	242.7	17.6	10.8	6.8	0	NA	C	60	40	NA	NA	L	Y	Y	N	B	B	TILL
-08	8.3	1.0	7.8	307.8	283.1	24.7	18.4	6.3	0	NA	C	60	40	NA	NA	U	Y	Y	N	B	B	TILL
-09	6.2	0.8	5.4	264.7	246.0	18.7	14.3	4.4	0	NA	C	60	40	NA	NA	U	Y	Y	Y	B	B	TILL
-10	9.3	2.2	7.1	249.4	222.0	27.4	21.7	5.7	0	NA	C	70	30	NA	NA	U	Y	Y	Y	B	B	TILL
47-01	9.2	0.2	9.0	319.1	299.3	19.8	15.7	4.1	0	NA	C	60	40	NA	NA	U	Y	Y	Y	B	B	TILL
-02	9.2	0.6	8.6	235.6	227.4	8.2	5.5	2.7	0	NA	C	70	30	NA	NA	S	C	Y	Y	B	B	GRAVEL
-03	8.3	0.5	7.8	218.1	202.0	16.1	11.8	4.3	1	127	C	60	40	NA	NA	U	Y	Y	Y	B	B	TILL
-04	8.9	2.2	6.7	119.8	112.0	7.8	5.5	2.3	0	NA	C	60	40	NA	NA	S	C	Y	Y	B	B	GRAVEL
48-01	5.0	1.0	4.0	153.1	140.7	12.4	9.8	2.6	0	NA	C	60	40	NA	NA	U	Y	Y	Y	B	B	TILL
-02	7.8	0.8	7.0	239.5	228.8	10.7	7.6	3.1	0	NA	C	55	35	NA	NA	S	C	Y	Y	B	B	GRAVEL
-03	8.7	0.2	8.5	167.0	153.9	13.1	10.3	2.8	0	NA	C	60	40	NA	NA	S	C	Y	Y	B	B	GRAVEL
-04	8.7	0.2	8.5	236.2	178.0	58.2	45.3	12.9	1	64	C	60	40	NA	NA	S	F	Y	Y	B	B	SAND
-05	4.7	1.5	3.2	188.5	182.8	5.7	3.7	2.0	0	NA	C	60	40	NA	NA	S	C	Y	Y	B	B	GRAVEL
-06	8.5	1.3	7.2	187.9	177.3	10.6	7.1	3.5	0	NA	C	60	40	NA	NA	S	C	Y	Y	B	B	GRAVEL
-07	8.7	3.6	5.1	227.6	207.8	19.8	13.7	6.1	0	NA	C	70	30	NA	NA	U	Y	Y	Y	B	B	TILL
49-01	8.0	0.0	8.0	396.1	334.8	61.3	51.3	10.0	1	41	TR	NA	NA	NA	NA	S	F	Y	Y	B	B	SAND
-02	8.5	0.0	8.5	458.2	394.5	63.7	52.9	10.8	0	NA	TR	NA	NA	NA	NA	S	F	Y	Y	B	B	SAND
-03	9.0	0.6	8.4	201.6	160.0	41.6	33.2	8.4	1	45	P	60	40	NA	NA	U	Y	Y	Y	B	B	TILL
-04	9.2	1.5	7.7	210.1	182.3	27.8	20.8	7.0	1	72	P/C	70	30	NA	A	U	Y	Y	Y	B	B	TILL
-05	9.0	2.0	7.0	162.1	155.1	7.0	5.1	1.9	2	1590	P	75	25	NA	NA	S	C	Y	Y	B	B	GRAVEL
-06	5.2	1.4	3.8	156.7	134.2	22.5	17.8	4.7	5	2787	P	75	25	NA	NA	U	Y	Y	Y	B	B	TILL

APPENDIX C

GOLD GRAIN COUNTS AND CALCULATED VISIBLE GOLD ASSAYS

GOLD CLASSIFICATION
==================
VISIBLE GOLD FROM SHAKING TABLE AND PANNING

NUMBER OF GRAINS

SAMPLE #	PANNED Y/N	DIAMETER	THICKNESS	ABBRADED T	ABBRADED P	IRREGULAR T	IRREGULAR P	DELICATE T	DELICATE P	TOTAL	NON MAG GMS	CALC V.G. ASSAY PPB	REMARKS
CA-86													
01-01	Y	25 X 50	8 C		1					1			NO SULPHIDES
		50 X 50	10 C		1					1			
		50 X 100	15 C	1						1			
		75 X 75	15 C	1						1			
									TOTAL	4	31.3	50	
-02	Y	25 X 25	5 C		1					1			NO SULPHIDES
		25 X 50	8 C		2					2			
		50 X 50	10 C	1						1			
		50 X 75	13 C	2						2			
		50 X 100	15 C	1						1			
		75 X 100	18 C	1	1					2			
		75 X 150	22 C	1						1			
		100 X 100	20 C	1						1			
									TOTAL	11	25.2	294	
-03	N	150 X 200	34 C	1						1			
									TOTAL	1	24.4	317	
-04	N	100 X 150	25 C	1						1			
									TOTAL	1	24.6	118	
-05	N	125 X 150	27 C	1						1			
									TOTAL	1	21.2	180	
02-01	Y	25 X 25	5 C		2					2			EST. 3% PYRITE
		50 X 50	10 C	1			1			2			
		50 X 100	15 C	1						1			
		75 X 75	15 C	1						1			
									TOTAL	6	42.1	41	
-02	Y	50 X 100	15 C	1	1					2			EST. 5% PYRITE
		75 X 150	22 C	1						1			60 PELLETS MARCASITE
													1 GRAIN GALENA
									TOTAL	3	32.0	106	
-03	N	150 X 150	29 C	1						1			
									TOTAL	1	22.4	220	
03-01	N	NO VISIBLE GOLD											

GOLD CLASSIFICATION
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VISIBLE GOLD FROM SHAKING TABLE AND PANNING

SAMPLE #	PANNED Y/N	DIAMETER	THICKNESS	NUMBER OF GRAINS ABBRADED T	P	IRREGULAR T	P	DELICATE T	P	TOTAL	NON MAG GMS	CALC V.G. ASSAY PPB	REMARKS
-02	N	NO VISIBLE GOLD											
-03	N	100 X 100	20 C	1						1			
									TOTAL	1	20.8	72	
-04	N	150 X 200	34 C	1						1			
									TOTAL	1	4.2	1842	
04-01	N	100 X 150	25 C			1				1			
									TOTAL	1	38.7	75	
-02	N	100 X 100	20 C	1						1			
									TOTAL	1	39.4	38	
-03	N	NO VISIBLE GOLD											
05-01	N	NO VISIBLE GOLD											
-02	Y	25 X 25	5 C		4					4			EST. 25% PYRITE
		25 X 50	8 C		1					1			
		50 X 50	10 C		2					2			
		50 X 75	13 C		1					1			
		50 X 100	15 C	1	1					2			
		75 X 125	20 C		1					1			
		150 X 300	42 C	1						1			
									TOTAL	12	24.8	796	
-03	N	150 X 150	29 C	1						1			
									TOTAL	1	26.8	184	
-04	N	NO VISIBLE GOLD											
06-01	N	NO VISIBLE GOLD											
-02	N	NO VISIBLE GOLD											
-03	Y	25 X 25	5 C		2					2			EST. 30% PYRITE
		25 X 50	8 C		1					1			200 GRAINS ARSENOPYRITE (FINE)
		50 X 100	15 C		1					1			
		100 X 150	25 C			1				1			
		250 X 350	54 C	1						1			

GOLD CLASSIFICATION
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VISIBLE GOLD FROM SHAKING TABLE AND PANNING

NUMBER OF GRAINS

SAMPLE #	PANNED Y/N	DIAMETER	THICKNESS	ABBRADED T	ABBRADED P	IRREGULAR T	IRREGULAR P	DELICATE T	DELICATE P	TOTAL	NON MAG GMS	CALC V.G. ASSAY PPB	REMARKS
									TOTAL	6	34.5	1163	
-04	N	200 X 250	42 C	1						1			
									TOTAL	1	28.3	566	
-05	N	NO VISIBLE GOLD											
07-01	N	NO VISIBLE GOLD											
-02	Y	50 X 75	13 C		2					2			EST. 30% PYRITE
		75 X 100	18 C		1					1			100 GRAINS ARSENOPYRITE (FINE)
									TOTAL	3	23.3	75	
08-01	Y	25 X 25	5 C		1					1			EST. 80% PYRITE
		25 X 50	8 C		2					2			25 GRAINS ARSENOPYRITE (FINE)
		50 X 75	13 C		1					1			
									TOTAL	4	159.8	4	
09-01	Y	25 X 25	5 C		2					2			EST. 25% PYRITE
													10 PELLETS MARCASITE
									TOTAL	2	21.0	2	30 GRAINS ARSENOPYRITE
10-01	N	NO VISIBLE GOLD											
-02	Y	25 X 25	5 C		1					1			EST. 20% PYRITE
		50 X 100	15 C		1					1			
		75 X 125	20 C		1					1			
									TOTAL	3	16.7	130	
13-01	Y	50 X 75	13 C		1					1			EST. 35% PYRITE
		75 X 100	18 C		1					1			10 PELLETS MARCASITE
													250 GRAINS ARSENOPYRITE
									TOTAL	2	41.6	33	
14-01	Y	50 X 75	13 C		1					1			EST. 40% PYRITE
		75 X 100	18 C		1					1			150 GRAINS ARSENOPYRITE
													(FINE TO MEDIUM)
									TOTAL	2	30.3	46	
15-01	Y	25 X 25	5 C		1					1			EST. 20% PYRITE
		25 X 50	8 C		1					1			75 GRAINS ARSENOPYRITE (FINE)
		50 X 50	10 C		1					1			
		50 X 75	13 C		1					1			

GOLD CLASSIFICATION
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VISIBLE GOLD FROM SHAKING TABLE AND PANNING

SAMPLE #	PANNED Y/N	DIAMETER	THICKNESS	NUMBER OF GRAINS: ABRADED T	ABRADED P	IRREGULAR T	IRREGULAR P	DELICATE T	DELICATE P	TOTAL	NON MAG GMS	CALC V.G. ASSAY PPB	REMARKS
								TOTAL		4	27.8	24	
16-01	N	NO VISIBLE GOLD											
17-01	N	200 X 400	54 C	1						1			
								TOTAL		1	18.2	2003	
-02	N	NO VISIBLE GOLD											
18-01	N	NO VISIBLE GOLD											
19-01	N	NO VISIBLE GOLD											
-02	N	100 X 150	25 C	1						1			
								TOTAL		1	12.1	239	
20-01	N	125 X 150	27 C	1						1			
								TOTAL		1	19.1	200	
-02	N	50 X 100	15 C	1						1			
								TOTAL		1	23.4	27	
21-01	N	NO VISIBLE GOLD											
-02	N	NO VISIBLE GOLD											
-03	N	NO VISIBLE GOLD											
-04	N	150 X 250	38 C	1						1			
								TOTAL		1	15.4	740	
22-01	N	NO VISIBLE GOLD											
-02	N	NO VISIBLE GOLD											
-03	N	NO VISIBLE GOLD											
23-01	N	NO VISIBLE GOLD											
24-01	N	NO VISIBLE GOLD											
-02	N	NO VISIBLE GOLD											

GOLD CLASSIFICATION
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VISIBLE GOLD FROM SHAKING TABLE AND PANNING

SAMPLE #	PANNED Y/N	DIAMETER	THICKNESS	NUMBER OF GRAINS: ABBRADED T	ABBRADED P	IRREGULAR T	IRREGULAR P	DELICATE T	DELICATE P	TOTAL	NON MAG GMS	CALC V.G. ASSAY PPB	REMARKS
25-01	N	NO VISIBLE GOLD											
25-02	N	NO VISIBLE GOLD											

GOLD CLASSIFICATION
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VISIBLE GOLD FROM SHAKING TABLE AND PANNING

bpsl1jun.86 NUMBER OF GRAINS

SAMPLE #	PANNED Y/N	DIAMETER	THICKNESS	ABRADED T	ABRADED P	IRREGULAR T	IRREGULAR P	DELICATE T	DELICATE P	TOTAL	NON MAG GMS	CALC V.G. ASSAY PPB	REMARKS
CA-86													
25-03	N	NO VISIBLE GOLD											
26-01	Y	25 X 50	8 C		1					1			EST: 20% PYRITE
		100 X 100	20 C	1						1			100 GRAINS ARSENOPYRITE (FINE)
		100 X 125	22 C	1						1			
									TOTAL	3	14.2	261	
-02	N	NO VISIBLE GOLD											
27-01	N	100 X 150	25 C	1						1			
									TOTAL	1	8.0	362	
28-01	Y	25 X 50	8 C	1	1					2			EST: 5% PYRITE
		50 X 75	13 C	1	1					2			50 GRAINS ARSENOPYRITE (FINE)
									TOTAL	4	32.7	28	
-02	N	NO VISIBLE GOLD											
29-01	N	NO VISIBLE GOLD											
-02	N	50 X 100	15 C	1						1			
									TOTAL	1	29.4	22	
-03	Y	25 X 50	8 C		1					1			EST: 15% PYRITE
		75 X 75	15 C	1						1			
		225 X 275	46 C	1						1			
									TOTAL	3	18.6	1204	
30-01	N	NO VISIBLE GOLD											
-02	Y	25 X 25	5 C		1					1			EST: 0.5% PYRITE
		100 X 125	22 C	1						1			
		100 X 150	25 C	1						1			
									TOTAL	3	36.2	139	
-03	N	50 X 150	20 C	1						1			
									TOTAL	1	36.9	41	
-04	Y	25 X 25	5 C		1					1			EST: 0.5% PYRITE
		50 X 75	13 C	1						1			

GOLD CLASSIFICATION
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VISIBLE GOLD FROM SHAKING TABLE AND PANNING

bpsl1jun.86 NUMBER OF GRAINS

SAMPLE #	PANNED			ABBRADED		IRREGULAR		DELICATE			NON	CALC V.G.	
				========		=========		========			MAG	ASSAY	
	Y/N	DIAMETER	THICKNESS	T	P	T	P	T	P	TOTAL	GMS	PPB	REMARKS
CA-86													
		50 X 100	15 C	1						1			
		75 X 100	18 C	1						1			
		100 X 100	20 C			1				1			
								TOTAL		5	37.8	94	
-05	N	NO VISIBLE GOLD											
-06	N	75 X 75	15 C	1						1			
								TOTAL		1	42.6	15	
-07	Y	25 X 25	5 C		3					3			EST: 0.25% PYRITE
		25 X 50	8 C		1					1			
		25 X 75	10 C		1					1			
		50 X 50	10 C		1					1			
		50 X 100	15 C	2						2			
		100 X 100	20 C	1						1			
								TOTAL		9	35.5	94	
-08	Y	25 X 25	5 C		2					2			NO SULPHIDES
		25 X 50	8 C		1		1			2			PHOTO REF #113
		25 X 75	10 C						2	2			
		50 X 75	13 C	1						1			
		50 X 100	15 C	1						1			
		75 X 75	15 C	2						2			
		75 X 125	20 C	1						1			
								TOTAL		11	38.0	116	
-09	Y	25 X 25	5 C		1					1			EST: 5% PYRITE
		25 X 50	8 C		1					1			
		50 X 50	10 C	1						1			
		50 X 75	13 C		1					1			
		75 X 100	18 C	1						1			
								TOTAL		5	36.4	46	
-10	Y	25 X 25	5 C		1					1			EST: 5% PYRITE
		25 X 50	8 C		1					1			
		50 X 75	13 C	1						1			
		50 X 100	15 C	1					1	2			
		75 X 125	20 C	1						1			
								TOTAL		6	21.0	155	

GOLD CLASSIFICATION
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VISIBLE GOLD FROM SHAKING TABLE AND PANNING

bpsl1jun.86 NUMBER OF GRAINS

SAMPLE #	PANNED Y/N	DIAMETER	THICKNESS	ABRADED T	ABRADED P	IRREGULAR T	IRREGULAR P	DELICATE T	DELICATE P	TOTAL	NON MAG GMS	CALC V.G. ASSAY PPB	REMARKS
CA-86													
-11	Y	25 X 50	8 C		2					2			EST: 7% PYRITE
		50 X 75	13 C	1	2					3			
		75 X 75	15 C		1					1			
		100 X 150	25 C	1						1			
		125 X 150	27 C				1			1			
									TOTAL	8	25.2	343	
-12	Y	50 X 100	15 C		1					1			EST: 10% PYRITE
		100 X 100	20 C	1						1			
		150 X 350	46 C	1						1			
									TOTAL	3	34.8	684	
-13	Y	25 X 25	5 C		1					1			EST: 15% PYRITE
		25 X 50	8 C		1					1			75 GRAINS ARSENOPYRITE (FINE)
		50 X 50	10 C		1					1			PHOTO REF #114
		50 X 75	13 C	2			1			3			
		50 X 100	15 C	1						1			
		75 X 75	15 C		1	1				2			
		75 X 125	20 C		1					1			
		100 X 100	20 C	1						1			
		125 X 175	29 C		1					1			
		150 X 250	38 C			1				1			
		200 X 250	42 C	1						1			
									TOTAL	14	29.9	1294	
-14	N	100 X 175	27 C	1						1			
									TOTAL	1	14.3	268	
31-01	N	NO VISIBLE GOLD											
-02	Y	50 X 50	10 C		1					1			NO SULPHIDES
		50 X 100	15 C		1					1			
		100 X 100	20 C	1						1			
		125 X 125	25 C	1						1			
									TOTAL	4	28.8	181	
-03	N	NO VISIBLE GOLD											
-04	Y	50 X 50	10 C		1					1			NO SULPHIDES
		50 X 100	15 C	1						1			
		100 X 200	29 C	1						1			
		150 X 300	42 C	1						1			

GOLD CLASSIFICATION
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VISIBLE GOLD FROM SHAKING TABLE AND PANNING

bpsl1jun.86 NUMBER OF GRAINS

SAMPLE #	PANNED Y/N	DIAMETER	THICKNESS	ABBRADED T	ABBRADED P	IRREGULAR T	IRREGULAR P	DELICATE T	DELICATE P	TOTAL	NON MAG GMS	CALC V.G. ASSAY PPB	REMARKS
CA-86													
									TOTAL	4	23.5	927	
-05	N	NO VISIBLE GOLD											
-06	Y	25 X 75	10 C		1					1			NO SULPHIDES
		50 X 100	15 C	2						2			
									TOTAL	3	26.3	56	
-07	N	50 X 75	13 C	1						1			
									TOTAL	1	33.4	11	
-08	Y	25 X 25	5 C	1	1					2			NO SULPHIDES
		25 X 50	8 C				2			2			PHOTO REF #113
		50 X 50	10 C		2					2			
		50 X 75	13 C		1				1	2			
		50 X 100	15 C		1					1			
		75 X 75	15 C		1					1			
		75 X 100	18 C	1						1			
		75 X 125	20 C	1						1			
									TOTAL	12	32.5	158	
-09	N	NO VISIBLE GOLD											
-10	N	NO VISIBLE GOLD											
32-01	N	NO VISIBLE GOLD											
-02	Y	150 X 200	34 C	1						1			NO SULPHIDES
		200 X 300	46 C	1						1			
									TOTAL	2	8.0	3677	
-03	N	NO VISIBLE GOLD											
-04	N	NO VISIBLE GOLD											
-05	N	NO VISIBLE GOLD											
-06	N	75 X 125	20 C	1						1			
									TOTAL	1	17.9	84	
-07	N	NO VISIBLE GOLD											

GOLD CLASSIFICATION
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VISIBLE GOLD FROM SHAKING TABLE AND PANNING

bpsl1jun.86 NUMBER OF GRAINS

SAMPLE #	PANNED Y/N	DIAMETER	THICKNESS	ABBRADED T	ABBRADED P	IRREGULAR T	IRREGULAR P	DELICATE T	DELICATE P	TOTAL	NON MAG GMS	CALC V.G. ASSAY PPB	REMARKS
CA-86													
-08	Y	25 X 25	5 C						2	2			EST: 30 GRAINS PYRITE
		150 X 150	29 C	1						1			
		350 X 425	66 C					1		1			
									TOTAL	4	22.6	3527	
-09	N	125 X 150	27 C	1						1			
									TOTAL	1	19.2	199	
-10	N	100 X 150	25 C	1						1			
									TOTAL	1	15.6	185	
-11	N	NO VISIBLE GOLD											
33-01	N	NO VISIBLE GOLD											
-02	N	NO VISIBLE GOLD											
-03	N	NO VISIBLE GOLD											
-04	N	NO VISIBLE GOLD											
-05	N	NO VISIBLE GOLD											
-06	N	100 X 100	20 C	1						1			
									TOTAL	1	21.1	71	
-07	N	NO VISIBLE GOLD											
-08	N	100 X 100	20 C	1						1			
									TOTAL	1	17.9	84	
-09	N	NO VISIBLE GOLD											
-10	N	NO VISIBLE GOLD											
-11	N	NO VISIBLE GOLD											
34-01	N	50 X 150	20 C	1						1			
									TOTAL	1	32.3	46	

GOLD CLASSIFICATION
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VISIBLE GOLD FROM SHAKING TABLE AND PANNING

bpsl1jun.86 NUMBER OF GRAINS

SAMPLE #	PANNED Y/N	DIAMETER	THICKNESS	ABBRADED T	ABBRADED P	IRREGULAR T	IRREGULAR P	DELICATE T	DELICATE P	TOTAL	NON MAG GMS	CALC V.G. ASSAY PPB	REMARKS
CA-86													
-02	N	100 X 100	20 C	1						1			
									TOTAL	1	22.2	68	
-03	N	NO VISIBLE GOLD											
-04	Y	25 X 50	8 C		1					1			EST: 5% PYRITE
		100 X 100	20 C	2						2			
		100 X 125	22 C	1						1			
									TOTAL	4	8.6	605	
-05	N	NO VISIBLE GOLD											

GOLD CLASSIFICATION
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VISIBLE GOLD FROM SHAKING TABLE AND PANNING

bps15jun.86 NUMBER OF GRAINS

SAMPLE #	PANNED Y/N	DIAMETER	THICKNESS	ABRADED T	ABRADED P	IRREGULAR T	IRREGULAR P	DELICATE T	DELICATE P	TOTAL	NON MAG GMS	CALC V.G. ASSAY PPB	REMARKS
CA-86													
35-01	N	100 X 150	25 C	1						1			
									TOTAL	1	11.5	252	
-02	Y	50 X 75	13 C		1					1			EST: 1% PYRITE
		75 X 100	18 C		1					1			
		100 X 100	20 C	1						1			
		150 X 200	34 C	1						1			
									TOTAL	4	29.0	366	
-03	Y	25 X 25	5 C		1					1			EST: 25% PYRITE
		125 X 125	25 C				1			1			125 GRAINS ARSENOPYRITE (FINE)
		150 X 150	29 C	1						1			
									TOTAL	3	18.5	425	
-04	Y	50 X 50	10 C		2					2			EST: 25% PYRITE 100 GRAINS ARSENOPYRITE
									TOTAL	2	5.1	75	
36-01	Y	25 X 75	10 C				1			1			EST: 10% PYRITE
		50 X 50	10 C		1					1			75 GRAINS ARSENOPYRITE (FINE)
		75 X 125	20 C		1					1			
		100 X 100	20 C	1						1			
		150 X 300	42 C	1						1			
									TOTAL	5	32.2	603	
-02	N	50 X 125	18 C	1						1			
									TOTAL	1	21.5	47	
-03	N	NO VISIBLE GOLD											
-04	Y	75 X 125	20 C		1					1			EST: 15% PYRITE
		100 X 150	25 C	1						1			50 GRAINS ARSENOPYRITE
		150 X 200	34 C	1						1			
									TOTAL	3	55.7	218	
37-01	Y	25 X 25	5 C		1					1			EST: 1% PYRITE
		50 X 50	10 C		1					1			25 GRAINS ARSENOPYRITE
		50 X 75	13 C		1	2				3			
		100 X 100	20 C			2				2			
									TOTAL	7	16.9	257	

GOLD CLASSIFICATION
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VISIBLE GOLD FROM SHAKING TABLE AND PANNING

bps15jun.86 NUMBER OF GRAINS

SAMPLE #	PANNED Y/N	DIAMETER	THICKNESS	ABRADED T	ABRADED P	IRREGULAR T	IRREGULAR P	DELICATE T	DELICATE P	TOTAL	NON MAG GMS	CALC V.G. ASSAY PPB	REMARKS
CA-86													
38-01	Y	25 X 25	5 C		4		1			5			EST: 5% PYRITE
		50 X 50	10 C		1					1			PHOTO REF #119
		50 X 75	13 C	1						1			
		75 X 75	15 C	1						1			
		75 X 100	18 C		1	1				2			
									TOTAL	10	32.1	104	
-02	Y	50 X 75	13 C		1					1			EST: 10% PYRITE 30 GRAINS ARSENOPYRITE
									TOTAL	1	2.9	129	
39-01	Y	25 X 25	5 C		3					3			EST: 5% PYRITE
		50 X 75	13 C			1				1			20 GRAINS ARSENOPYRITE (FINE)
		75 X 75	15 C	1						1			
		75 X 100	18 C	2						2			
									TOTAL	7	20.5	152	
-02	N	NO VISIBLE GOLD											
-03	N	NO VISIBLE GOLD											
-04	N	NO VISIBLE GOLD											
-05	N	NO VISIBLE GOLD											
-06	N	75 X 175	25 C	1						1			
									TOTAL	1	19.4	149	
-07	N	NO VISIBLE GOLD											
-08	N	NO VISIBLE GOLD											
-09	N	100 X 150	25 C	1						1			
									TOTAL	1	16.4	176	
-10	N	75 X 100	18 C	1						1			
									TOTAL	1	17.0	59	
-11	Y	25 X 50	8 C		3					3			EST: 5% PYRITE
		50 X 50	10 C		2					2			PHOTO REF #119
		50 X 75	13 C		1					1			

GOLD CLASSIFICATION
==================
VISIBLE GOLD FROM SHAKING TABLE AND PANNING

bps15jun.86 NUMBER OF GRAINS

SAMPLE #	PANNED Y/N	DIAMETER	THICKNESS	ABRADED T	ABRADED P	IRREGULAR T	IRREGULAR P	DELICATE T	DELICATE P	TOTAL	NON MAG GMS	CALC V.G. ASSAY PPB	REMARKS
CA-86													
		50 X 100	15 C	1						1			
		75 X 75	15 C		1					1			
		75 X 100	18 C	1						1			
		100 X 100	20 C			1				1			
									TOTAL	10	12.1	396	
-12	N	100 X 125	22 C	1						1			
									TOTAL	1	16.9	126	
39-13	Y	25 X 25	5 C		2					2			EST: 5% PYRITE
		50 X 50	10 C	1						1			125 GRAINS ARSENOPYRITE (FINE)
		50 X 100	15 C		1					1			1 GRAIN NATIVE COPPER (25X25)
		75 X 100	18 C		1					1			
		100 X 125	22 C	1	1					2			
									TOTAL	7	15	409	

GOLD CLASSIFICATION
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VISIBLE GOLD FROM SHAKING TABLE AND PANNING

bpca1jul.86 NUMBER OF GRAINS

SAMPLE #	PANNED	DIAMETER	THICKNESS	ABRADED		IRREGULAR		DELICATE			NON MAG	CALC V.G. ASSAY	
	Y/N			T	P	T	P	T	P	TOTAL	GMS	PPB	REMARKS
CA-86													
39-14	N	50 X 100	15 C	1						1			
									TOTAL	1	31.3	20	
40-01	Y	25 X 25	5 C					1		1			EST: 5% PYRITE
		50 X 50	10 C	1	2					3			20 GRAINS ARSENOPYRITE (FINE)
		75 X 100	18 C	1			1			2			
									TOTAL	6	30.7	85	
-02	Y	25 X 25	5 C		8					8			EST: 10% PYRITE
		25 X 50	8 C	1						1			25 GRAINS ARSENOPYRITE (FINE)
		50 X 50	10 C		3					3			PHOTO REF #122
		50 X 75	13 C	3						3			
		75 X 75	15 C	1						1			
		75 X 100	18 C	1						1			
		150 X 250	38 C		1					1			
									TOTAL	18	34.9	430	
-03	Y	25 X 50	8 C		2					2			EST: 10% PYRITE
		50 X 75	13 C			1				1			1000 GRAINS ARSENOPYRITE (FINE
		100 X 125	22 C	1						1			
									TOTAL	4	32.4	82	
-04	N	NO VISIBLE GOLD											
41-01	Y	25 X 25	5 C		1					1			EST: 10% PYRITE
		25 X 50	8 C		3					3			250 GRAINS ARSENOPYRITE (FINE)
		25 X 75	10 C		2					2			PHOTO REF #122
		50 X 75	13 C	1	1					2			
		50 X 100	15 C	1	1					2			
		50 X 125	18 C	1						1			
		75 X 75	15 C		1					1			
		100 X 100	20 C	1						1			
		125 X 300	40 C	1						1			
		175 X 250	75 C	1						1			
									TOTAL	15	38.3	1170	
-02	Y	25 X 25	5 C		7					7			EST: 10% PYRITE
		25 X 50	8 C		5		2			7			100 GRAINS ARSENOPYRITE (FINE)
		50 X 50	10 C	1	1					2			PHOTO REF #122
		50 X 75	13 C		1	2				3			
		50 X 100	15 C				1			1			
		50 X 125	18 C		1					1			

GOLD CLASSIFICATION
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VISIBLE GOLD FROM SHAKING TABLE AND PANNING

bpcaljul.86 NUMBER OF GRAINS

SAMPLE #	PANNED Y/N	DIAMETER	THICKNESS	ABBRADED T	ABBRADED P	IRREGULAR T	IRREGULAR P	DELICATE T	DELICATE P	TOTAL	NON MAG GMS	CALC V.G. ASSAY PPB	REMARKS
CA-86													
		75 X 75	15 C	1						1			
		150 X 175	31 C	1						1			
									TOTAL	23	40.1	269	
-03	Y	50 X 50	10 C	1						1			EST: 5% PYRITE
		50 X 75	13 C	1						1			10 GRAINS ARSENOPYRITE (FINE)
		75 X 75	15 C		1					1			
									TOTAL	3	12.7	95	
42-01	Y	25 X 25	5 C		2					2			EST: 45% PYRITE
		25 X 50	8 C		1					1			100 GRAINS ARSENOPYRITE (FINE)
		75 X 150	22 C		1					1			
									TOTAL	4	29.9	75	
43-01	N	NO VISIBLE GOLD											
-02	N	NO VISIBLE GOLD											
-03	N	NO VISIBLE GOLD											
-04	Y	25 X 50	8 C		1					1			EST: 20% PYRITE
		25 X 75	10 C		1					1			250 GRAINS ARSENOPYRITE
		100 X 150	25 C	1						1			(FINE TO MEDIUM)
									TOTAL	3	16.9	187	
-05	Y	25 X 50	8 C		1					1			EST: 10% PYRITE
		50 X 75	13 C		2					2			150 GRAINS ARSENOPYRITE (FINE)
		75 X 100	18 C	1	2					3			
		100 X 100	20 C		1					1			
									TOTAL	7	27.8	193	
-06	N	375 X 550	76 C	1						1			
									TOTAL	1	35.6	3413	
-07	Y	25 X 25	5 C		2					2			EST: 10% PYRITE
		25 X 50	8 C		1					1			150 GRAINS ARSENOPYRITE (FINE)
		75 X 75	15 C	1						1			
		125 X 150	27 C	1						1			
									TOTAL	5	36.9	125	

GOLD CLASSIFICATION
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VISIBLE GOLD FROM SHAKING TABLE AND PANNING

bpca1jul.86 NUMBER OF GRAINS

SAMPLE #	PANNED Y/N	DIAMETER	THICKNESS	ABBRADED T	ABBRADED P	IRREGULAR T	IRREGULAR P	DELICATE T	DELICATE P	TOTAL	NON MAG GMS	CALC V.G. ASSAY PPB	REMARKS
CA-86													
-08	N	NO VISIBLE GOLD											
44-01	Y	25 X 50	8 C		1					1			EST: 3% PYRITE
		50 X 50	10 C		2				1	3			
		50 X 100	15 C	1	1					2			
		125 X 150	27 C			1				1			
		150 X 275	40 C	1						1			
									TOTAL	8	26.5	730	
-02	N	NO VISIBLE GOLD											
-03	Y	50 X 50	10 C	1	1					2			EST: 15% PYRITE
		75 X 100	18 C		1					1			
									TOTAL	3	13.5	103	
45-01	N	NO VISIBLE GOLD											
-02	N	100 X 200	29 C	1						1			
									TOTAL	1	30.9	160	
-03	N	NO VISIBLE GOLD											
-04	Y	25 X 50	8 C		2					2			EST: 10% PYRITE
		50 X 50	10 C		1					1			
		50 X 75	13 C	1	1					2			
		75 X 125	20 C				1			1			
		100 X 150	25 C	1						1			
									TOTAL	7	30.9	178	
46-01	N	NO VISIBLE GOLD											
-02	N	100 X 150	25 C	1						1			
									TOTAL	1	40.5	71	
-03	Y	25 X 25	5 C		5				1	6			EST: 3% PYRITE 200 GRAINS ARSENOPYRITE (FINE)
		25 X 50	8 C	1						1			
		25 X 75	10 C		2		1			3			
		50 X 50	10 C		1					1			
		75 X 75	15 C		1					1			
		75 X 100	18 C	1						1			
		75 X 125	20 C		1					1			
		100 X 100	20 C		1					1			

GOLD CLASSIFICATION

VISIBLE GOLD FROM SHAKING TABLE AND PANNING

bpcaljul.86 NUMBER OF GRAINS

SAMPLE #	PANNED Y/N	DIAMETER	THICKNESS	ABBRADED T	ABBRADED P	IRREGULAR T	IRREGULAR P	DELICATE T	DELICATE P	TOTAL	NON MAG GMS	CALC V.G. ASSAY PPB	REMARKS
CA-86													
									TOTAL	15	33.5	169	
-04	Y	50 X 50	10 C		2					2			EST: 3% PYRITE
		50 X 100	15 C	1						1			100 GRAINS ARSENOPYRITE (FINE)
		75 X 75	15 C		1					1			4 GRAINS GALENA
		125 X 125	25 C		1					1			
									TOTAL	5	30.5	149	
46-05	Y	25 X 25	5 C		1					1			EST: 30 GRAINS PYRITE
		50 X 50	10 C		2					2			
		50 X 75	13 C		1					1			
		75 X 75	15 C		2					2			
		125 X 125	25 C	1						1			
									TOTAL	7	39.8	125	

GOLD CLASSIFICATION

VISIBLE GOLD FROM SHAKING TABLE AND PANNING

bpca2jul.86 NUMBER OF GRAINS

SAMPLE #	FANNED Y/N	DIAMETER	THICKNESS	ABRADED T	ABRADED P	IRREGULAR T	IRREGULAR P	DELICATE T	DELICATE P	TOTAL	NON MAG GMS	CALC V.G. ASSAY PPB	REMARKS
CA-86													
46-06	N	NO VISIBLE GOLD											
-07	N	NO VISIBLE GOLD											
-08	N	NO VISIBLE GOLD											
-09	N	NO VISIBLE GOLD											
-10	N	NO VISIBLE GOLD											
47-01	N	NO VISIBLE GOLD											
-02	N	NO VISIBLE GOLD											
-03	N	50 X 150	20 C	1						1			
									TOTAL	1	11.8	127	
-04	N	NO VISIBLE GOLD											
48-01	N	NO VISIBLE GOLD											
-02	N	NO VISIBLE GOLD											
-03	N	NO VISIBLE GOLD											
-04	N	100 X 150	25 C	1						1			
									TOTAL	1	45.3	64	
-05	N	NO VISIBLE GOLD											
-06	N	NO VISIBLE GOLD											
07	N	NO VISIBLE GOLD											
49-01	N	100 X 125	22 C	1						1			
									TOTAL	1	51.3	41	
-02	N	NO VISIBLE GOLD											
-03	N	75 X 125	20 C	1						1			
									TOTAL	1	33.2	45	
-04	N	75 X 125	20 C	1						1			

GOLD CLASSIFICATION

VISIBLE GOLD FROM SHAKING TABLE AND PANNING

bpca2jul.86

SAMPLE #	PANNED Y/N	DIAMETER	THICKNESS	NUMBER OF GRAINS: ABRADED T	ABRADED P	IRREGULAR T	IRREGULAR P	DELICATE T	DELICATE P	TOTAL	NON MAG GMS	CALC V.G. ASSAY PPB	REMARKS
CA-66													
									TOTAL	1	20.8	72	
-05	Y	50 X 75	13 C					1		1			EST: 1% PYRITE
		100 X 250	34 C	1						1			
									TOTAL	2	5.1	1590	
-06	Y	25 X 50	8 C		1					1			EST: 7% PYRITE
		25 X 75	10 C				1			1			
		75 X 100	18 C					1		1			
		200 X 250	42 C	1						1			
		200 X 375	52 C	1						1			
									TOTAL	5	17.6	2787	

APPENDIX D

BONDAR-CLEGG HEAVY MINERAL INA ANALYSES

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BONDAR-CLEGG

Geochemical Lab Report

REPORT: 016-1404

PROJECT: NONE

PAGE 1A

SAMPLE NUMBER	ELEMENT UNITS	Sc PPM	Cr PPM	Fe PCT	Co PPM	Ni PPM	Zn PPM	As PPM	Se PPM	Rb PPM	Mo PPM	Ag PPM	Cd PPM
CA-86-01-01	3/4	62.0	390	14.0	17	<50	<200	<5	<10	<10	<3	<5	<11
CA-86-01-02	3/4	62.3	470	15.0	18	<50	<200	<5	<10	13	4	<5	<12
CA-86-01-03	3/4	59.6	490	15.0	29	<50	<200	<5	<10	10	4	<5	<11
CA-86-01-04	H	59.0	433	17.0	91	75	<200	18	<10	<10	3	<5	<12
CA-86-01-05	3/4	48.0	590	21.0	220	120	<200	59	<10	<10	8	<5	<12
CA-86-02-01	3/4(A)	57.1	410	14.0	64	<50	<200	19 } 17	<10	<10	<2	<5	<10
CA-86-02-01	3/4(B)	64.1	440	15.0	68	<50	<200	14	<10	<10	5	<5	<14
CA-86-02-02	3/4	57.6	460	17.0	98	58	<200	24	<10	11	4	<5	20
CA-86-02-03	3/4	48.0	500	24.0	200	120	<200	55	<10	<10	4	<5	<12
CA-86-03-01	3/4	57.6	400	14.0	20	<50	<200	<4	<10	12	<2	<5	<10
CA-86-03-02	3/4	49.5	500	15.0	75	59	<200	20	<10	<10	5	<5	<11
CA-86-03-03	3/4	48.0	630	20.0	180	86	<200	67	<10	<10	3	<5	<12
CA-86-03-04	3/4	59.3	620	21.0	140	71	<200	57	<12	15	6	<5	<22
CA-86-04-01	3/4(A)	50.3	500	15.0	77	54	<200	26 } 27	<10	12	<2	<5	<10
CA-86-04-01	3/4(B)	58.1	580	18.0	89	<50	<200	29	<10	13	3	<5	<15
CA-86-04-02	3/4(A)	52.1	380	15.0	76	61	<200	22 } 23	<10	<10	3	<5	<10
CA-86-04-02	3/4(B)	60.2	520	18.0	96	80	<200	25	<10	12	7	<5	<16
CA-86-04-03	3/4	44.0	650	21.0	200	93	<200	69	<10	<10	8	<5	<12
CA-86-05-01	3/4	51.5	430	16.0	78	58	<200	33	<10	<10	6	<5	<11
CA-86-05-02	3/4	45.0	570	20.0	180	96	<200	72	<10	12	10	<5	<13
CA-86-05-03	3/4	50.1	620	20.0	160	73	<200	45	<10	<10	5	<5	<13
CA-86-05-04	3/4	51.1	540	22.0	180	88	<200	77	<10	17	10	<5	<14
CA-86-06-01	3/4	48.0	690	20.0	200	84	<200	80	<10	<10	9	<5	<13
CA-86-06-02	3/4	47.0	680	20.0	200	110	<200	74	<10	11	8	<5	<12
CA-86-06-03	3/4	48.0	870	24.0	270	130	<200	112	<10	<10	8	<5	<13
CA-86-06-04	3/4	46.0	620	18.0	170	82	<200	63	<10	<10	3	<5	<11
CA-86-06-05	3/4	51.1	630	18.0	220	110	<200	174	<10	<10	5	<5	<15
CA-86-07-01	3/4	42.0	750	20.0	240	86	<200	103	<10	10	5	<5	<11
CA-86-07-02	3/4	36.0	340	24.0	330	190	<200	183	<10	11	9	<5	<12
CA-86-08-01	3/4(A)	2.9	<50	36.0	140	240	560	358	<10	18	21	<5	<12
CA-86-08-01	3/4(B)	2.9	<50	34.0	140	230	460	339 } 343	<10	18	15	<5	<11
CA-86-08-01	3/4(C)	3.3	<50	33.0	130	220	430	333	<10	18	20	<5	<11
CA-86-08-01	3/4(D)	3.5	<50	34.0	130	230	490	342	<10	20	19	<5	11
CA-86-08-01	3/4(E)	3.7	<50	34.0	130	240	460	344	<10	22	19	<5	<13
CA-86-09-01	3/4	43.0	680	23.0	200	130	<200	124	<10	16	13	<5	<13
CA-86-10-01	3/4	48.0	1100	21.0	230	110	<200	168	<10	14	9	<5	<13
CA-86-10-02	3/4	41.0	1100	25.0	340	160	<200	168	<10	16	10	<5	<15
CA-86-13-01	3/4(A)	12.0	170	31.0	100	270	<200	114 } 116	<10	<10	17	<5	<10
CA-86-13-01	3/4(B)	14.0	240	31.0	100	260	<200	122	<10	<10	14	<5	<16
CA-86-14-01	3/4	19.0	300	32.0	280	190	<200	276	<10	17	18	<5	<13

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BONDAR-CLEGG

Geochemical Lab Report

REPORT: 016-1404

PROJECT: NONE

SAMPLE NUMBER	ELEMENT UNITS	Sb PPM	Cs PPM	Ba PPM	La PPM	Eu PPM	Tb PPM	Yb PPM	Hf PPM	Ta PPM	W PPM	Ir PPB	Au PPB	
CA-86-01-01	3/4	0.3	<1	<100	140	10	4	20	180	11	<16	<100	130	
CA-86-01-02	3/4	0.4	1	<100	180	14	5	24	281	12	<17	<100	220	
CA-86-01-03	3/4	<0.2	<1	<100	180	14	5	21	207	12	<17	<100	190	
CA-86-01-04	H	0.3	<1	<100	175	13	5	21	227	11	<18	<100	54	
CA-86-01-05	3/4	0.6	<1	<100	140	11	4	15	130	10	<18	<100	360	
CA-86-02-01	3/4(A)	0.3	<1	<100	160	14	5	19	224	9	<15	<100	34	35
CA-86-02-01	3/4(B)	0.3	<1	<100	180	14	5	23	239	11	<21	<100	37	
CA-86-02-02	3/4	<0.2	<1	<100	180	11	5	21	291	11	<15	<100	120	
CA-86-02-03	3/4	0.7	<1	<100	150	10	4	16	190	11	25	<100	310	
CA-86-03-01	3/4	0.4	<1	<100	180	13	5	21	226	12	<15	<100	18	
CA-86-03-02	3/4	0.2	<1	<100	160	10	4	19	287	10	<16	<100	74	
CA-86-03-03	3/4	0.5	<1	<100	160	11	4	18	216	11	30	<100	675	
CA-86-03-04	3/4	0.4	<1	<110	210	17	6	23	238	15	<34	<100	1410	
CA-86-04-01	3/4(A)	<0.2	<1	<100	150	10	4	19	286	10	18	<100	180	144
CA-86-04-01	3/4(B)	0.3	<1	<100	170	13	5	23	338	12	<23	<100	63	
CA-86-04-02	3/4(A)	0.3	<1	<100	150	10	4	18	246	10	<15	<100	240	255
CA-86-04-02	3/4(B)	<0.2	<1	<100	180	13	5	21	290	11	<24	<100	290	
CA-86-04-03	3/4	0.9	<1	<100	150	9	4	15	190	12	<17	<100	440	
CA-86-05-01	3/4	0.5	<1	<100	160	10	4	20	308	12	<16	<100	200	
CA-86-05-02	3/4	0.6	<1	<100	150	10	4	17	235	11	<20	<100	734	
CA-86-05-03	3/4	0.6	<1	<100	150	10	4	20	228	11	<19	<100	370	
CA-86-05-04	3/4	0.8	<1	<100	150	11	5	16	180	10	40	<100	1690	
CA-86-06-01	3/4	0.7	<1	<100	150	11	4	17	238	11	<19	<100	150	
CA-86-06-02	3/4	0.7	<1	<100	150	10	4	19	208	12	<18	<100	170	
CA-86-06-03	3/4	0.9	<1	<100	150	11	4	17	170	14	47	<100	755	
CA-86-06-04	3/4	0.7	<1	<100	150	9	4	17	170	11	<17	<100	772	
CA-86-06-05	3/4	0.7	<1	<100	170	13	5	17	100	10	<24	<100	160	
CA-86-07-01	3/4	1.0	<1	<100	130	9	3	16	190	9	<17	<100	240	
CA-86-07-02	3/4	1.9	<1	120	120	9	4	13	140	8	25	<100	120	
CA-86-08-01	3/4(A)	6.8	<1	160	29	<2	<1	<5	5	<1	<15	<100	130	
CA-86-08-01	3/4(B)	6.2	<1	<100	29	<2	<1	<5	6	<1	<14	<100	120	141
CA-86-08-01	3/4(C)	5.9	<1	<100	28	<2	<1	<5	11	<1	<14	<100	170	
CA-86-08-01	3/4(D)	6.4	<1	120	32	<2	<1	<5	7	<1	<15	<100	130	
CA-86-08-01	3/4(E)	6.6	<1	<100	31	<2	<1	<5	9	<1	<17	<100	160	
CA-86-09-01	3/4	1.6	<1	<100	130	8	3	14	150	7	<20	<100	170	
CA-86-10-01	3/4	1.0	<1	<100	140	11	4	13	130	8	<22	<100	130	
CA-86-10-02	3/4	1.5	<1	<100	120	9	3	15	120	8	<23	<100	130	
CA-86-13-01	3/4(A)	1.4	<1	<100	33	3	1	<5	29	2	37	<100	130	159
CA-86-13-01	3/4(B)	1.6	<1	<100	35	3	<1	<5	36	2	43	<100	230	
CA-86-14-01	3/4	1.7	<1	<100	58	4	2	7	57	4	<20	<100	370	

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BONDAR-CLEGG

Geochemical Lab Report

REPORT: 016-1404

PROJECT: NONE

SAMPLE NUMBER	ELEMENT UNITS	Th PPM	U PPM	WT g
CA-86-01-01	3/4	26.0	10.0	23.27
CA-86-01-02	3/4	35.0	14.0	18.65
CA-86-01-03	3/4	32.0	12.0	17.95
CA-86-01-04	M	30.0	11.0	18.20
CA-86-01-05	3/4	25.0	7.3	15.45
CA-86-02-01	3/4(A)	26.0	11.0	20.98
CA-86-02-01	3/4(B)	30.0	12.0	9.92
CA-86-02-02	3/4	33.0	13.0	23.61
CA-86-02-03	3/4	24.0	8.8	16.60
CA-86-03-01	3/4	32.0	12.0	21.84
CA-86-03-02	3/4	32.0	12.0	16.24
CA-86-03-03	3/4	33.0	10.0	15.30
CA-86-03-04	3/4	38.0	11.0	4.23
CA-86-04-01	3/4(A)	29.0	12.0	19.41
CA-86-04-01	3/4(B)	36.0	14.0	8.77
CA-86-04-02	3/4(A)	28.0	11.0	20.40
CA-86-04-02	3/4(B)	36.0	13.0	8.60
CA-86-04-03	3/4	26.0	9.0	19.04
CA-86-05-01	3/4	32.0	13.0	20.50
CA-86-05-02	3/4	28.0	10.0	18.47
CA-86-05-03	3/4	27.0	11.0	19.35
CA-86-05-04	3/4	30.0	10.0	15.40
CA-86-06-01	3/4	28.0	10.0	17.53
CA-86-06-02	3/4	28.0	10.0	22.15
CA-86-06-03	3/4	28.0	8.3	25.21
CA-86-06-04	3/4	26.0	8.2	21.10
CA-86-06-05	3/4	26.0	6.9	9.89
CA-86-07-01	3/4	21.0	7.6	21.83
CA-86-07-02	3/4	20.0	7.2	18.35
CA-86-08-01	3/4(A)	2.0	<0.7	23.49
CA-86-08-01	3/4(B)	2.4	<0.7	25.29
CA-86-08-01	3/4(C)	2.2	<0.7	27.71
CA-86-08-01	3/4(D)	2.4	<0.7	24.43
CA-86-08-01	3/4(E)	2.5	<0.7	14.06
CA-86-09-01	3/4	21.0	6.6	15.36
CA-86-10-01	3/4	19.0	6.0	12.94
CA-86-10-02	3/4	19.0	5.1	12.25
-86-13-01	3/4(A)	3.6	1.0	21.60
CA-86-13-01	3/4(B)	5.1	1.9	8.92
CA-86-14-01	3/4	7.3	2.5	22.14

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Geochemical Lab Report

REPORT: 016-1404

PROJECT: NONE

SAMPLE NUMBER	ELEMENT UNITS	Sc PPM	Cr PPM	Fe PCT	Co PPM	Ni PPM	Zn PPM	As PPM	Se PPM	Rb PPM	Mo PPM	Ag PPM	Cd PPM
CA-86-15-01	3/4	38.0	1900	24.0	310	170	<200	128	<10	17	7	<5	<13
CA-86-16-01	3/4	39.0	2400	27.0	430	220	<200	166	<10	<10	7	<5	<16
CA-86-17-01	3/4	36.0	2500	27.0	350	190	<200	186	<11	<10	11	<5	<16
CA-86-17-02	3/4	31.0	2300	28.0	350	210	<200	203	<10	12	16	<5	<18
CA-86-18-01	3/4	46.0	870	18.0	160	130	<200	88	<10	<10	5	<5	<15
CA-86-19-01	3/4	41.0	1000	25.0	280	140	<200	131	<10	15	13	<5	<15
CA-86-19-02	3/4	39.0	870	25.0	400	170	<200	102	<10	17	11	<5	<17
CA-86-20-01	3/4	52.1	700	20.0	150	100	<200	63	<10	<10	<3	<5	<14
CA-86-20-02	3/4	49.0	810	22.0	200	110	<200	94	<10	10	5	<5	<14
CA-86-21-01	3/4	59.5	500	18.0	86	71	<200	16	<11	12	2	<5	<17
CA-86-21-02	3/4	53.1	510	19.0	250	80	<200	25	<11	20	6	<5	<17
CA-86-21-03	3/4	55.4	470	17.0	520	<50	<200	27	<17	<12	5	<5	<19
CA-86-21-04	3/4	61.4	520	18.0	120	50	<200	17	<10	<10	<2	<5	<16
CA-86-22-01	3/4	53.8	930	16.0	90	52	<200	13	<10	<10	3	<5	<15
CA-86-22-02	3/4	49.0	910	16.0	130	110	<200	46	<10	<10	6	<5	<18
CA-86-22-03	3/4	45.0	300	20.0	180	130	<200	68	<10	<12	9	<5	<21
CA-86-23-01	3/4	40.0	920	18.0	100	85	<200	29	<10	<16	9	<6	<29
CA-86-24-01	3/4	52.5	510	15.0	99	54	<200	22	<11	19	4	<5	<24
CA-86-24-02	3/4	45.0	1000	22.0	230	150	<200	99	<11	<13	10	<5	<22
CA-86-25-01	3/4	58.8	640	18.0	120	110	<200	50	<10	<10	<5	<5	<20
CA-86-25-02	3/4	39.0	970	25.0	290	160	<200	141	<10	<12	10	<5	<21

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Geochemical Lab Report

REPORT: 016-1404

PROJECT: NONE

SAMPLE NUMBER	ELEMENT UNITS	Sb PPM	Cs PPM	Ba PPM	La PPM	Eu PPM	Tb PPM	Yb PPM	Hf PPM	Ta PPM	W PPM	Ir PPB	Au PPB
CA-86-15-01	3/4	1.7	<1	<100	110	10	4	12	100	9	<21	<100	230
CA-86-16-01	3/4	1.8	<1	<100	120	8	3	13	100	7	100	<100	330
CA-86-17-01	3/4	2.2	1	<100	110	8	3	11	100	13	<25	<100	2150
CA-86-17-02	3/4	3.1	<1	<100	100	7	3	10	68	5	83	<100	330
CA-86-18-01	3/4	1.1	<1	<100	150	9	4	18	180	9	<24	<100	300
CA-86-19-01	3/4	1.5	<1	<100	130	7	3	16	190	11	<24	<100	410
CA-86-19-02	3/4	0.9	<1	<100	130	7	3	15	170	8	<28	<100	380
CA-86-20-01	3/4	1.1	<1	<100	150	11	4	16	180	9	<24	<100	470
CA-86-20-02	3/4	1.1	<1	<100	150	11	4	19	211	11	<23	<100	170
CA-86-21-01	3/4	<0.2	<1	<100	130	11	4	20	267	17	180	<100	340
CA-86-21-02	3/4	0.3	<1	<100	130	10	4	21	277	16	583	<100	140
CA-86-21-03	3/4	0.4	<1	<100	140	12	4	21	200	30	1920	<100	816
CA-86-21-04	3/4	<0.2	<1	<100	160	13	5	21	281	10	<28	<100	581
CA-86-22-01	3/4	0.3	<1	<100	150	13	5	19	208	10	52	<100	120
CA-86-22-02	3/4	0.4	<1	<100	140	12	4	17	210	9	<31	<100	200
CA-86-22-03	3/4	0.6	<1	<100	120	12	4	16	120	8	<36	<100	96
CA-86-23-01	3/4	1.0	<1	<120	94	9	2	10	83	4	77	<100	140
CA-86-24-01	3/4	0.6	<1	<100	170	11	5	19	336	12	43	<100	160
CA-86-24-02	3/4	1.5	<1	<100	140	10	4	16	130	9	44	<100	250
CA-86-25-01	3/4	0.8	<1	<100	180	13	5	18	259	12	<36	<100	230
CA-86-25-02	3/4	1.8	<1	<100	130	7	4	14	130	10	60	<100	300

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Geochemical Lab Report

REPORT: 016-1404

PROJECT: NONE

SAMPLE NUMBER	ELEMENT UNITS	Th PPM	U PPM	WT g
CA-86-15-01	3/4	18.0	5.9	20.46
CA-86-16-01	3/4	17.0	4.4	12.83
CA-86-17-01	3/4	17.0	4.4	13.24
CA-86-17-02	3/4	13.0	3.1	8.60
CA-86-18-01	3/4	24.0	7.6	11.18
CA-86-19-01	3/4	23.0	8.1	13.75
CA-86-19-02	3/4	23.0	10.0	8.87
CA-86-20-01	3/4	24.0	8.4	14.00
CA-86-20-02	3/4	27.0	10.0	17.10
CA-86-21-01	3/4	24.0	10.0	8.35
CA-86-21-02	3/4	28.0	10.0	9.13
CA-86-21-03	3/4	25.0	8.2	9.56
CA-86-21-04	3/4	31.0	14.0	11.08
CA-86-22-01	3/4	24.0	10.0	10.30
CA-86-22-02	3/4	25.0	11.0	12.95
CA-86-22-03	3/4	21.0	7.0	10.27
CA-86-23-01	3/4	15.0	4.5	3.60
CA-86-24-01	3/4	32.0	14.0	12.00
CA-86-24-02	3/4	23.0	7.9	16.63
CA-86-25-01	3/4	28.0	12.0	17.80
CA-86-25-02	3/4	23.0	5.9	16.57

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Geochemical Lab Report

REPORT: 016-1950

PROJECT: NONE

SAMPLE NUMBER	ELEMENT UNITS	Sc PPM	Cr PPM	Fe PCT	Cu PPM	Ni PPM	Zn PPM	As PPM	Se PPM	Rb PPM	Mo PPM	Ag PPM
CA-86-25-03-3/4		49.0	340	13.0	45	59	<200	<6	<13	<17	<5	<7
CA-86-26-01-3/4		49.0	790	25.0	340	180	<200	247	<15	<19	<7	<7
CA-86-26-02-3/4		64.9	380	21.0	91	72	<200	38	<19	<23	<8	<10
CA-86-27-01-3/4		66.0	690	20.0	100	59	<200	25	<16	<20	<7	<9
CA-86-28-01-3/4		55.9	340	14.0	79	60	<200	26	<10	<10	<4	<5
CA-86-28-02-3/4		57.0	480	18.0	120	<50	<200	47	<11	<12	<4	<5
CA-86-29-01-3/4		55.3	300	12.0	79	<50	<200	12	<13	<17	<5	<8
CA-86-29-02-3/4		55.8	390	16.0	100	51	<200	34	<11	<11	<4	<5
CA-86-29-03-3/4		51.1	560	20.0	180	110	<200	89	<14	<14	<5	<6
CA-86-30-01-3/4		55.9	310	12.0	24	<50	<200	<4	<10	<12	<4	<5
CA-86-30-02-3/4		57.4	360	13.0	20	<50	<200	<3	<10	<10	<4	<5
CA-86-30-03-3/4		62.6	370	14.0	19	<50	<200	<3	<10	11	<3	<5
CA-86-30-04-3/4		60.8	360	14.0	22	<50	<200	<3	<10	13	<3	<5
CA-86-30-05-3/4		61.0	390	14.0	20	<50	<200	<3	<10	<10	<3	<5
CA-86-30-06-3/4		59.4	440	16.0	89	<50	<200	26	<10	<10	<4	<5
CA-86-30-07-3/4		55.7	350	13.0	20	<50	<200	<3	<10	<10	<3	<5
CA-86-30-08-3/4		60.8	400	14.0	21	<50	<200	<3	<10	<10	<3	<5
CA-86-30-09-3/4		56.3	410	15.0	73	64	<200	25	<10	<10	<4	<5
CA-86-30-10-3/4		48.0	520	18.0	140	100	<200	45	<11	<12	<4	<5
CA-86-30-11-3/4		45.0	570	23.0	220	150	<200	127	<13	15	<6	<5
CA-86-30-12-3/4		49.0	500	22.0	180	120	<200	109	<11	20	<5	<5
CA-86-30-13-3/4		41.0	570	26.0	210	180	<200	169	<12	<12	<5	<5
CA-86-30-14-3/4		61.7	500	19.0	120	<50	<200	36	<13	<15	<5	<6
CA-86-31-01-3/4		64.5	520	17.0	34	<50	<200	17	<11	<11	<4	<5
CA-86-31-02-3/4		62.4	540	16.0	20	<50	<200	<4	<10	<10	<4	<5
CA-86-31-03-3/4		67.9	1200	23.0	30	<50	<200	63	<14	<15	<5	<6
CA-86-31-04-3/4		65.0	420	16.0	21	<50	<200	<4	<11	<11	<4	<5
CA-86-31-05-3/4		59.6	300	13.0	23	<50	<200	<3	<10	13	<3	<5
CA-86-31-06-3/4		57.0	460	16.0	22	<50	<200	4	<11	15	<4	<5
CA-86-31-07-3/4		59.7	450	14.0	20	<50	<200	<4	<11	10	<4	<5
CA-86-31-08-3/4		59.9	630	17.0	65	56	<200	20	<10	14	<4	<5
CA-86-31-09-3/4		61.0	410	16.0	86	<50	<200	24	<10	14	<4	<5
CA-86-31-10-3/4		48.0	560	21.0	170	59	<200	84	<14	<17	<8	<7
CA-86-32-01-3/4		59.6	380	13.0	26	<50	<200	<4	<10	16	<3	<5
CA-86-32-02-3/4		57.5	640	20.0	29	<50	<200	<6	<13	<16	<5	<7
CA-86-32-03-3/4		64.0	550	17.0	41	<50	<200	<5	<11	<11	<4	<5
CA-86-32-04-3/4		62.7	790	18.0	27	<50	<200	<5	<11	20	<4	<6
CA-86-32-05-3/4		61.0	350	15.0	20	<50	<200	<5	<10	<12	<4	<5
CA-86-32-06-3/4		54.6	370	14.0	23	<50	<200	<5	<10	<12	<4	<5
CA-86-32-07-3/4		59.5	480	15.0	31	55	<200	<5	<11	<13	<5	<6

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Geochemical Lab Report

REPORT: 016-1950

PROJECT: NONE

SAMPLE NUMBER	ELEMENT UNITS	Cd PPM	Sb PPM	Cs PPM	Ba PPM	La PPM	Eu PPM	Tb PPM	Yb PPM	Hf PPM	Ta PPM	W PPM
CA-86-25-03-3/4		<19	0.9	<1	<130	130	11	6	10	75	10	150
CA-86-26-01-3/4		<20	2.4	<1	<110	160	7	5	14	100	9	49
CA-86-26-02-3/4		<28	0.9	<2	<180	210	12	6	21	120	15	94
CA-86-27-01-3/4		<24	0.5	<1	<130	220	14	6	23	229	11	180
CA-86-28-01-3/4		<11	0.3	<1	<100	160	11	5	17	235	9	<9
CA-86-28-02-3/4		<14	0.5	<1	<100	180	10	5	23	303	11	19
CA-86-29-01-3/4		<20	0.5	1	<110	120	12	4	14	110	7	43
CA-86-29-02-3/4		<12	0.5	<1	<100	180	10	4	21	279	11	<11
CA-86-29-03-3/4		<16	0.9	<1	<100	160	10	5	20	249	11	<13
CA-86-30-01-3/4		<14	0.3	<1	<100	170	13	5	16	120	10	<13
CA-86-30-02-3/4		<11	0.3	<1	130	140	12	5	17	150	10	<10
CA-86-30-03-3/4		<11	0.3	<1	<100	150	10	5	17	200	10	<10
CA-86-30-04-3/4		<11	<0.2	<1	<100	140	9	4	17	247	10	<10
CA-86-30-05-3/4		<11	0.2	<1	<100	150	11	5	18	217	10	<9
CA-86-30-06-3/4		<11	0.4	<1	<100	170	13	5	18	200	11	<10
CA-86-30-07-3/4		<10	0.3	<1	<100	130	10	4	16	160	9	<9
CA-86-30-08-3/4		<11	<0.2	<1	100	150	11	5	19	222	10	<10
CA-86-30-09-3/4		<11	0.4	<1	130	170	11	5	19	249	11	<9
CA-86-30-10-3/4		<13	0.6	<1	<100	150	8	4	19	205	12	<12
CA-86-30-11-3/4		<16	1.4	<1	170	140	9	4	14	110	9	71
CA-86-30-12-3/4		<13	1.2	<1	<100	150	12	4	13	120	9	26
CA-86-30-13-3/4		<14	1.7	<1	<100	130	11	4	14	130	9	<12
CA-86-30-14-3/4		<17	0.5	<1	<100	200	17	6	20	130	11	34
CA-86-31-01-3/4		<14	0.6	<1	<100	150	9	5	24	274	11	<13
CA-86-31-02-3/4		<13	<0.2	<1	<100	160	12	6	19	180	12	21
CA-86-31-03-3/4		<30	0.6	<1	<100	200	14	6	29	313	16	34
CA-86-31-04-3/4		<13	<0.2	<1	<100	180	14	6	21	170	11	<13
CA-86-31-05-3/4		<10	0.3	<1	<100	170	13	5	15	110	9	<10
CA-86-31-06-3/4		<13	0.5	<1	<100	190	12	6	19	180	12	<13
CA-86-31-07-3/4		<16	0.3	<1	<100	170	13	6	19	204	12	<12
CA-86-31-08-3/4		<13	0.5	<1	<100	170	14	5	19	234	10	<12
CA-86-31-09-3/4		<13	0.5	<1	<100	180	14	5	16	180	10	21
CA-86-31-10-3/4		<21	1.2	<1	<110	160	8	4	14	130	9	30
CA-86-32-01-3/4		<12	0.4	<1	<100	140	10	4	15	73	8	<11
CA-86-32-02-3/4		<20	1.1	1	<120	160	9	5	18	110	11	23
CA-86-32-03-3/4		<14	0.3	<1	<100	180	11	5	21	130	13	<14
CA-86-32-04-3/4		<16	<0.2	1	<100	190	13	6	21	120	11	<19
CA-86-32-05-3/4		<15	0.4	<1	<100	200	14	7	19	67	10	<15
CA-86-32-06-3/4		<15	0.3	<1	<100	170	14	5	18	85	10	<16
CA-86-32-07-3/4		<17	0.2	<1	<100	180	17	6	15	77	9	<17

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Geochemical Lab Report

REPORT: 016-1950

PROJECT: NONE

SAMPLE NUMBER	ELEMENT UNITS	Ir PPB	Au PPB	Th PPM	U PPM	WT g
CA-86-25-03-3/4		<100	<13	21.0	5.6	6.70
CA-86-26-01-3/4		<100	360	29.0	7.8	10.40
CA-86-26-02-3/4		<100	410	45.0	9.1	4.19
CA-86-27-01-3/4		<100	390	41.0	13.0	5.64
CA-86-28-01-3/4		<100	97	28.0	13.0	27.74
CA-86-28-02-3/4		<100	140	35.0	14.0	15.52
CA-86-29-01-3/4		<100	26	23.0	7.4	4.62
CA-86-29-02-3/4		<100	120	38.0	13.0	20.79
CA-86-29-03-3/4		<100	6450	35.0	13.0	13.11
CA-86-30-01-3/4		<100	150	29.0	10.0	11.58
CA-86-30-02-3/4		<100	120	26.0	11.0	27.69
CA-86-30-03-3/4		<100	52	28.0	11.0	29.97
CA-86-30-04-3/4		<100	73	28.0	13.0	26.17
CA-86-30-05-3/4		<100	46	28.0	12.0	29.81
CA-86-30-06-3/4		<100	130	33.0	13.0	30.57
CA-86-30-07-3/4		<100	63	25.0	10.0	29.61
CA-86-30-08-3/4		<100	54	30.0	13.0	26.03
CA-86-30-09-3/4		<100	73	33.0	14.0	31.43
CA-86-30-10-3/4		<100	290	35.0	12.0	16.90
CA-86-30-11-3/4		<100	1640	27.0	7.6	19.65
CA-86-30-12-3/4		<100	686	26.0	8.9	27.11
CA-86-30-13-3/4		<100	658	26.0	8.3	22.92
CA-86-30-14-3/4		<100	380	36.0	11.0	11.12
CA-86-31-01-3/4		<100	220	30.0	13.0	16.79
CA-86-31-02-3/4		<100	210	32.0	12.0	22.27
CA-86-31-03-3/4		<100	57	51.5	18.0	11.44
CA-86-31-04-3/4		<100	742	34.0	12.0	18.20
CA-86-31-05-3/4		<100	21	31.0	11.0	28.34
CA-86-31-06-3/4		<100	84	40.0	13.0	20.25
CA-86-31-07-3/4		<100	68	33.0	14.0	25.44
CA-86-31-08-3/4		<100	390	32.0	14.0	25.05
CA-86-31-09-3/4		<100	160	32.0	12.0	23.04
CA-86-31-10-3/4		<100	200	27.0	7.8	6.75
CA-86-32-01-3/4		<100	32	20.0	6.7	19.86
CA-86-32-02-3/4		<100	687	31.0	10.0	6.59
CA-86-32-03-3/4		<100	190	34.0	11.0	15.58
CA-86-32-04-3/4		<100	140	34.0	11.0	12.21
CA-86-32-05-3/4		<100	66	32.0	8.9	12.54
CA-86-32-06-3/4		<100	120	33.0	8.8	13.66
CA-86-32-07-3/4		<100	31	32.0	8.6	10.46

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Geochemical Lab Report

REPORT: 016-1950 PROJECT: NONE PAGE 2A

SAMPLE NUMBER	ELEMENT UNITS	Sc PPM	Cr PPM	Fe PCT	Co PPM	Ni PPM	Zn PPM	As PPM	Se PPM	Rb PPM	Mo PPM	Ag PPM
CA-86-32-08-3/4		61.9	630	16.0	25	<50	<200	<5	<10	12	<4	<5
CA-86-32-09-3/4		62.7	650	17.0	35	<50	<200	<5	<10	<12	<4	<5
CA-86-32-10-3/4		58.0	560	18.0	60	<50	<200	19	<11	<13	<5	<5
CA-86-32-11-3/4		62.5	530	17.0	28	<50	<200	10	<10	<10	<4	<5
CA-86-33-01-3/4		56.7	450	16.0	79	62	<200	15	<12	<16	<5	<7
CA-86-33-02-3/4		57.4	500	17.0	65	<50	<200	<6	<13	<15	<5	<7
CA-86-33-03-3/4		57.4	380	15.0	43	<50	<200	11	<12	<14	<5	<6
CA-86-33-04-3/4		57.5	400	16.0	36	<50	<200	<6	<13	22	<5	<6
CA-86-33-05-3/4		52.0	370	15.0	87	<50	<200	8	<13	<17	<6	<7
CA-86-33-06-3/4		66.0	540	17.0	51	<50	<200	11	<11	22	<5	<6
CA-86-33-07-3/4		63.6	500	16.0	33	<50	<200	<5	<11	<12	<4	<5
CA-86-33-08-3/4		64.7	570	18.0	32	<50	<200	<6	<11	16	<5	<6
CA-86-33-09-3/4		60.9	510	16.0	37	<50	<200	6	<12	<14	<5	<6
CA-86-33-10-3/4		57.4	490	19.0	89	53	<200	<10	<20	<25	<9	<10
CA-86-33-11-3/4		61.2	520	18.0	120	<50	<200	<7	<14	<17	<6	<7
CA-86-34-01-3/4		61.0	550	18.0	27	52	<200	<4	<10	12	<4	<5
CA-86-34-02-3/4		69.6	480	18.0	24	71	<200	<5	<12	<12	<5	<5
CA-86-34-03-3/4		66.4	450	16.0	29	<50	<200	<8	<15	<18	<7	<8
CA-86-34-04-3/4		60.6	460	18.0	110	<50	<200	34	<13	<13	<5	<6
CA-86-34-05-3/4		56.7	530	20.0	160	99	<200	59	<12	<14	<5	<6

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Geochemical Lab Report

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SAMPLE NUMBER	ELEMENT UNITS	Cd PPM	Sb PPM	Cs PPM	Ba PPM	La PPM	Eu PPM	Tb PPM	Yb PPM	Hf PPM	Ta PPM	U PPM
CA-86-32-08-3/4		<18	0.4	<1	<100	200	13	6	18	100	11	<14
CA-86-32-09-3/4		<15	0.5	<1	<100	190	14	6	18	190	11	20
CA-86-32-10-3/4		<16	0.3	2	<100	180	12	5	18	225	11	76
CA-86-32-11-3/4		<14	0.4	<1	<100	190	10	6	24	260	12	<14
CA-86-33-01-3/4		<20	0.6	<1	<100	170	14	5	17	110	10	<20
CA-86-33-02-3/4		<19	<0.2	1	<100	230	16	7	20	89	12	39
CA-86-33-03-3/4		<18	0.4	<1	<100	220	18	6	18	79	11	<19
CA-86-33-04-3/4		<25	0.2	<1	<120	240	15	7	20	57	16	<19
CA-86-33-05-3/4		<21	0.6	<1	<110	220	14	6	19	79	11	<22
CA-86-33-06-3/4		<17	0.4	<1	<100	200	16	6	20	130	13	<22
CA-86-33-07-3/4		<15	<0.2	<1	<100	200	14	6	19	120	13	<15
CA-86-33-08-3/4		<17	0.3	<1	<100	210	15	7	20	120	12	<17
CA-86-33-09-3/4		<18	0.3	1	<100	190	14	5	19	120	11	25
CA-86-33-10-3/4		<42	0.6	<2	<150	310	21	10	25	140	15	94
CA-86-33-11-3/4		<22	0.5	<1	<110	220	13	6	22	244	13	41
CA-86-34-01-3/4		<13	<0.2	<1	<100	160	10	5	18	270	12	<13
CA-86-34-02-3/4		<16	0.3	<1	150	190	16	6	22	246	13	<17
CA-86-34-03-3/4		<24	<0.2	<1	<140	230	19	8	23	120	15	<26
CA-86-34-04-3/4		<17	0.7	<1	<110	200	11	6	22	246	13	<18
CA-86-34-05-3/4		<18	0.6	<1	<100	180	14	6	18	238	11	<26

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Geochemical Lab Report

REPORT: 016-1950

PROJECT: NONE

SAMPLE NUMBER	ELEMENT UNITS	Ir PPB	Au PPB	Th PPM	U PPM	WT g
CA-86-32-08-3/4		<100	410	32.0	10.0	18.07
CA-86-32-09-3/4		<100	<12	36.0	12.0	14.95
CA-86-32-10-3/4		<100	330	48.0	14.0	12.00
CA-86-32-11-3/4		<100	36	41.0	15.0	18.03
CA-86-33-01-3/4		<100	65	35.0	8.8	6.60
CA-86-33-02-3/4		<100	350	43.0	11.0	7.80
CA-86-33-03-3/4		<100	<14	39.0	8.9	8.27
CA-86-33-04-3/4		<100	110	49.0	11.0	9.00
CA-86-33-05-3/4		<100	36	43.0	9.3	8.14
CA-86-33-06-3/4		<100	140	39.0	13.0	15.67
CA-86-33-07-3/4		<100	<12	38.0	10.0	17.59
CA-86-33-08-3/4		<100	390	44.0	12.0	13.09
CA-86-33-09-3/4		<100	624	39.0	10.0	10.09
CA-86-33-10-3/4		<100	<20	68.9	17.0	3.71
CA-86-33-11-3/4		<100	150	46.0	13.0	7.24
CA-86-34-01-3/4		<100	280	35.0	16.0	23.25
CA-86-34-02-3/4		<100	87	41.0	16.0	16.08
CA-86-34-03-3/4		<100	<15	53.8	14.0	8.75
CA-86-34-04-3/4		<100	170	45.0	15.0	17.34
CA-86-34-05-3/4		<100	440	39.0	13.0	13.83

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Geochemical Lab Report

REPORT: 016-2193

PROJECT: SELBATE

SAMPLE NUMBER	ELEMENT UNITS	Sc PPM	Cr PPM	Fe PCT	Co PPM	Ni PPM	Zn PPM	As PPM	Se PPM	Rb PPM	Mo PPM	Ag PPM
CA-86-35-01-3/4		54.5	440	16.0	31	<50	<200	7	<11	13	5	<5
CA-86-35-02-3/4		58.5	370	14.0	35	<50	<200	6	<10	<10	<2	<5
CA-86-35-03-3/4		36.0	400	21.0	240	120	<200	118	<10	<10	8	<5
CA-86-35-04-3/4		20.0	140	30.0	260	130	<200	309	<10	14	10	<5
CA-86-36-01-3/4		56.0	410	17.0	100	59	<200	23	<11	20	<5	<6
CA-86-36-02-3/4		49.0	500	16.0	110	55	<200	31	<11	<14	<4	<6
CA-86-36-03-3/4		48.0	330	16.0	120	100	<200	42	<11	<14	9	<6
CA-86-36-04-3/4(A)		42.0	300	19.0	170	130	<200	102 (handwritten: 105)	<11	18	4	<6
CA-86-36-04-3/4(B)		40.0	310	20.0	190	120	<200	111	<10	<14	6	<6
CA-86-37-01-3/4		54.1	430	15.0	76	<50	<200	23	<11	<16	9	<6
CA-86-38-01-3/4		48.0	370	13.0	68	55	<200	17	<10	12	<2	<5
CA-86-38-02-R		51.3	430	18.0	220	110	<200	56	<12	<20	5	<7
CA-86-39-01-3/4		58.3	410	17.0	130	96	<200	36	<11	<15	5	<6
CA-86-39-02-3/4		55.6	450	17.0	130	76	<200	32	<11	<15	8	<6
CA-86-39-03-3/4		55.6	350	17.0	120	68	<200	26	<10	<14	<4	<6
CA-86-39-04-3/4		51.3	330	16.0	130	63	<200	29	<10	<13	7	<6
CA-86-39-05-3/4		55.4	410	16.0	120	<50	<200	18	<10	<13	5	<6
CA-86-39-06-3/4		54.5	350	15.0	76	<50	<200	17	<10	<12	3	<5
CA-86-39-07-3/4		54.5	380	16.0	99	67	<200	17	<10	<14	3	<6
CA-86-39-08-3/4		54.8	390	16.0	93	<50	<200	18	<11	<16	<4	<7
CA-86-39-09-3/4		57.0	410	17.0	92	52	<200	21	<11	<15	5	<7
CA-86-39-10-3/4		59.4	440	16.0	88	<50	<200	15	<10	20	9	<7
CA-86-39-11-3/4		54.0	410	17.0	130	59	<200	43	<11	21	5	<6
CA-86-39-12-3/4		54.2	380	17.0	130	51	<200	23	<12	<15	<4	<6
CA-86-39-13-3/4		53.3	370	18.0	160	71	<200	34	<11	<16	8	<6

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Geochemical Lab Report

REPORT: 016-2193

PROJECT: SELBAIE

SAMPLE NUMBER (ELEMENT / UNITS)	Cd PPM	Sb PPM	Cs PPM	Ba PPM	La PPM	Eu PPM	Tb PPM	Yb PPM	Hf PPM	Ta PPM	W PPM
CA-86-35-01-3/4	<10	0.4	<1	<100	210	12	6	27	356	16	17
CA-86-35-02-3/4	<10	0.3	<1	<100	210	14	5	18	97	12	9
CA-86-35-03-3/4	<10	2.7	<1	<100	110	7	3	11	66	6	62
CA-86-35-04-3/4	<12	6.7	<1	<100	49	5	1	6	28	3	55
CA-86-36-01-3/4	<14	0.3	<1	150	190	12	5	19	260	13	10
CA-86-36-02-3/4	<13	0.3	<1	<100	150	10	4	17	301	10	<9
CA-86-36-03-3/4	<13	0.4	<1	<100	170	12	4	19	258	10	16
CA-86-36-04-3/4(A)	<12	1.6	<1	<100	120	8	3	11	92	8	16
CA-86-36-04-3/4(B)	<13	1.9	<1	<100	120	11	3	10	84	6	15
CA-86-37-01-3/4	<13	<0.2	<1	<100	190	12	5	24	317	12	8
CA-86-38-01-3/4	<11	0.3	<1	<100	140	8	4	17	220	8	<7
CA-86-38-02-H	<17	0.7	1	<110	210	12	5	17	150	9	19
CA-86-39-01-3/4	<13	0.6	<1	<100	170	12	5	18	180	10	24
CA-86-39-02-3/4	<14	0.5	<1	<100	160	13	5	20	160	12	95
CA-86-39-03-3/4	<13	0.3	<1	<100	140	13	4	18	170	9	130
CA-86-39-04-3/4	<12	0.4	<1	120	130	8	4	15	150	8	30
CA-86-39-05-3/4	<12	<0.2	<1	<100	130	9	4	18	205	9	24
CA-86-39-06-3/4	<12	0.3	<1	<100	120	11	4	19	263	9	37
CA-86-39-07-3/4	<13	0.3	<1	180	130	11	4	20	241	10	<9
CA-86-39-08-3/4	<15	<0.2	<1	<100	120	7	4	19	245	9	17
CA-86-39-09-3/4	<15	0.3	<1	<100	130	11	4	20	258	9	15
CA-86-39-10-3/4	<14	0.3	<1	<100	130	8	4	19	260	10	14
CA-86-39-11-3/4	<14	0.6	<1	<100	130	9	4	19	231	9	27
CA-86-39-12-3/4	<14	0.2	<1	<100	160	10	5	22	302	10	30
CA-86-39-13-3/4	<15	0.4	<1	<100	170	11	5	18	227	11	94

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Geochemical Lab Report

REPORT: 016-2193

PROJECT: SELBAIE

SAMPLE NUMBER	ELEMENT UNITS	Ir PPB	Au PPB	Th PPM	U PPM	WT g
CA-86-35-01-3/4		<100	640	49.0	16.0	8.49
CA-86-35-02-3/4		<100	320	32.0	10.0	21.28
CA-86-35-03-3/4		<100	88	19.0	5.8	13.66
CA-86-35-04-3/4		<100	200	8.5	2.1	3.97
CA-86-36-01-3/4		<100	310	34.0	14.0	23.50
CA-86-36-02-3/4		<100	220	32.0	13.0	15.67
CA-86-36-03-3/4		<100	120	33.0	13.0	17.42
CA-86-36-04-3/4(A)		<100	210 } 236	17.0	5.8	25.78
CA-86-36-04-3/4(B)		<100	280	20.0	6.5	15.44
CA-86-37-01-3/4		<100	240	34.0	14.0	12.58
CA-86-38-01-3/4		<100	100	24.0	11.0	23.59
CA-86-38-02-H		<100	160	54.6	12.0	3.22
CA-86-39-01-3/4		<100	538	27.0	10.0	15.50
CA-86-39-02-3/4		<100	70	27.0	10.0	13.38
CA-86-39-03-3/4		<100	120	26.0	11.0	17.03
CA-86-39-04-3/4		<100	200	22.0	8.6	16.48
CA-86-39-05-3/4		<100	120	24.0	12.0	13.22
CA-86-39-06-3/4		<100	300	24.0	13.0	14.22
CA-86-39-07-3/4		<100	120	27.0	13.0	9.15
CA-86-39-08-3/4		<100	150	29.0	12.0	8.81
CA-86-39-09-3/4		<100	557	25.0	13.0	12.05
CA-86-39-10-3/4		<100	160	24.0	13.0	12.53
CA-86-39-11-3/4		<100	380	23.0	13.0	9.06
CA-86-39-12-3/4		<100	130	31.0	16.0	12.43
CA-86-39-13-3/4		<100	920	30.0	14.0	11.37

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Geochemical Lab Report

REPORT: 016-2445

PROJECT: SELBAIE PAGE 1A

SAMPLE NUMBER	ELEMENT UNITS	Sc PPM	Cr PPM	Fe PCT	Co PPM	Ni PPM	Zn PPM	As PPM	Se PPM	Rb PPM	Mo PPM	Ag PPM
CA-86-39-14-3/4		46.0	290	13.0	100	61	<200	24	<10	13	14	<5
CA-86-40-01-3/4		53.1	420	15.0	90	62	<200	28	<12	<10	9	<5
CA-86-40-02-3/4		50.0	340	14.0	87	<50	<200	26	<10	12	12	<5
CA-86-40-03-3/4		49.0	320	13.0	95	51	<200	19	<10	<10	11	<5
CA-86-40-04-3/4		39.0	220	14.0	69	62	<200	19	<10	<10	13	<5
CA-86-41-01-3/4		48.0	310	13.0	100	52	<200	24	<10	<10	9	<5
CA-86-41-02-3/4		44.0	330	13.0	110	61	<200	28	<10	<10	12	<5
CA-86-41-03-3/4		48.0	340	13.0	100	56	<200	26	<10	<10	14	<5
CA-86-42-01-3/4		16.0	130	26.0	90	87	<200	76	<10	11	22	<5
CA-86-43-01-3/4		46.0	350	12.0	49	<50	<200	17	<10	<10	12	<5
CA-86-43-02-3/4		46.0	370	14.0	90	63	<200	30	<10	<10	8	<5
CA-86-43-03-3/4		47.0	440	18.0	170	89	<200	45	<10	13	15	<5
CA-86-43-04-3/4		27.0	300	30.0	410	210	<200	212	18	14	25	<5
CA-86-43-05-3/4		43.0	390	17.0	180	100	<200	67	<10	<10	15	<5
CA-86-43-06-3/4		46.0	370	14.0	120	65	<200	41	<10	<10	14	<5
CA-86-43-07-3/4		48.0	380	16.0	140	84	<200	44	<10	12	17	<5
CA-86-43-08-3/4		50.7	340	14.0	120	78	<200	40	<10	<10	15	<5
CA-86-44-01-3/4		49.0	340	14.0	84	<50	<200	26	<10	10	13	<5
CA-86-44-02-3/4		54.1	370	14.0	76	57	<200	23	<10	<10	11	<5
CA-86-44-03-3/4		39.0	300	19.0	180	110	<200	30	<10	22	15	<5
CA-86-45-01-3/4		56.8	470	17.0	110	58	<200	35	<12	<14	19	<6
CA-86-45-02-3/4		55.2	350	14.0	85	<50	<200	24	<10	<10	12	<5
CA-86-45-03-3/4		51.6	360	13.0	80	54	<200	24	<10	<10	11	<5
CA-86-45-04-3/4		38.0	380	17.0	180	120	<200	104	<10	<10	19	<5
CA-86-46-01-3/4		52.9	400	15.0	110	60	<200	37	<10	<10	15	<5
CA-86-46-02-3/4		52.7	410	14.0	55	55	<200	16	<10	<10	10	<5
CA-86-46-03-3/4		50.8	350	14.0	84	56	<200	25	<10	<10	17	<5
CA-86-46-04-3/4		50.0	370	14.0	88	51	<200	51	<10	<10	10	<5
CA-86-46-05-3/4		48.0	350	11.0	23	<50	<200	4	<10	<10	11	<5

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Geochemical Lab Report

REPORT: 016-2445

PROJECT: SELBAIE PAGE 1B

SAMPLE NUMBER	ELEMENT UNITS	Cd PPM	Sb PPM	Cs PPM	Ba PPM	La PPM	Eu PPM	Tb PPM	Yb PPM	Hf PPM	Ta PPM	W PPM
CA-86-39-14-3/4		<10	0.4	<1	<100	110	8	4	13	160	8	8
CA-86-40-01-3/4		<10	0.4	<1	<100	130	9	4	17	210	16	10
CA-86-40-02-3/4		<10	0.3	<1	<100	120	9	4	15	160	9	27
CA-86-40-03-3/4		<10	0.3	<1	<100	120	10	4	15	170	9	120
CA-86-40-04-3/4		<11	0.6	<1	<100	110	8	3	10	91	5	56
CA-86-41-01-3/4		<10	0.4	<1	<100	100	9	4	14	150	7	41
CA-86-41-02-3/4		<10	0.3	<1	<100	95	7	3	14	150	7	12
CA-86-41-03-3/4		<11	0.3	<1	<100	110	9	4	14	120	7	<8
CA-86-42-01-3/4		<10	0.3	<1	<100	29	2	<1	<5	28	2	7
CA-86-43-01-3/4		<10	0.3	<1	110	130	7	4	15	292	10	8
CA-86-43-02-3/4		<11	0.3	<1	<100	150	9	4	19	340	10	15
CA-86-43-03-3/4		<11	0.5	<1	<100	140	11	5	17	200	9	62
CA-86-43-04-3/4		<14	2.2	<1	<100	70	4	2	9	51	4	351
CA-86-43-05-3/4		<10	0.7	<1	<100	100	8	4	12	130	7	48
CA-86-43-06-3/4		<10	0.4	<1	<100	110	9	4	15	160	8	19
CA-86-43-07-3/4		<10	0.4	<1	<100	120	9	4	16	170	8	29
CA-86-43-08-3/4		<10	0.4	<1	<100	130	10	4	16	200	9	20
CA-86-44-01-3/4		<10	0.4	<1	<100	150	7	4	19	277	10	12
CA-86-44-02-3/4		14	0.3	<1	<100	160	12	5	18	200	10	<6
CA-86-44-03-3/4		<13	0.4	<1	<100	97	7	4	12	90	7	<10
CA-86-45-01-3/4		<17	0.5	<1	<100	160	13	5	26	297	13	<13
CA-86-45-02-3/4		<10	0.3	<1	<100	160	14	5	17	140	10	<7
CA-86-45-03-3/4		<10	0.4	<1	<100	140	11	5	15	160	10	<7
CA-86-45-04-3/4		<10	0.8	<1	<100	100	9	4	14	110	7	8
CA-86-46-01-3/4		13	0.5	1	<100	150	11	5	17	180	10	<8
CA-86-46-02-3/4		<10	0.3	<1	<100	160	10	5	18	190	11	40
CA-86-46-03-3/4		<10	0.3	<1	<100	150	12	5	16	200	9	26
CA-86-46-04-3/4		<10	0.3	<1	<100	140	10	4	16	170	9	16
CA-86-46-05-3/4		<10	<0.2	<1	<100	120	9	5	14	140	9	<7

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Geochemical Lab Report

REPORT: 016-2445

PROJECT: SELBAIE PAGE 1C

SAMPLE NUMBER	ELEMENT UNITS	Ir PPB	Au PPB	Th PPM	U PPM	WT g
CA-86-39-14-3/4		<100	70	22.0	12.0	23.99
CA-86-40-01-3/4		<100	150	28.0	12.0	23.51
CA-86-40-02-3/4		<100	280	23.0	11.0	26.37
CA-86-40-03-3/4		<100	110	24.0	11.0	27.56
CA-86-40-04-3/4		<100	84	17.0	6.2	8.26
CA-86-41-01-3/4		<100	220	20.0	9.1	28.62
CA-86-41-02-3/4		<100	310	20.0	9.2	30.05
CA-86-41-03-3/4		<100	230	19.0	8.1	9.66
CA-86-42-01-3/4		<100	110	5.6	1.8	22.63
CA-86-43-01-3/4		<100	50	31.0	15.0	27.83
CA-86-43-02-3/4		<100	44	37.0	17.0	19.58
CA-86-43-03-3/4		<100	87	37.0	12.0	21.56
CA-86-43-04-3/4		<100	570	15.0	3.5	13.29
CA-86-43-05-3/4		<100	534	23.0	8.5	20.65
CA-86-43-06-3/4		<100	2280	22.0	10.0	28.98
CA-86-43-07-3/4		<100	190	24.0	10.0	28.18
CA-86-43-08-3/4		<100	220	28.0	11.0	20.12
CA-86-44-01-3/4		<100	440	34.0	14.0	30.70
CA-86-44-02-3/4		<100	20	30.0	14.0	36.41
CA-86-44-03-3/4		<100	180	18.0	6.4	11.14
CA-86-45-01-3/4		<100	240	37.0	15.0	7.73
CA-86-45-02-3/4		<100	240	32.0	11.0	23.56
CA-86-45-03-3/4		<100	68	30.0	12.0	29.55
CA-86-45-04-3/4		<100	420	20.0	8.0	23.30
CA-86-46-01-3/4		<100	140	29.0	11.0	18.84
CA-86-46-02-3/4		<100	210	32.0	12.0	26.80
CA-86-46-03-3/4		<100	150	31.0	13.0	25.92
CA-86-46-04-3/4		<100	100	29.0	11.0	23.76
CA-86-46-05-3/4		<100	34	27.0	10.0	21.19

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Geochemical Lab Report

REPORT: 016-2677

PROJECT: NONE PAGE 1A

SAMPLE NUMBER	ELEMENT UNITS	Sc PPM	Cr PPM	Fe PCT	Co PPM	Ni PPM	Zn PPM	As PPM	Se PPM	Rb PPM	Mo PPM	Ag PPM
CA-86-46-06-3/4		67.8	470	16.0	43	61	<200	31	<11	<12	2	<5
CA-86-46-07-3/4		66.2	380	16.0	50	56	<200	13	<12	21	4	<6
CA-86-46-08-3/4		66.8	360	14.0	29	<50	<200	3	<10	<11	<3	<5
CA-86-46-09-3/4		61.3	300	18.0	140	70	<200	45	<12	<13	11	<5
CA-86-46-10-3/4		49.0	310	25.0	260	120	<200	118	<11	<12	12	<5
CA-86-47-01-3/4		62.2	370	14.0	34	52	<200	8	<10	<10	3	<5
CA-86-47-02-3/4		70.9	430	16.0	40	<50	<200	11	<13	23	7	<7
CA-86-47-03-3/4		68.5	400	16.0	33	<50	<200	7	<10	15	8	<5
CA-86-47-04-3/4		59.3	520	18.0	140	<50	<200	28	<15	<20	12	<8
CA-86-48-01-3/4		64.3	460	17.0	120	60	<200	8	<11	<15	11	<6
CA-86-48-02-3/4		63.5	460	18.0	140	60	<200	10	<12	26	3	<7
CA-86-48-03-3/4		65.7	470	15.0	37	<50	<200	6	<10	<13	<3	<5
CA-86-48-04-3/4 A		63.0	620	15.0	34	<50	<200	5	<10	14	3	<5
CA-86-48-04-3/4 B		67.6	590	15.0	32	58	<200	6	<10	<11	6	<5
CA-86-48-05-3/4		55.6	350	15.0	130	67	<200	18	<21	<21	18	<8
CA-86-48-06-3/4		67.1	760	19.0	41	53	<200	5	<13	24	3	<7
CA-86-48-07-3/4		67.5	530	17.0	76	71	<200	17	<15	<14	5	<5
CA-86-49-01-3/4 A		65.9	350	13.0	19	<50	<200	<2	<10	<10	<2	<5
CA-86-49-01-3/4 B		66.4	330	13.0	18	<50	<200	<3	<10	<10	3	<5
CA-86-49-02-3/4 A		61.5	350	13.0	23	<50	<200	<3	<10	16	4	<5
CA-86-49-02-3/4 B		65.1	370	13.0	26	<50	<200	5	<10	15	<3	<5
CA-86-49-03-3/4		64.1	360	14.0	23	57	<200	4	<10	17	6	<5
CA-86-49-04-3/4		65.6	500	16.0	39	52	<200	5	<10	11	4	<5
CA-86-49-05-3/4		67.9	610	17.0	47	<50	<200	8	<14	<19	6	<8
CA-86-49-06-3/4		56.7	510	22.0	290	140	<200	82	<11	<13	8	<5

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Geochemical Lab Report

REPORT: 016-2677

PROJECT: NONE

SAMPLE NUMBER	ELEMENT UNITS	Cd PPM	Sb PPM	Cs PPM	Ba PPM	La PPM	Eu PPM	Tb PPM	Yb PPM	Hf PPM	Ta PPM	W PPM
CA-86-46-06-3/4		<13	0.5	<1	<100	230	15	8	21	110	13	16
CA-86-46-07-3/4		<16	0.4	<1	<120	230	18	7	21	120	11	26
CA-86-46-08-3/4		<12	0.3	<1	<100	210	16	6	21	130	12	15
CA-86-46-09-3/4		<15	0.5	<1	<100	200	14	5	21	110	12	19
CA-86-46-10-3/4		<13	3.0	<1	<100	150	11	4	16	86	9	18
CA-86-47-01-3/4		<11	0.3	1	<100	150	11	5	17	94	10	<9
CA-86-47-02-3/4		<17	0.3	<1	<120	220	16	6	22	83	12	22
CA-86-47-03-3/4		<14	0.5	<1	210	200	18	5	19	120	10	24
CA-86-47-04-3/4		<20	0.5	<1	250	250	23	8	26	81	13	64
CA-86-48-01-3/4		<15	0.6	<1	<110	190	19	7	19	73	10	170
CA-86-48-02-3/4		<17	0.3	<1	<120	200	15	7	21	41	11	120
CA-86-48-03-3/4		<14	0.3	<1	<100	200	16	6	20	54	9	<11
CA-86-48-04-3/4 A		<10	0.2	<1	<100	180	16	5	18	190	11	36
CA-86-48-04-3/4 B		<12	0.3	<1	<100	190	12	6	20	190	12	51
CA-86-48-05-3/4		<23	0.7	<1	<140	330	29	10	22	84	23	1210
CA-86-48-06-3/4		<18	<0.2	<1	<100	270	18	7	27	110	14	92
CA-86-48-07-3/4		<15	0.3	<1	<100	260	20	6	24	160	20	200
CA-86-49-01-3/4 A		<10	0.2	<1	<100	150	14	5	16	170	9	<8
CA-86-49-01-3/4 B		<10	0.2	<1	<100	150	13	5	18	170	10	<8
CA-86-49-02-3/4 A		<11	0.2	<1	<100	120	12	4	14	200	8	<9
CA-86-49-02-3/4 B		<10	0.2	<1	<100	120	12	4	18	180	8	<9
CA-86-49-03-3/4		<10	0.3	<1	<100	150	14	5	18	120	11	<8
CA-86-49-04-3/4		<11	0.4	3	<100	190	15	6	20	110	12	21
CA-86-49-05-3/4		<21	0.5	<1	<140	210	20	6	23	88	11	<18
CA-86-49-06-3/4		<14	1.7	<1	<100	160	11	5	17	160	10	<11

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Geochemical Lab Report

REPORT: 016-2677

PROJECT: NONE PAGE 1C

SAMPLE NUMBER	ELEMENT UNITS	Ir PPB	Au PPB		Th PPM	U PPM	WT g
CA-86-46-06-3/4		<100	<11		40.0	11.0	6.50
CA-86-46-07-3/4		<100	350		37.0	9.2	7.59
CA-86-46-08-3/4		<100	81		35.0	9.2	13.44
CA-86-46-09-3/4		<100	62		36.0	8.8	10.45
CA-86-46-10-3/4		<100	130		22.0	6.8	15.84
CA-86-47-01-3/4		<100	<9		24.0	6.6	11.85
CA-86-47-02-3/4		<100	<14		36.0	9.0	4.80
CA-86-47-03-3/4		<100	110		40.0	9.4	8.55
CA-86-47-04-3/4		<100	35		46.0	12.0	4.19
CA-86-48-01-3/4		<100	56		46.0	10.0	7.04
CA-86-48-02-3/4		<100	<14		33.0	6.5	5.49
CA-86-48-03-3/4		<100	<11		31.0	10.0	7.61
CA-86-48-04-3/4 A		<100	96	73	28.0	10.0	21.35
CA-86-48-04-3/4 B		<100	32		31.0	10.0	11.82
CA-86-48-05-3/4		<100	<19		77.8	14.0	3.79
CA-86-48-06-3/4		<100	<14		56.2	11.0	5.27
CA-86-48-07-3/4		<100	777		47.0	11.0	9.57
CA-86-49-01-3/4 A		<100	22	51	21.0	10.0	20.41
CA-86-49-01-3/4 B		<100	85		22.0	9.0	17.12
CA-86-49-02-3/4 A		<100	<9	39	20.0	9.3	19.45
CA-86-49-02-3/4 B		<100	69		18.0	8.9	19.27
CA-86-49-03-3/4		<100	77		26.0	8.4	24.86
CA-86-49-04-3/4		<100	110		33.0	8.9	15.09
CA-86-49-05-3/4		<100	1460		35.0	8.0	3.78
CA-86-49-06-3/4		<100	410		26.0	9.3	12.56

APPENDIX E

BONDAR-CLEGG BEDROCK INA ANALYSES

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Geochemical Lab Report

REPORT: 116-1251

PROJECT: NONE

SAMPLE NUMBER	ELEMENT UNITS	Sc PPM	Cr PPM	Fe PCT	Co PPM	Ni PPM	Zn PPM	As PPM	Se PPM	Rb PPM	Mo PPM	Ag PPM	Cd PPM
CA-86-01-06-B		20.0	1100	6.6	66	450	<200	<1	<10	<10	<2	<5	<10
CA-86-02-04-B		8.9	56	3.3	18	<50	<200	20	<10	50	<2	<5	<10
CA-86-03-05-B		1.7	<50	1.4	<10	<50	<200	<1	<10	57	<2	<5	<10
CA-86-04-04-B		2.0	<50	1.7	<10	<50	<200	<1	<10	22	<2	<5	<10
CA-86-05-05-B		1.5	<50	0.9	<10	<50	<200	<1	<10	23	<2	<5	<10
CA-86-06-06-B		9.1	<50	4.0	<10	<50	<200	2	<10	86	<2	<5	<10
CA-86-07-03-B		10.0	74	3.2	11	<50	<200	13	<10	37	<2	<5	<10
CA-86-08-02-B		6.1	57	3.3	13	<50	<200	7	<10	43	<2	<5	<10
CA-86-09-02-B		15.0	89	4.7	24	59	<200	25	<10	44	<2	<5	<10
CA-86-10-03-B		13.0	110	4.3	17	<50	<200	<1	<10	44	<2	<5	<10
CA-86-11-02-B		27.0	110	5.0	15	<50	<200	<1	<10	30	<2	<5	<10
CA-86-12-01-B		36.0	110	5.8	32	<50	<200	<1	<10	22	<2	<5	<10
CA-86-13-02-B		2.9	<50	37.0	90	200	370	258	<10	<10	13	<5	<10
CA-86-14-02-B		3.2	<50	1.9	<10	<50	<200	2	<10	44	<2	<5	<10
CA-86-15-02-B		9.2	91	4.0	39	68	<200	<1	<10	21	<2	<5	<10
CA-86-16-02-B		10.0	86	4.0	17	<50	<200	<1	<10	59	<2	<5	<10
CA-86-17-03-B		16.0	63	5.6	17	<50	<200	1	<10	33	<2	<5	<10
CA-86-18-02-B		10.0	<50	3.7	11	<50	<200	2	<10	44	<2	<5	<10
CA-86-19-03-B		8.1	<50	3.9	11	<50	<200	<1	<10	40	<2	<5	<10
CA-86-20-03-B		7.2	<50	<0.5	<10	<50	<200	<1	<10	53	<2	<5	<10
CA-86-21-05-B		8.6	<50	3.8	23	<50	<200	<1	<10	71	<2	<5	<10
CA-86-22-04-B		7.5	<50	3.5	13	<50	<200	3	<10	17	<2	<5	<10
CA-86-23-02-B		9.0	<50	4.3	14	<50	<200	2	<10	17	<2	<5	<10

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BONDAR-CLEGG

Geochemical Lab Report

REPORT: 116-1251

PROJECT: NONE

SAMPLE NUMBER	ELEMENT UNITS	Sb PPM	Cs PPM	Ba PPM	La PPM	Eu PPM	Tb PPM	Yb PPM	Hf PPM	Ta PPM	W PPM	Ir PPB	Au PPB
CA-86-01-06-B		<0.2	<1	<100	<5	<2	<1	<5	<2	<1	<2	<100	<5
CA-86-02-04-B		0.2	1	510	31	<2	<1	<5	4	<1	<2	<100	<5
CA-86-03-05-B		<0.2	<1	320	17	<2	<1	<5	4	<1	<2	<100	<5
CA-86-04-04-B		<0.2	<1	360	13	<2	<1	<5	3	<1	<2	<100	<5
CA-86-05-05-B		<0.2	2	260	15	<2	<1	<5	3	<1	<2	<100	<5
CA-86-06-06-B		<0.2	2	1300	30	<2	<1	<5	8	1	<2	<100	<5
CA-86-07-03-B		<0.2	1	480	29	3	<1	<5	4	<1	<2	<100	<5
CA-86-08-02-B		<0.2	1	310	31	<2	<1	<5	3	<1	<2	<100	<5
CA-86-09-02-B		0.3	<1	210	17	<2	<1	<5	4	<1	<2	<100	8
CA-86-10-03-B		<0.2	<1	340	23	<2	<1	<5	4	<1	<2	<100	<5
CA-86-11-02-B		<0.2	<1	<100	<5	<2	<1	<5	<2	<1	<2	<100	<5
CA-86-12-01-B		<0.2	<1	<100	<5	<2	<1	<5	<2	<1	<2	<100	<5
CA-86-13-02-B		3.5	<1	<100	5	<2	<1	<5	<2	<1	<4	<100	180
CA-86-14-02-B		<0.2	1	290	14	<2	<1	<5	3	<1	<2	<100	<5
CA-86-15-02-B		0.3	<1	440	52	3	<1	<5	6	2	110	<100	10
CA-86-16-02-B		<0.2	2	260	17	<2	<1	<5	3	<1	<2	<100	<5
CA-86-17-03-B		<0.2	1	290	41	<2	<1	<5	4	<1	<2	<100	<5
CA-86-18-02-B		<0.2	<1	210	19	<2	<1	<5	3	<1	<2	<100	39
CA-86-19-03-B		<0.2	2	180	20	<2	<1	<5	4	<1	<2	<100	<5
CA-86-20-03-B		<0.2	1	390	19	2	<1	<5	4	<1	3	<100	140
CA-86-21-05-B		0.4	<1	390	16	<2	<1	<5	4	<1	<2	<100	<5
CA-86-22-04-B		0.5	<1	140	17	<2	<1	<5	3	<1	<2	<100	<5
CA-86-23-02-B		0.9	<1	200	18	<2	<1	<5	4	<1	<2	<100	<5

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SAMPLE NUMBER	ELEMENT UNITS	Th PPM	U PPM	WT g
CA-86-01-06-B		<0.5	<0.5	11.57
CA-86-02-04-B		3.8	0.8	11.53
CA-86-03-05-B		3.5	0.9	11.62
CA-86-04-04-B		2.6	0.7	11.66
CA-86-05-05-B		2.6	0.6	10.70
CA-86-06-06-B		4.7	1.1	9.85
CA-86-07-03-B		3.8	1.0	11.29
CA-86-08-02-B		4.1	1.0	13.51
CA-86-09-02-B		1.7	<0.5	13.42
CA-86-10-03-B		1.6	<0.5	10.53
CA-86-11-02-B		<0.5	<0.5	11.77
CA-86-12-01-B		<0.5	<0.5	13.42
CA-86-13-02-B		<0.5	<0.5	18.32
CA-86-14-02-B		2.2	<0.5	12.24
CA-86-15-02-B		5.4	1.2	14.27
CA-86-16-02-B		2.9	0.6	12.13
CA-86-17-03-B		2.3	0.6	13.98
CA-86-18-02-B		2.8	0.6	12.19
CA-86-19-03-B		2.8	0.7	11.40
CA-86-20-03-B		3.5	0.6	14.34
CA-86-21-05-B		3.0	<0.5	11.87
CA-86-22-04-B		2.5	0.6	12.54
CA-86-23-02-B		2.7	0.8	13.39

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SAMPLE NUMBER	ELEMENT UNITS	Sc PPM	Cr PPM	Fe PCT	Co PPM	Ni PPM	Zn PPM	As PPM	Se PPM	Rb PPM	Mo PPM	Ag PPM	Cd PPM
CA-86-24-03		10.0	<50	4.4	18	<50	<200	<1	<10	55	<2	<5	<10
CA-86-25-04		7.0	<50	4.1	<10	<50	<200	<1	<10	41	<2	<5	<10
CA-86-26-03		10.0	<50	1.2	<10	<50	<200	1	<10	22	<2	<5	<10
CA-86-27-02		10.0	<50	4.4	15	<50	<200	2	<10	32	<2	<5	<10
CA-86-28-03		13.0	56	5.9	17	<50	<200	1	<10	32	<2	<5	<10
CA-86-29-04		11.0	<50	2.1	<10	<50	<200	<1	<10	94	<2	<5	<10
CA-86-30-15		4.4	<50	1.9	<10	<50	<200	<1	<10	48	<2	<5	<10
CA-86-31-11		2.2	<50	0.5	<10	<50	<200	<1	<10	32	<2	<5	<10
CA-86-32-12		2.5	<50	2.6	<10	<50	<200	<1	<10	43	<2	<5	<10
CA-86-33-12		18.0	120	5.4	24	<50	<200	<1	<10	100	<2	<5	<10
CA-86-34-~~05~~ 06		13.0	110	4.2	22	<50	<200	3	<10	27	<2	<5	<10
CA-86-35-05		13.0	53	4.2	14	<50	<200	<1	<10	32	<2	<5	<10
CA-86-36-05		10.0	53	4.3	11	<50	<200	<1	<10	32	<2	<5	<10
CA-86-37-02		6.2	<50	2.7	<10	<50	<200	<1	<10	50	<2	<5	<10
CA-86-38-03		11.0	<50	4.6	<10	<50	<200	<1	<10	37	<2	<5	<10
CA-86-39-15		8.5	<50	3.6	11	<50	<200	<1	<10	51	<2	<5	<10
CA-86-40-05		8.0	<50	3.4	<10	<50	<200	<1	<10	22	<2	<5	<10
CA-86-41-04		8.6	<50	3.2	<10	<50	<200	<1	<10	69	<2	<5	<10
CA-86-42-02		10.0	<50	28.0	16	<50	<200	12	<10	19	<2	<5	<10
CA-86-43-09		11.0	<50	2.4	<10	<50	<200	1	<10	62	<2	<5	<10
CA-86-44-04		42.0	110	10.0	47	55	<200	1	<10	10	<2	<5	<10
CA-86-45-05		7.3	<50	2.3	30	57	<200	32	<10	79	<2	<5	<10
CA-86-46-11		2.1	<50	3.0	<10	<50	<200	<1	<10	76	<2	<5	<10
CA-86-47-05		31.0	84	16.0	36	64	<200	<1	<10	17	8	<5	<10
CA-86-48-08		3.0	<50	1.8	<10	<50	<200	<1	<10	49	<2	<5	<10
CA-86-49-07		36.0	110	7.9	41	<50	<200	<1	<10	41	<2	<5	<10

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Geochemical Lab Report

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PROJECT: NONE

SAMPLE NUMBER	ELEMENT UNITS	Sb PPM	Cs PPM	Ba PPM	La PPM	Eu PPM	Tb PPM	Yb PPM	Hf PPM	Ta PPM	W PPM	Ir PPB	Au PPB
CA-86-24-03		0.6	<1	260	20	<2	<1	<5	4	<1	<2	<100	<5
CA-86-25-04		0.9	2	240	14	<2	<1	<5	3	<1	<2	<100	<5
CA-86-26-03		1.4	1	270	23	2	1	<5	5	<1	<2	<100	<5
CA-86-27-02		1.2	<1	200	18	<2	<1	<5	4	<1	<2	<100	<5
CA-86-28-03		0.3	1	160	20	<2	<1	<5	4	<1	<2	<100	<5
CA-86-29-04		<0.2	3	350	20	<2	<1	<5	5	<1	<2	<100	<5
CA-86-30-15		<0.2	1	350	23	<2	<1	<5	4	<1	<2	<100	<5
CA-86-31-11		<0.2	<1	170	30	<2	<1	<5	4	<1	<2	<100	<5
CA-86-32-12		<0.2	1	280	23	<2	<1	<5	3	<1	<2	<100	<5
CA-86-33-12		0.3	3	530	24	<2	<1	<5	3	<1	<2	<100	<5
CA-86-34-~~05~~ 06		<0.2	<1	250	20	<2	<1	<5	4	<1	<2	<100	<5
CA-86-35-05		<0.2	1	250	20	<2	<1	<5	4	<1	<2	<100	<5
CA-86-36-05		<0.2	<1	190	20	<2	<1	<5	4	<1	<2	<100	<5
CA-86-37-02		<0.2	1	480	17	<2	<1	<5	3	<1	<2	<100	5
CA-86-38-03		<0.2	2	340	20	<2	<1	<5	4	<1	<2	<100	12
CA-86-39-15		<0.2	2	310	20	<2	<1	<5	4	<1	<2	<100	<5
CA-86-40-05		0.3	<1	200	20	<2	<1	<5	4	<1	<2	<100	<5
CA-86-41-04		<0.2	<1	310	20	<2	<1	<5	5	<1	<2	<100	<5
CA-86-42-02		<0.2	<1	110	17	<2	<1	<5	<2	<1	<2	<100	<5
CA-86-43-09		<0.2	2	320	24	<2	<1	<5	6	<1	<2	<100	<5
CA-86-44-04		<0.2	<1	<100	<5	<2	<1	<5	<2	<1	<2	<100	10
CA-86-45-05		<0.2	1	1000	13	<2	<1	<5	3	<1	<2	<100	<5
CA-86-46-11		<0.2	2	370	16	<2	<1	<5	3	<1	<2	<100	<5
CA-86-47-05		<0.2	<1	<100	5	<2	<1	<5	<2	<1	<2	<100	18
CA-86-48-08		<0.2	1	440	17	<2	<1	<5	4	<1	<2	<100	<5
CA-86-49-07		<0.2	1	460	<5	<2	<1	<5	<2	<1	<2	<100	8

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SAMPLE NUMBER	ELEMENT UNITS	Th PPM	U PPM	WT g
CA-86-24-03		2.1	0.5	10.95
CA-86-25-04		3.1	<0.5	9.50
CA-86-26-03		2.9	0.9	9.52
CA-86-27-02		3.3	0.8	12.18
CA-86-28-03		1.7	0.7	10.06
CA-86-29-04		2.8	0.7	10.45
CA-86-30-15		4.1	1.2	13.32
CA-86-31-11		5.8	1.4	12.75
CA-86-32-12		4.9	1.2	11.17
CA-86-33-12		2.7	0.7	11.68
CA-86-34-05 06		1.8	<0.5	12.52
CA-86-35-05		2.0	<0.5	11.10
CA-86-36-05		1.4	0.6	9.91
CA-86-37-02		2.9	0.7	11.42
CA-86-38-03		2.1	<0.5	11.62
CA-86-39-15		2.6	0.6	13.65
CA-86-40-05		2.5	<0.5	10.98
CA-86-41-04		2.9	0.6	10.63
CA-86-42-02		1.4	1.0	16.15
CA-86-43-09		4.0	0.7	9.94
CA-86-44-04		<0.5	<0.5	10.54
CA-86-45-05		2.9	0.6	10.49
CA-86-46-11		2.4	0.6	11.45
CA-86-47-05		<0.5	<0.5	11.80
CA-86-48-08		2.7	0.6	9.95
CA-86-49-07		<0.5	<0.5	13.27

APPENDIX F

BONDAR-CLEGG DC PLASMA WHOLE ROCK ANALYSES

BEDROCK CHIP SAMPLES

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Geochemical Lab Report

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SAMPLE NUMBER	ELEMENT UNITS	SiO2 PCT	TiO2 PCT	Al2O3 PCT	Fe2O3* PCT	MnO PCT	MgO PCT	CaO PCT	Na2O PCT	K2O PCT	P2O5 PCT	LOI PCT	Total PCT
CA-86-01-06-B		38.60	0.32	11.10	9.06	0.16	15.40	8.09	0.10	0.05	0.17	16.95	100.00
DUPLICATE		38.00	0.31	10.50	9.00	0.15	15.50	7.83	0.04	0.05	0.11	16.65	98.14
CA-86-02-04-B		61.70	0.58	14.50	4.85	0.07	2.65	3.68	3.36	2.64	0.34	3.75	98.12
CA-86-03-05-B		68.90	0.17	15.10	2.08	0.03	0.54	2.14	3.64	2.86	0.01	2.75	98.22
CA-86-04-04-B		67.80	0.16	13.80	2.63	0.13	0.45	3.37	3.92	1.63	<0.01	3.40	97.29
CA-86-05-05-B		73.60	0.17	13.20	1.24	0.02	0.82	1.21	4.57	1.48	0.20	1.25	97.76
CA-86-06-06-B		65.80	0.48	11.50	5.08	0.06	3.14	2.36	0.12	3.32	0.09	5.05	97.00
CA-86-07-03-B		59.70	0.61	13.20	4.74	0.13	2.18	4.83	3.82	1.40	0.24	6.15	97.00
CA-86-08-02-B		61.00	0.35	14.50	4.72	0.08	2.18	4.58	4.61	1.33	0.12	4.20	97.67
CA-86-09-02-B		59.50	0.75	14.50	6.82	0.15	2.48	5.60	2.48	1.32	0.14	3.85	97.59
CA-86-10-03-B		60.30	0.74	13.90	6.20	0.09	3.15	5.40	3.85	1.19	0.30	3.05	98.17
DUPLICATE		60.00	0.70	13.70	6.35	0.09	3.07	5.43	3.78	1.15	0.38	3.15	97.80
CA-86-11-02-B		45.70	0.73	12.10	7.25	0.21	2.19	13.40	1.97	0.72	<0.01	13.00	97.27
CA-86-12-01-B		53.70	0.98	14.80	7.96	0.18	1.63	8.53	2.26	0.58	0.03	6.90	97.55
CA-86-13-02-B		13.80	<0.01	1.17	55.00	0.56	1.43	1.08	0.03	0.04	0.19	27.45	100.75
CA-86-14-02-B		71.50	0.30	13.30	2.95	0.13	0.46	1.61	4.25	1.91	0.17	2.00	98.58
CA-86-15-02-B		54.10	0.94	13.10	5.87	0.08	4.44	4.97	5.37	0.64	0.54	7.40	97.46
CA-86-16-02-B		56.70	0.48	12.80	5.76	0.07	2.31	6.31	2.40	1.77	0.13	8.85	97.58
CA-86-17-03-B		59.40	1.19	14.50	7.57	0.14	2.05	5.10	3.11	1.29	0.54	2.60	97.49
CA-86-18-02-B		59.50	0.48	12.20	5.25	0.11	1.09	6.26	2.28	1.35	0.19	8.55	97.26
DUPLICATE		60.00	0.50	12.20	5.33	0.12	1.15	6.31	2.24	1.32	0.10	8.60	97.87
CA-86-19-03-B		59.40	0.59	13.30	5.98	0.08	1.41	4.48	1.86	1.55	0.16	8.90	97.71
CA-86-20-03-B		68.50	0.51	14.60	0.77	<0.01	0.15	0.21	5.15	2.09	0.14	8.85	100.97
CA-86-21-05-B		64.60	0.63	13.70	4.72	0.10	1.02	3.30	0.80	2.80	0.20	5.50	97.37
CA-86-22-04-B		65.00	0.39	11.10	4.45	0.12	2.92	5.70	0.47	0.65	0.13	6.50	97.43
CA-86-23-02-B		62.80	0.58	13.40	6.26	0.12	3.06	3.59	0.86	0.50	0.20	6.90	98.27

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SAMPLE NUMBER	ELEMENT UNITS	SiO2 PCT	TiO2 PCT	Al2O3 PCT	Fe2O3* PCT	MnO PCT	MgO PCT	CaO PCT	Na2O PCT	K2O PCT	P2O5 PCT	LOI PCT	Total PCT
CA-86-24-03		57.90	0.72	12.30	7.04	0.11	2.68	5.81	1.24	2.00	0.33	9.35	99.48
DUPLICATE		58.60	0.73	12.10	7.01	0.09	2.63	5.48	1.05	1.92	0.41	9.10	99.12
CA-86-25-04		65.40	0.37	13.30	5.42	0.10	1.15	3.01	1.14	1.18	0.18	6.15	97.40
CA-86-26-03		76.50	0.66	13.00	1.68	0.03	0.24	0.73	0.67	0.74	0.49	2.88	97.62
CA-86-27-02		66.60	0.49	15.30	5.76	0.09	1.68	2.95	1.44	0.96	0.18	4.00	99.45
CA-86-28-03		58.50	1.00	14.40	8.41	0.18	1.61	5.35	3.69	0.74	0.39	5.70	99.97
CA-86-29-04		63.30	0.51	16.20	3.41	0.15	1.00	4.76	2.50	2.22	0.14	5.15	99.34
CA-86-30-15		73.60	0.22	13.40	2.60	0.04	0.67	1.62	3.74	1.22	0.14	2.70	99.95
CA-86-31-11		79.10	0.17	13.50	0.89	0.02	0.18	0.30	0.75	1.68	0.18	2.60	99.37
CA-86-32-12		73.30	0.11	11.40	3.38	0.05	0.35	1.14	2.21	1.59	0.20	3.70	97.43
CA-86-33-12		45.00	0.47	14.60	8.01	0.13	5.05	6.66	2.65	3.37	0.29	13.90	100.13
DUPLICATE		46.20	0.49	14.50	7.79	0.14	5.08	6.73	2.56	3.21	0.38	13.80	100.88
CA-86-34-05		61.90	0.56	13.90	5.80	0.09	1.96	5.83	2.36	1.13	0.29	3.60	97.42
CA-86-35-05		59.20	0.67	13.70	5.54	0.14	1.32	5.71	3.13	1.51	0.34	6.10	97.36
CA-86-36-05		62.20	0.93	13.20	5.99	0.16	1.02	5.01	2.22	1.33	0.40	6.50	98.96
CA-86-37-02		71.97	0.27	12.17	3.81	0.09	0.96	2.90	2.07	2.11	0.18	3.15	99.68
CA-86-38-03		64.60	0.49	12.80	6.69	0.16	1.17	3.34	1.24	1.65	0.26	5.75	98.15
CA-86-39-15		65.80	0.54	15.40	5.02	0.06	1.33	2.15	2.90	1.85	0.27	3.75	99.07
CA-86-40-05		71.80	0.46	15.00	5.06	0.03	1.33	1.41	2.18	0.78	0.24	2.30	100.59
CA-86-41-04		64.40	0.50	14.90	4.82	0.08	0.97	4.07	2.22	2.60	0.17	4.90	99.63
DUPLICATE		63.50	0.51	15.30	4.59	0.09	0.94	4.23	2.28	2.67	0.28	5.00	99.39
CA-86-42-02		33.80	0.16	6.86	37.70	1.50	2.64	2.64	0.75	0.22	0.14	13.75	100.16
CA-86-43-09		76.10	0.58	11.60	3.81	0.06	0.68	0.29	0.69	2.50	0.28	2.15	98.74
CA-86-44-04		43.70	0.90	10.30	13.10	0.30	4.11	12.10	1.17	0.21	0.22	14.80	100.91
CA-86-45-05		79.80	0.48	8.25	3.33	0.05	0.65	1.16	0.18	2.77	0.22	1.25	98.14
CA-86-46-11		62.60	0.19	11.30	4.20	0.35	0.87	5.96	1.21	3.50	0.24	7.50	97.92
CA-86-47-05		56.90	0.79	12.10	20.40	0.38	2.28	1.57	1.39	0.43	0.30	3.50	100.04
CA-86-48-08		69.90	0.24	12.80	2.36	0.05	0.95	2.16	4.48	2.08	0.27	3.15	98.44
CA-86-49-07		44.30	0.81	11.90	10.70	0.14	5.68	11.50	0.31	1.21	0.32	13.15	100.02

APPENDIX G

BINOCULAR LOGS - BEDROCK CHIP SAMPLES

SAMPLE NUMBER	COLOR	STRUCTURE	GRAIN SIZE(mm	TEXTURE	MINERALOGY				NAME
					Silicates	Carbonates	Sulphides	Other	
CA-86 01-06	buff to greenish-grey (minor oxidation)	foliated	0.4(+)	coarse, ashy with scattered lapilli-sized fragments to 3+ mm; most textures obscured by pervasive carbonitization	15% chlorite - pale to dark green	15-20% slowly reactive Fe and/or Mg carbonate (ankerite?) throughout sample; often with a brown, weathered appearance	—	<0.5% leucoxene	intermediate tuff
02-04	light to medium grey-green	foliated to schistose - local shear planes; local indistinct banding (variation in grain size/color) on the order of 0.5mm, or less; 2% quartz - carbonate veinlets paralleling foliation	<0.1 to 0.15	very fine grained; ashy; <1% quartz eyes to 0.2 mm	15-20% chlorite 3% sericite	3% calcite - with quartz in veinlets and interstitial	2% pyrite (± pyrrhotite ?) - disseminated & stringer-like concentrations along vein margins; rare bands of 50% pyrite to 0.5 mm in width		intermediate tuff
03-05	light green	foliated	aphanitic	sample has an interlocking texture, but some chips display elongate, varisized "clasts" of 0.2 to >5 mm in size in an aphanitic matrix - probably flow margin brecciation	quartzo-feldspathic <10% chlorite to 10% sericite along foliation planes	2-3% calcite - interstitial and fracture filling	faint trace (<0.1%) pyrite along fractures; very faint trace chalcopyrite		Felsic voltanic (rhyodacite)
04-04	light to medium greyish-green	schistose - minor movement along some foliation planes; 1-2% quartz (± carbonate) stringers	aphanitic	equigranular; interlocking; rare, tiny amygdules	quartzo-feldspathic sericite - 10-15% (defining foliation) chlorite - <10%	1-2% calcite - interstitial and fracture/foliation filling (veinlets)	<<0.1% pyrite - disseminated; faint trace chalcopyrite	0.5% tourmaline - local concentrations, possibly associated with vein material	Felsic volcanic (rhyodacite)
05-05	grey-white	poor foliation; random micro fractures; 1% or less quartz stringers - unoriented & infilling fractures	aphanitic	very hard; interlocking, equigranular texture	quartzo-feldspathic <10% sericite 1-2% chlorite	0.5% (or less) calcite - locally along fractures, foliation	<0.1% pyrite - disseminated		Felsic volcanic (rhyolite)

SAMPLE NUMBER	COLOR	STRUCTURE	GRAIN SIZE(mm	TEXTURE	MINERALOGY				NAME
					Silicates	Carbonates	Sulphides	Other	
06-06	medium grey-green	schistose (to sheared)	0.1-0.3	fine to coarse ash; soft-sericitic, chloritic	chlorite -10-15% sericite -25%	<1% calcite - interstitial & minor fracture, foliation filling	—		intermediate tuff
07-03	light grey	schistose; appears to be some silica rich zones (<5%) parallel to schistosity/bedding - veining or silicification?	0.2-0.4	coarse ash with rare, indistinct lapilli to 2.0 mm	20-30% sericite 5%, or less, chlorite	2-3% moderately to slowly reactive Fe and/or Mg carbonate - interstitial	1% pyrite - disseminated, but most as local x'talline concentrations, often associated with highly schistose, sericitic zones		intermediate tuff
08-02	dark grey	schistose; bedded	<0.1 to 2.0 mm (phenocrysts) - local, coarse (0.5mm) tuff beds	hard phase (80-90%) with ~10% sub to euhedral plagioclase phenocrysts in an indistinctly tuffaceous matrix with ~15% grey chlorite - crystal tuff; 10-20% very finely schistose, black, fine grained muddy /tuffaceous phase with upwards of 50% grey chlorite, and graphite	15% grey chlorite in tuff containing plagioclase pheno-crysts, and 50% or more grey chlorite in black, muddy phase	3-5% slowly reactive Fe and/or Mg carbonate - interstitial	3-4% pyrite - discontinuous stringers (beds?) along foliation, and local crystalline concentrations	minor graphite in dark muddy phase	intermediate tuff, with fine ashy/muddy phase
09-02	dark grey	schistose; bedded SIMILAR TO 08-02	to 0.2	ash tuff with rare plagioclase phenocrysts & lapilli sized fragments, and 20% black, aphanitic, graphitic mudstone or tuff with 8% pyrite as beds (1mm or less in thickness) and discontinuous, disseminated concentrations of pyrite paralleling foliation/bedding	15% grey chlorite in tuffaceous phase, and 50% grey chlorite in black, graphitic phase	3% carbonate - interstitial variety is moderately reactive (Fe &/or Mg rich); minor stringer calcite	3-5% pyrite - mostly as beds in black graphitic phase; 1% or less pyrite disseminated & local concentrations in coarser porphyritic phase	graphite in black mudstone/tuff	intermediate tuff, with fine ashy/muddy phase
10-03	light to medium green	poorly foliated	0.1-0.3	equigranular and interlocking texture; relatively coarse grain size & foliation imparts an almost tuffaceous appearance	15% light green chlorite (possibly minor actinolite as well?)	3-5% calcite - interstitial and as stringers sub-parallel to foliation	2% sulfides - 3:1 pyrite : pyrrhotite as stringers along fractures, local concentrations along foliation and disseminated		intermediate volcanic

SAMPLE NUMBER	COLOR	STRUCTURE	GRAIN SIZE(mm	TEXTURE	MINERALOGY				NAME
					Silicates	Carbonates	Sulphides	Other	
11-02	dark green	strongly foliated; 15-20% white calcite-quartz vein material	to 0.1	fine grained, poorly interlocking flow texture disrupted by strong foliation; yellowish (sericitic) alteration of host marginal to veinlets; veinlets appear to enclose minor chloritic rock chips; minor aphanitic flow or pillow selvage material	15% chlorite 10% sericite	5-7% calcite - interstitial; vein material is 2/3 calcite	<0.5 % pyrite - mostly disseminated in veins, but minor amounts in host; trace chalcopyrite in veins	0.5% magnetite - disseminated in vein material	intermediate volcanic
12-01	medium to dark green	strongly schistose to sheared; indistinct quartz-carbonate veinlets (2%) with magnetite/hematite (1%) of rock	to 0.2	schistosity, carbonate overprints textures; strongly deformed so rock appears fragmental but minor calcite + magnetite and/or quartz filled amygdules are present indicating a flow	25% grey to green chlorite ± 5% sericite	6-8% calcite - interstitial, along foliation, & with quartz in vein material	0.1% pyrite - disseminated in veinlets and host; trace (0.05%) chalcopyrite	1% magnetite ± hematite usually associated with veinlets or amygdules	intermediate volcanic
13-02	yellow, white	massive - fractured 2% clear quartz veinlets	—	60-70% massive to semi-massive, to crystalline pyrite and sugary, fine, beige carbonate - chert; massive pyrite often has coarsely crystalline marginal phase and is not bedded - replacement of original rock; protolith unknown		3-5% slowly reactive Fe and/or Mg carbonate in beige sugary material	~60% pyrite - 1-2% pyrrhotite trace amounts of sphalerite		sulfide - silica - carbonate altered volcanic(?)
14-02	grey-green to beige - local oxidation	foliated; 80% beige altered material and 20% grey-green, less altered material	aphanitic in beige material; ~0.1-0.2 in darker material - sugary	beige material is highly altered - silicified - very fine grained, and hard and lacks quartz eyes; darker material is faintly sugary; no evidence of tuffaceous texture, but locally appears interlocking (flow)	10-20% sericite in beige silicified material; 20% chlorite in grey-green chips	beige material - <1% slowly reactive Fe and/or Mg carbonate as fracture and foliation coating; grey-green material contains 2-3% slowly reactive interstitial & fracture carbonate	<0.5% pyrite - disseminated to local concentrations in beige rock; <0.1% disseminated cubes in grey green rock ; 2-4% oxidized, leached spots - carbonate?	grey green chips contain very fine silvery, specular hematite - % unknown as it occurs with chlorite & the 2 are difficult to separate	intermediate volcanic (silicified)
15-02	a) green b) pink white	very poor foliation;	a) 0.2-0.4 b) 0.5-4.0	a) highly altered - sugary to sub-sugary texture; fairly coarse due to effect of intrusion; altered with carbonate, chlorite and possibly 3-5% leucoxene; much of original texture is obscured but there appear to be ~10% quartz (and carbonate) filled amygdules to 3.0mm b) coarse, leucocratic with pinkish and greenish-white feldspar (sub-to anhedral) and anhedral quartz; very indistinct grain boundaries but there appear to be coarse phenocrysts (>1.5mm) in a finer (<1.0mm) matrix	a) 20% chlorite b) quartz — 35% feldspar / pink - 30% / white - 35%	a) 8% slowly reactive Fe and/or Mg rich carbonate - interstitial & along margins of "a" and "b" b) <1% moderately reactive interstitial carbonate	a) 0.1% pyrite - disseminated b) 1% pyrite - disseminated fine to coarse crystals		a) intermediate volcanic b) quartz - Feldspar porphyry

SAMPLE NUMBER	COLOR	STRUCTURE	GRAIN SIZE(mm	TEXTURE	MINERALOGY				NAME
					Silicates	Carbonates	Sulphides	Other	
16-02	grey-beige; local oxidation	foliated; minor shear planes; 2-4% indistinct quartz veinlets parallel to and cross-cutting foliation	<0.1 to aphanitic	relatively soft; highly altered & bleached, but no silica; leucocratic - no mafic minerals present; appears interlocking and equigranular with rare elongate quartz or quartz-carbonate infilled amygdules poorly outlined by hematite	15-20% sericite	10% moderately to slowly reactive Fe and/or Mg carbonate - pervasive	0.5% pyrite - disseminated	1-2% specular hematite as a fine dust throughout rock; rare trace tourmaline; very minor and localized fuchsite	intermediate volcanic
17-03	medium to dark green	strongly schistose to sheared; 5% quartz-carbonate veinlets	<0.1-0.2	strong schistosity obscures textures; appears interlocking with 1-2% chlorite and quartz or carbonate filled, stretched amygdules - most obvious in lighter colored, less schistose material; lighter color of some material due to carbonate alteration	30% chlorite	3% calcite in veinlets with quartz and 1% in host - mostly in lighter colored material	—		intermediate volcanic
18-02	beige to green	strongly schistose; 2% quartz-carbonate veinlets parallel to foliation	0.1 ??	highly altered and schistose obscuring textures; a number of elongate shard-like rock chips probably result from deformation and do not represent primary fragments; least altered, greenish material appears to have an interlocking flow texture but this is not certain	25% sericite 3-5% total chlorite (to 15% in the green chips that constitute 20% of the sample)	1-2% calcite in veinlets; <0.5% moderately reactive, interstitial Fe and/or Mg carbonate	0.5% pyrite - stringer-like disseminations along veinlet margins	2-3% coarse (to 500μ) magnetite - disseminated (resulting from destruction of chlorite in light colored chips?)	intermediate volcanic (?)
19-03	pinkish beige	strong schistosity	aphanitic	very fine grained; appears to have interlocking texture but schistosity, alteration/bleaching makes determination questionable; mafic minerals noticeably absent; pinkish color may be due to very fine hematite resulting from alteration of mafic minerals	20% sericite <0.5% chlorite	8% slowly reactive, interstitial Fe and/or Mg carbonate	<0.5% pyrite - associated with a minor number of quartz stringers	0.5% coarse (to 500μ) magnetite - disseminated (resulting from destruction of mafic minerals?) -hematite - % ?	intermediate volcanic (?)
20-03	beige - local oxidation	massive to poorly, locally foliated	to 0.1	no relict texture - completely silicified and hard; rare quartz eyes	silicified with 10%, or less, pyrophyllite	—	0.1% pyrite - disseminated		silicified volcanic

SAMPLE NUMBER	COLOR	STRUCTURE	GRAIN SIZE(mm	TEXTURE	MINERALOGY				NAME
					Silicates	Carbonates	Sulphides	Other	
21-05	beige-brown where oxidized to greyish where un-oxidized	strongly schistose and sheared	?	greasy-waxy look; spotted schist with ~10% medium green, tabular to prismatic chloritoid "porphyroblasts" to 0.4mm in a very fine silica-pyrophyllite matrix; original texture destroyed; chloritoid grows across foliation	chloritoid - 10% silica / pyrophyllite } 50:50(?)	3% poorly reactive Fe and/or Mg carbonate - predominantly in oxidized limonitic material	—	—	silica-pyrophyllite-chloritoid altered volcanic
22-04	grey; slight local oxidation	strongly schistose	?	similar to 21-05; 5-8% medium to dark green euhedral chloritoid "porphyroblasts" in a very fine silica (chert)-pyrophyllite matrix; original rock textures not apparent; chloritoid grows across foliation	chloritoid - 5-8% silica (chert) / pyrophyllite } 50:50(?)	3-5% poorly reactive Fe and/or Mg rich carbonate	3% pyrite - disseminated and local crystalline concentrations - associated with chloritoid(?)	—	silica-pyrophyllite-chloritoid altered volcanic
23-02	grey; local oxidation	strongly schistose	?	Similar to bedrock of Hobo21, 22; 20-25 greenish chloritoid "porphyroblasts" to 1.0 mm in a fine silica/chert matrix (+sericite?); original rock textures not apparent; chloritoid grows across foliation	chloritoid - 20-25% silica (chert) - 40%(?) pyrophyllite - 30%(?)	2-3% poorly reactive Fe and/or Mg rich carbonate	1%, or less, pyrite - disseminated cubes	—	silica-pyrophyllite-chloritoid altered volcanic
24-03	grey-white	strongly schistose; 10-15% quartz ± carbonate veinlets (or silica segregations)	?	Similar to bedrock of Hobo 21, 22, 23; 15% greenish, sub- to euhedral chloritoid "porphyroblasts" in a fine silica/chert-pyrophyllite matrix; original rock textures not apparent; chloritoid grows across foliation	chloritoid - 15% silica (chert) - 40%(?) pyrophyllite - 30%(?)	7-10% poorly reactive Fe and/or Mg rich carbonate	trace pyrite - disseminated	—	silica-pyrophyllite-chloritoid altered volcanic
25-04	grey-white	strongly schistose	?	Similar to bedrock of Hobo21 to 24; 20% chloritoid "porphyroblasts" to 0.8mm in a fine silica (chert)-pyrophyllite matrix; original rock textures not apparent; chloritoid grows across foliation	chloritoid - 20% silica (chert) - 35%(?) pyrophyllite - 40%(?)	4-5% poorly reactive Fe and/or Mg carbonate; interstitial	trace pyrite - disseminated	1% leucoxene	silica-pyrophyllite-chloritoid altered volcanic

SAMPLE NUMBER	COLOR	STRUCTURE	GRAIN SIZE(mm	TEXTURE	MINERALOGY				NAME
					Silicates	Carbonates	Sulphides	Other	
26-03	grey-white	strongly schistose; ~10% silicified/chert patches	?	Similar to bedrock of Holes 21-25; 10-15% indistinct chlorotoid "porphyroblasts" in a fine silica (chert)-pyrophyllite matrix; original rock textures not apparent	chlorotoid - 10-15% silica (chert) } 50:50(?) pyrophyllite }	—	1% pyrite - disseminated - predominantly in silicified/cherty patches	—	silica-pyrophyllite-chlorotoid altered volcanic
27-02	grey-white, to beige where oxidized	strongly schistose	?	Similar to bedrock of Holes 21-26; 15-20% subhedral chlorotoid "porphyroblasts" to 0.8 mm in a fine silica (chert) - pyrophyllite matrix; original rock textures not apparent	chlorotoid - 15-20% silica (chert) - 40%(?) pyrophyllite - 35%(?)	3-5% moderately reactive Fe and/or Mg carbonate - interstitial, mostly in oxidized rock chips	—	—	silica-pyrophyllite-chlorotoid altered volcanic
28-04	medium green	schistose - very regular foliation; minor movement along some foliation planes; 1-2% quartz-carbonate veinlets parallel to foliation	<0.1	strong schistosity obscures texture to some extent but 1-2% quartz-filled amygdules to 2.0 mm (stretched 2-3:1) are present and texture appears interlocking	chlorite - 25%	4-5% calcite - interstitial	—	—	intermediate volcanic
29-04	medium green	possesses a good fabric/foliation - but not strongly schistose	<0.1	equigranular and interlocking; a few quartz eyes are present	feldspathic to quartzo-feldspathic; 15-20% chlorite	3-5% calcite - interstitial and foliation plane coating (a few bleached, carbonate rich zones are present)	faint trace pyrite - disseminated	—	intermediate volcanic
30-15	medium green	moderately well foliated; 1-2% quartz-carbonate veinlets	aphanitic	quite hard; interlocking texture with 1% quartz eyes to 0.6 mm; slight color variations - banding(?)	quartzo-feldspathic 10% chlorite + sericite	3% calcite - interstitial and as stringers	trace pyrite - disseminated	0.1% leucoxene	felsic volcanic

SAMPLE NUMBER	COLOR	STRUCTURE	GRAIN SIZE(mm	TEXTURE	MINERALOGY				NAME
					Silicates	Carbonates	Sulphides	Other	
31-11	white	strongly schistose	aphanitic	light color, strong foliation obscures textures; appears to be indistinct quartz eyes to 2.0mm (percentage ?) in a fine, felsic matrix; also some silicified-cherty patches	sericite - 20-25% (includes minor pyrophyllite ??) chlorite - 1%	—	faint trace pyrite - disseminated cubes in silicified patches	—	felsic volcanic
32-12	grey - slight, local oxidation (range in color from white to greyish green)	strongly schistose - some shear planes; 2-4% quartz-carbonate veining	<0.1	strong schistosity obscures textures; interlocking texture with 3-10% quartz eyes to 3.0mm; also beige-brown altered "spots" - remnant Fe-carbonate; slight color variations due to chlorite-sericite variations	quartzo-feldspathic sericite - 15% chlorite - 5% pyrophyllite - 1%(?), along shear planes	3% poorly reactive Fe and/or Mg carbonate - interstitial	faint trace pyrite - disseminated	—	felsic volcanic
33-12	beige-white	massive - may possess a poor foliation	0.1-0.2(??)	completely bleached - altered; no distinct textures; assumed to be volcanic		10-12%, or greater, poorly reactive, interstitial, pervasive Fe and Mg carbonate	1% pyrite - disseminated cubes	3-5% Fuchsite - patchily distributed	intermediate volcanic(?) (bleached, carbonated)
34-05	medium green	well foliated	<0.1 to 0.3 (variable)	interlocking texture with indistinct plagioclase phenocrysts; minor leucocratic zones - flow top or pillow selvages (?)	chlorite - 15%	2-3% calcite - interstitial	—	—	intermediate volcanic
35-05	medium to dark green with local beige white bleached zones adjacent to calcite veinlets	schistose; 3% calcite veinlets	0.1	interlocking texture; minor calcite infilled amygdules to 1.0mm (stretched 2 or 3:1)	chlorite - 20-25%	5% calcite - interstitial 3% calcite veinlets	0.5% pyrite - disseminated and local concentrations		intermediate volcanic

SAMPLE NUMBER	COLOR	STRUCTURE	GRAIN SIZE(mm	TEXTURE	MINERALOGY				NAME
					Silicates	Carbonates	Sulphides	Other	
36-05	medium green	schistose - minor shearing; ~15% pinkish, bleached leucocratic zones	0.2-0.5	schistosity imparts rubbly, tuffaceous texture; minor quartz amygdules are present however; also magnetite metacrysts developed in chlorite poor patches (as in 16, 18, 19) and incipient recrystallization of plag. and quartz to coarser grains is seen	15% chlorite 10-15% sericite (or light grey chlorite ± sericite)	2-3% moderately reactive interstitial carbonate; 6% calcite - interstitial & veinlets	rare trace pyrite	2% magnetite - disseminated; - hematite in pinkish leucocratic zones ??	intermediate volcanic
37-07	light green	schistose	0.1-0.2	appears equigranular & interlocking but sample is highly silicified and bleached; most probable lithology is intermediate flow	silicified; 20-30% sericite + greenish to light grey chlorite and chlorite/sericite defining foliation	3% moderately to slowly reactive interstitial Fe and/or Mg carbonate	< 0.1% pyrite - disseminated	2-3% tourmaline - throughout rock but mostly as needles along foliation surfaces	silicified volcanic
38-03	dark green to pink-white	strongly schistose - sheared; 10-15% pink to white, leucocratic zones - destruction of chlorite	0.1-0.2	as in 36, deformation imparts tuffaceous appearing texture but magnetite (after chlorite) rimmed quartz amygdules are present and incipient recrystallization of quartz, plagioclase has occurred giving the appearance of a spotted schist or tuff	chlorite (greenish-grey) to sericite (light grey to greenish-white) - total of 25%	3-5% calcite - interstitial; mostly in bleached, leucocratic material	—	2-3% magnetite - rims on amygdules - trace tourmaline - uncertain % of hematite imparts pink color to leucocratic zones	intermediate volcanic
39-15	medium to dark green	schistose - possesses a very regular phyllitic foliation/banding 5% sugary, quartz-carbonate veinlets	<0.1-0.2 (variable)	fine grained; primary interlocking texture preserved despite obvious strong deformation; schistosity planes defined by chlorite and sericite, and spotted with chlorite metacrysts to 0.2 mm; bleached rock marginal to veins has 20% chlorite metacrysts throughout	chlorite (spots) - <10% chlorite (foliation plane coating) - 10-15% sericite (in bleached chips) - 5%	2-3% calcite - 70% in qz-carb. veinlets and 30% interstitial	—	—	intermediate volcanic
40-05	medium to dark green	strongly schistose - sheared; minor magnetite-chlorite stringers; 3-5% quartz + oxidized Fe-carbonate veining	0.1-0.3	Similar to 36 and 38 bedrock; magnetite rimmed quartz amygdules (% uncertain) and incipient recrystallization of other rock-forming minerals apparent with simultaneous development of pinkish hematite) mafic poor zones	chlorite - 15-20% sericite - 15% (?)	2-3% calcite - 70% in veinlets & 30% interstitial	—	1-2% magnetite - rimming amygdules & local development of "metacrysts" - minor leucocratic zones have pinkish color due to minor hematite	intermediate volcanic

SAMPLE NUMBER	COLOR	STRUCTURE	GRAIN SIZE(mm	TEXTURE	MINERALOGY				NAME
					Silicates	Carbonates	Sulphides	Other	
41-04	medium green to light greenish white (bleached)	poor foliation; 2-4% quartz carbonate veinlets; ~25% of sample is bleached - marginal to fractures & foliation planes	0.1	interlocking, equigranular texture; 1% clear to blue quartz eyes to 0.2 mm	15-20% chlorite	2% calcite - mostly in veinlets & minor amounts throughout sample	<0.1 pyrite - disseminated; may be a rare trace of chalcopyrite	1% tourmaline in bleached portions of sample	intermediate volcanic
42-02 A	a) dark green (20%) b) grey-beige with local oxidation (80%)	a) schistose b) massive 5% quartz-carbonate veinlets	a) to 0.1 b) 0.1 or less	a) highly altered chloritic volcanic with ~10% clear rounded quartz eyes; matrix appears sugary, recrystallized b) fairly soft, sugary matrix with disseminated to semi-massive sulfides and disseminated to local concentrations of magnetite	a) chlorite - 40% b) chlorite - 5% (fracture filling)	a) 0.5% calcite - interstitial b) 3-4% moderately reactive carbonate in stringers & veinlets; 5-7% poorly reactive interstitial & stringer Fe and/or Mg carb.	a) local trace of pyrite b) 15-20 sulfides - 60% pyrrhotite and 40% pyrite	a) — b) 5-8% magnetite - disseminated & stringer-like concentrations	a) intermediate volcanic b) sulfide-silica-carbonate altered volcanic
42-02 B	a) light to dark green (50%) b) grey-beige to brown (oxidized) (50%)	a) poorly foliated dark green chloritic rock similar to that in 42-02A plus lighter green, bleached "iron-deficient" equivalent b) massive; highly limonitized	a) to 0.1 b) 0.1 or less	a) light and dark phases the same but variably altered - 10-15% quartz eyes to 2.0 mm. in each b) similar to that in 42-02A but more highly limonitized	a) - 40% chlorite in 40% of the chips and 15% chlorite in 10% of the chips b) as with 42-02 A	as with 42-02A	a) as with 42-02A b) - 20-25% sulfides - may be slightly more pyrrhotite than in 42-02A	as with 42-02 A	a) intermediate volcanic b) sulfide-silica-carbonate altered volcanic
43-09	beige; local grey-green chips; local oxidation of Fe/Mg carbonate	finely foliated to schistose; fine, hard quartzose and soft sericitic bands (0.1 to <1mm in thickness) paralleling foliation; 5% limonitic alteration along fractures/foliation	<0.05 to 0.1 (?)	primary textures not apparent - deformation may have produced banding; sample is quite strongly silicified; protolith in doubt but probably intermediate volcanic	chlorite - <5% sericite - 25%	<0.5% poorly reactive Fe and/or Mg carbonate with limonitic material	—	—	silicified volcanic
44-04	medium to dark green - local oxidation	strongly schistose - sheared; 3 - 5% calcite + minor quartz stringers	0.3(?) - may be deceiving due to strong schistosity	primary texture over-printed by strong schistosity but rare quartz amygdules are present; sugary appearance due to introduced calcite	chlorite (grey to green) - 25-30% sericite (white to grey - may include some light colored chlorite) - 10-15%	3-4 calcite in stringers/veinlets; 8-10% calcite - interstitial	—	—	(intermediate) - mafic volcanic

SAMPLE NUMBER	COLOR	STRUCTURE	GRAIN SIZE(mm	TEXTURE	MINERALOGY				NAME
					Silicates	Carbonates	Sulphides	Other	
45-05	light grey to greenish	schistose	0.05 or less	rock is strongly silicified with 30-50% sugary, chert patches; remainder of rock is bleached & partially silicified so no distinct primary textures are apparent although the less "altered" chips appear interlocking & equigranular	silicified; chlorite - <5% sericite - 20-25%	1% calcite - with cherty patches	1% pyrite - disseminated, local concentrations & fracture fillings in cherty patches	—	silicified volcanic
46-11	light green	schistose; 5% white calcite + minor quartz veinlets	<0.1	interlocking and equigranular texture; slight color variations may indicate flow banding; 1-2% tiny calcite and quartz filled amygdules	to 15% light greenish-grey chlorite ± sericite	3% calcite in veinlets; 5% moderately reactive Fe/Mg carbonate along foliation & in amygdules	—	—	intermediate volcanic
47-05	dark green	schistose; 5% chert + carbonate + chlorite patches with associated 10% disseminated to massive concentrations of pyrite and pyrrhotite	0.1 or less	primary interlocking texture apparent but obscured by schistosity	chlorite - 30-40%	1% calcite veinlets; 1-2% calcite associated with cherty patches	overall 3% pyrrhotite and pyrite - equal proportions; most in cherty patches as disseminations and local concentrations to thin bands/ stringers	1% magnetite - associated with cherty patches	mafic volcanic
48-08	beige to beige -brown (minor oxidation)	poorly foliated to massive; fractured	aphanitic	hard; interlocking, equigranular ~~tex~~ texture; local, minor carbonate and quartz filled amygdules	quartzo-feldspathic <5% sericitic	2% calcite - interstitial & stringer	<0.1% pyrite - disseminated cubes		felsic volcanic
49-07	dark green; local oxidation	strongly schistose; 3-5% calcite + quartz veinlets	0.2??	strong schistosity and carbonate alteration obscures much of texture, but interlocking texture is still apparent	chlorite -35%	3-4% calcite in veinlets; 10% calcite - pervasive	0.1-0.5% pyrite - disseminated trace chalcopyrite	3-4% leucoxene - irregularly shaped "blebs" strung out parallel to foliation	mafic volcanic