

GM 44397

REPORT ON THE NEW CALUMET MINE GOLD PROPERTY

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REPORT ON THE

NEW CALUMET MINE GOLD PROPERTY

GRAND CALUMET TOWNSHIP, SOUTHWESTERN QUEBEC

LACANA MINING CORPORATION
FEBRUARY 8, 1987

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Ministère de l'Énergie et des Ressources
Service de la Géoinformation

Date: 28 AVR. 1987

No G.M.: 44397

(i)

Summary

- 1) The New Calumet Gold property is located on Grand Calumet Island, approximately 93 kilometers northwest of Ottawa, in Grand Calumet Township, Quebec.
- 2) Zinc, lead, silver, and gold mineralization was first discovered in 1893. Between 1942 and 1968, New Calumet Mines Ltd. mined 3.8 million tons of massive sulphide ore averaging 5.8% zinc, 1.6% lead, 2.16 ounces per ton silver, and 0.013 ounces per ton gold.
- 3) Preliminary evaluation by Lacana confirmed that, as at the Montauban deposit, the former New Calumet Ltd. base metal mine hosts economically significant gold mineralization. Thus the property was optioned by Lacana and surface exploration and diamond drilling programs were conducted.
- 4) The property area is underlain by Precambrian rocks of the Central Metasedimentary Belt within the Grenville structural province.
- 5) New Calumet Mine massive sulphide and gold mineralization is hosted by meta-sedimentary and probably meta-volcanic rocks. The main rock types are amphibolite, leucocratic biotite gneiss, and marble. The main geological units and the massive sulphide and gold mineralization were subjected to repeated periods of deformation during the Grenville Orogeny. The metamorphic grade is middle to upper amphibolite.
- 6) The previously mined massive sulphide deposit lies conformably

(ii)

along a thin, discontinuous marble horizon at the top of a siliceous biotite gneiss, and is overlain by a carbonated amphibolite. The massive sulphides lie, more or less, along one stratigraphic horizon which strikes northwest and dips 30 degrees to the northeast. Sulphides consist of massive pods and disseminations of sphalerite, pyrrhotite, and galena.

Alteration mineralogy includes calc-silicate rock and coarse biotite rich units. The present mineral assemblage and texture suggests a metasomatic event.

- 7) Structure is of prime importance in massive sulphide and gold ore localization. The favorable structural environment involves the noses of folds.
- 8) Mapping, trenching, and diamond drilling in 1986 focussed on the mine horizon. This includes, from north to south, the Ste. Anne zone, the Russel zone, the Macdonald zone, the Longstreet zone, the Bowie zone, and the South Extension zone.
- 9) Surface mapping and trenching confirmed the presence of anomalous and economic concentrations of gold throughout the mine horizon from the Ste. Anne to the Bowie zone, a strike length of 2,600 feet. The best surface values are from the Bowie zone with a 40 foot sample interval averaging 0.065 ounces gold per ton and 5.0 ounces silver per ton or a gold equivalent (Au:Ag, \$350.00:\$5.75 US) of 0.148 ounces per ton Au (equivalent).
- 10) Contrary to the information on N.C.M. maps the mine horizon was found to extend at least 1200 feet further to the south.

(iii)

Outcrops in the South Extension zone are rare, but several grab samples returned assays ranging from 0.05 to 0.141 ounces per ton gold.

- 11) A geochemical soil survey over the south Extension zone outlined the mine horizon. B-horizon sample media and gold, silver, and zinc indicator elements were the most useful.
- 12) Magnetic and VLF electromagnetic surveys have been completed over the mine grid. Anomalous responses were detected over known mineralization and other anomalies require further investigation.
- 13) Surface diamond drilling in 1986 totalled 10,818 feet in 22 holes in the Russel, Macdonald, Longstreet, Bowie, and South Extension zones. Half of the drill footage was drilled on the Longstreet zone where there is the highest concentration of New Calumet Mine Ltd. gold intersections. The deepest hole tested the mine horizon at 600 feet depth.
- 14) Four gold zones have been delineated. They are; (1) the Upper Gold zone, (2) the Main Gold zone, (3) the Migmatite Gold zone, and (4) Minor Gold zones. The Main Gold and Migmatite Gold zones are the most important.
- 15) The Upper Gold zone consists of spotty, high grade gold mineralization at the contact between siliceous biotite gneiss and carbonated amphibolite. Drill core assay values range up to 0.548 ounces gold per ton over a 5 foot width. There is no lateral continuity of these zones.

- 16) The Main Gold zone coincides with massive sulphide mineralization of the New Calumet Mine mine horizon. The massive sulphides are largely mined out, but gold and silver mineralization is associated with low grade zinc and lead mineralization adjacent to the massive sulphide ore. In one of these zones a 25 foot true width averaged 0.090 ounces per ton gold and 8.30 ounces per ton silver, or a gold equivalent (Au+Ag) of 0.228 ounces per ton Au(equivalent). Many of these zones remain untested. Systematic exploration of the Main Gold zones is hampered by a number of stopes, the presence of which also limits continuity and size of different Main Gold zones. The limits of known gold and silver mineralization has not been fully tested.
- 17) The Bowie and South Extension zones are part of the known Main Gold zone. One drill hole 250 feet south of previously accepted mineralization intersected the mine horizon at 250 feet depth. A five foot interval returned 0.151 ounces gold per ton and 0.20 ounces silver per ton. The southern extension of the mine horizon has potential because it is enriched in gold and is relatively unexplored.
- 18) The Migmatite Gold zone is in the footwall of the main massive sulphide horizon. The known Migmatite Gold zone is difficult to drill because it starts at 400 feet depth and stopes limit the access to the footwall. The best drill intersection returned assays averaging 0.169 ounces per ton gold over a true width of 55 feet, including a 23 foot section averaging 0.247 ounces per

ton gold. Silver values are generally less than 0.5 ounces per ton. Old records indicate similar gold bearing zones to at least a 1300 foot depth and many migmatite-like zones intersected by New Calumet Mine were not tested for gold. The extent of the known migmatite gold zone has yet to be delineated. The Migmatite Gold zone is of great interest because it is unmined, not extensively explored, and there are indications that it may extend along strike and down-dip.

- 19) Minor Gold zones include mine horizon offshoots and sulphide veins and stringers. Auriferous samples include surface grab samples assaying 0.150 ounces per ton gold and drill intersections assaying 0.104 ounces per ton gold over 5 feet. These zones are largely unexplored and have potential for small tonnages only.

Recommendations

From the information available in this report, it is obvious that the New Calumet Mine gold property warrants a second phase of diamond drilling and surface work.

Approximately 5 to 10 closely spaced diamond drill holes will be required to follow and delineate the size, extent, and grade of the Migmatite Gold zone. Drilling should be conducted in areas where stopes will not hamper the drilling, likely between line 1+00N and 5+00N. Some of the holes may exceed 1500'.

The Southern Extension of the mine horizon warrants investigation by five to seven holes along strike. The drill holes should be evenly distributed from lines 6+00S to 16+00S and would test the mine horizon between a depth of 200 to 500 feet. They should be deep enough to test for possible migmatite gold zones in the footwall.

Another three or four holes could be drilled in the Ste. Anne zone, north of line 20+00N, to test for auriferous horizons.

Phase II surface exploration should concentrate on horizons known to be auriferous and other favorable geological and geophysical anomalies.

The Ste. Anne zone should be mapped in detail and trenched north of the 1986 trenches. The Belgian zone also contains highly anomalous to economic concentrations of gold and it coincides with a weak magnetic anomaly similar to that over the south extension. It should be mapped in detail and trenched.

Several geological horizons and structures present on the mine grid have potential for gold and massive sulphide mineralization. These include the extension of the mine horizon north of the Ste. Anne zone, the kink in strata northeast of the Ste. Anne zone, the eastern contact between leucocratic biotite gneiss and hornblende gneiss, and a lense of leucocratic biotite gneiss which parallels 20+00E in the south half of the mine grid. Many of these zones have adjacent magnetite bearing horizons and /or associated geophysical anomalies. Detailed mapping and sampling coupled with geochemical soil surveys would be a cost effective way of testing for gold mineralization. Many of the favorable zones lie underneath agricultural fields. Soils in these areas could be sampled with a Wacker Auger Drill.

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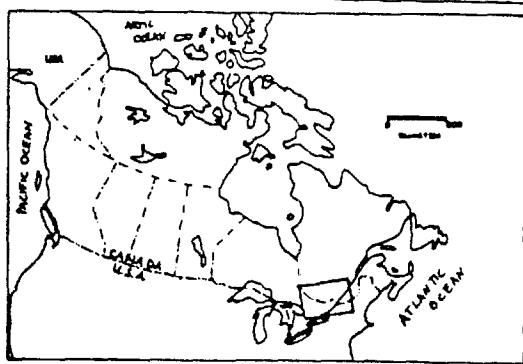
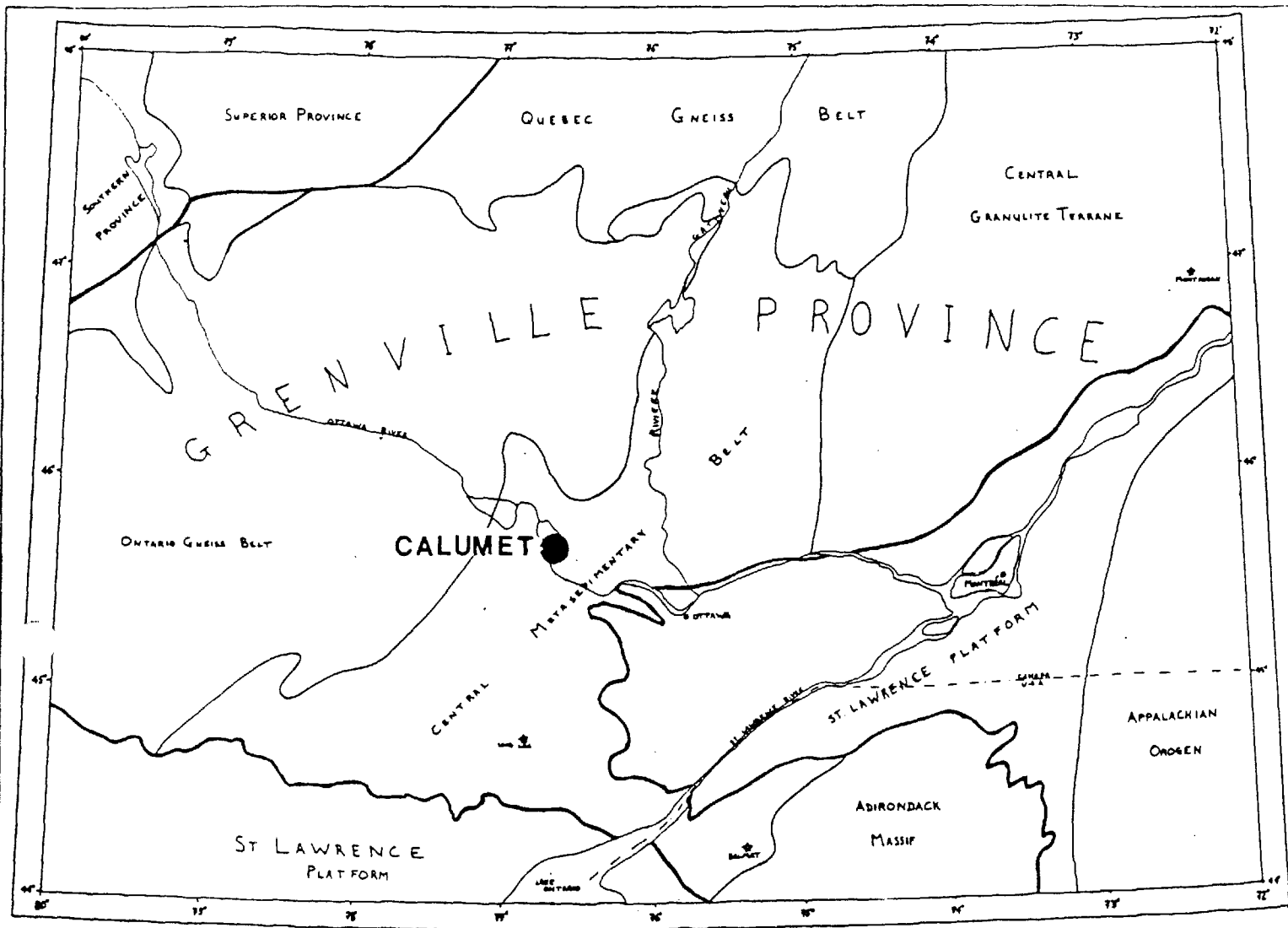
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INTRODUCTION

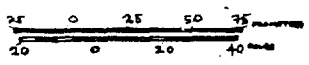
The New Calumet Mine (N.C.M.), a former base metal producer, is located on Grand Calumet Island in south-western Quebec, northwest of Ottawa. During it's 26 years of operation, N.C.M. mined and milled 3.8 million tons of ore from which 430,952,072 pounds of zinc, 120,880,257 pounds of lead, 10,004,320 ounces of silver, and 53,000 ounces of gold were produced. The N.C.M. deposit is very similar to the Montauban Zn-Pb-Ag-Au deposit currently being exploited for gold by Muscocho Mines.

A preliminary evaluation of New Calumet Mine records by Lacana Ex. (1981) personnel confirmed that, similarly to the Montauban deposit, the N.C.M. Zn-Pb-Ag deposit does host economically significant gold mineralization. Although gold zones of sufficient size could not be outlined, there were enough gold occurrences which were insufficiently explored to warrant further work. Lacana optioned the N.C.M. property and proceeded with a program of surface exploration and diamond drilling. The aim of Lacana's 1986 exploration program at New Calumet Mine was to test the continuity and distribution of known gold mineralization and to explore for new auriferous zones.

This report documents all work done on the property during the summer of 1986. It also serves as somewhat of a synthesis for the large volume of records and information from 1942 to 1968. Only N.C.M. records between surface and the 900-foot level have been well researched.



REFERENCE MAP SHEET #31
RIVIÈRE GATINEAU



GRAND CALUMET ISLAND - MAP SHEET 31 F/10

	LACANA EX (1981) INC
MINING CORPORATION	
NEW CALUMET MINES LTD. PROPERTY	
GRAND CALUMET ISLAND TWP., QUEBEC	
J. McLATCHY OPTION	
LOCATION MAP	
FIGURE 1	

LOCATION AND ACCESS

The claim group covers the south half of Grand Calumet Island in Grand Calumet township, Pontiac-Temiscamingue county, southwestern Quebec (Figure 1). The island is 93 kilometers northwest of Ottawa in the Ottawa River and is 40 kilometers southeast of Pembroke. It is accessible via Bryson, Quebec by either Ontario highway 17 or Quebec highway 148 from Ottawa.

Grand Calumet Island is 17 kilometers long and an average of six kilometers wide. It is served by a network of paved and good gravel roads with the minesite located on the lower western side along Chemin de la Mine. Hydro and telephone lines are present. The water for the Chenoux Hydro Facility, 10 kilometers downstream, is controlled by two dams situated at the north and south ends of the island. The nearest railway runs through a Consolidated Bathurst lumber mill 10 kilometers south, near Portage-du-Fort.

PHYSIOGRAPHY

Grand Calumet Island has a low topographic relief with gently rolling hills. The southern half of the island is commonly bordered by 100-300 foot cliffs while the northern half is a flat plateau less than 200 feet above the river. Deciduous forests are most common with coniferous forests concentrated in the wetter areas. Approximately 50% of the island is used for agricultural purposes.

The immediate mine area consists of lots 9, 10, 11, and 12 in Range IV. It rests on an upper plateau about 400 feet above the Ottawa River and consists of mine workings and new and mature

coniferous and deciduous forests. Although the minesite has been cleaned up and is well maintained, remnants of mine structures and artifacts, and three large tailings piles remain.

The settled and cultivated nature of Grand Calumet Island has advantages and disadvantages. On one hand there is a plentiful supply of labor, on the other one must obtain permission to work on privately owned land.

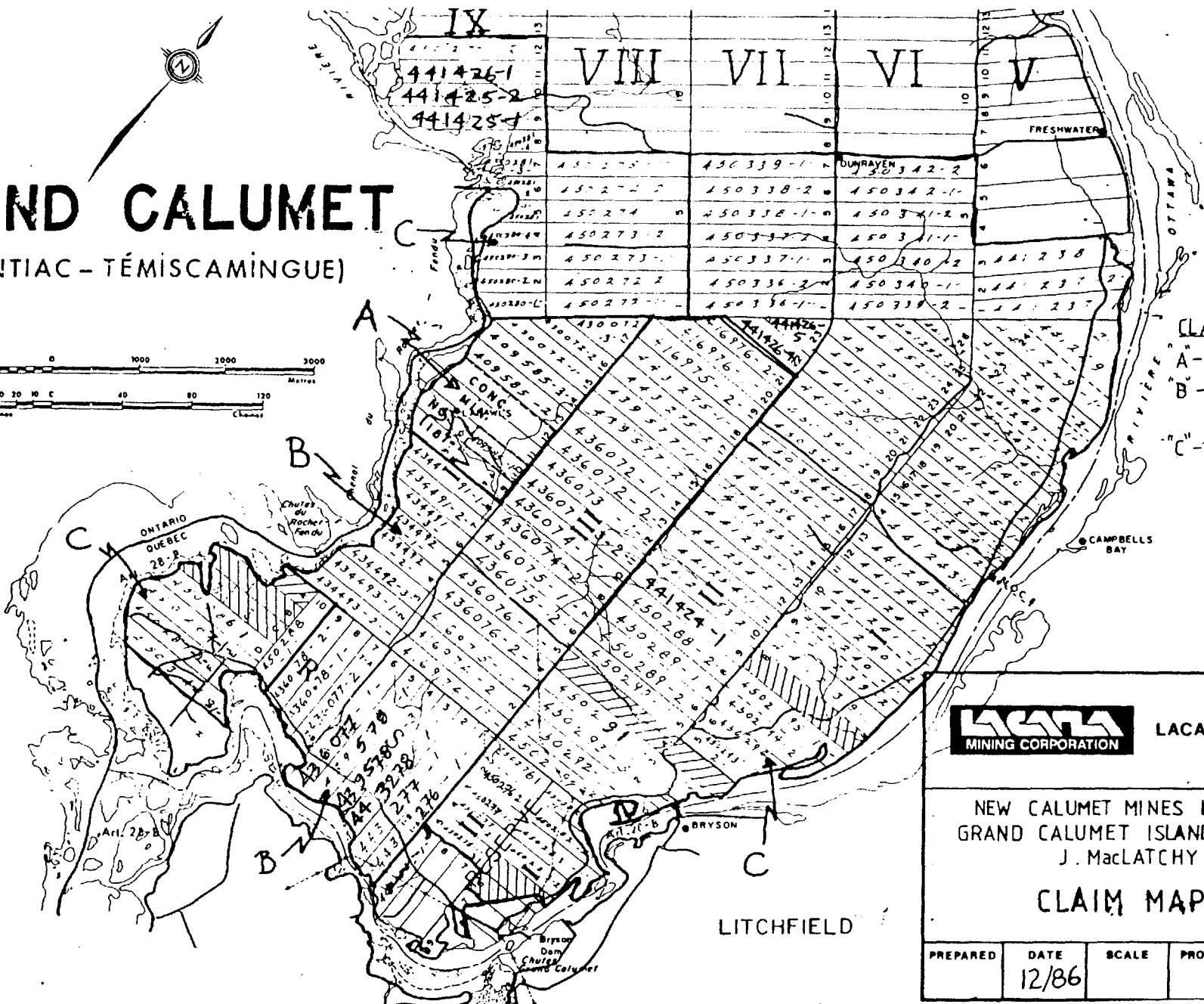
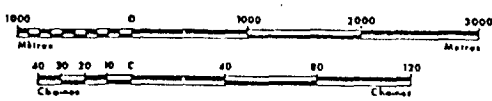
CLAIM STATUS

The Calumet Project is composed of 155 contiguous mining claims and one mining concession (Figure 2). The mining concession, with more than half the surface rights, and six adjacent mining claims belong to John MacLatchy (figure 2,A). John MacLatchy and Jens Hansen are joint owners of the 46 adjacent mining claims (figure 2, B). Lacana Ex (1981) Inc. has an option to earn an 80% interest in the MacLatchy and the MacLatchy-Hansen properties. In late June -early July, Lacana staked 103 mining claims surrounding the Calumet project property.

Total mineral rights encompass 5,600 hectares and 146 surface lots. Landowners deeds of ownership to 135 lots entitle them to a 5% net profit interest of any lead and zinc production. Ownership, claim number, date staked, and corresponding range and lot number are tabulated in Tables I, II, and III.

GRAND CALUMET

(PONTIAC - TÉMISCAMINGUE)



LITCHI

CLAIM OWNERSHIP
 A - 100% MacLATCHY
 B - 50% MacLATCHY
 50% HANSEN
 C - 100% LACANA

		LACANA EX (1981) INC.		
NEW CALUMET MINES LTD. PROPERTY GRAND CALUMET ISLAND TWP., QUEBEC J. MacLATCHY OPTION				
CLAIM MAP				
PREPARED	DATE	SCALE	PROJECT	MAP SHEET
	12/86			
				FIGURE
				2

LITCHFIELD

TABLE I

The "MacLatchy Property; "A" of Figure 2"

Grand Calumet Township Property
Pontiac-Temisamingue County, Quebec

SURFACE DESCRIPTION		MINING TITLE DESCRIPTION		DATE STAKED
RANGE	LOT	LICENSE	CLAIM	
IV	10	409585	1	JUNE 6, 1983
IV	13	409585	2	JULY, 1983
IV	14	409585	3	JULY, 1983
IV	15	430072	1	JUNE, 1984
IV	16	430072	2	JUNE, 1984
IV	17	430072	3	JUNE, 1984

(renewal filed for 1986)

Mining Concession Number 187: includes all Lot 9, west half of Lot 10, all Lots 11 and 12 of Range IV (Renewal Due January 15, 1987).

TABLE II

MacLatchy and Hansen Joint Property

Grand Calumet Township Property
Pontiac-Temiscamingue County, Quebec

Claims owned jointly as to 50% each by
John E. MacLatchy and Jens E. Hansen

SURFACE DESCRIPTION		MINING TITLE DESCRIPTION		DATE STAKED
RANGE	LOT	LICENSE	CLAIM	
IV	6	434491	3	JULY 15, 1985
IV	5	434492	1	
IV	4	434492	2	
IV	3	434492	3	
IV	2	434493	1	JULY 16, 1985
IV	1	434493	2	
III	21	416976	2	MAY 18, 1986
III	20	416976	1	
III	19	416975	2	
III	18	443275	1	APRIL, 1986
III	17	443275	2	
III	16	439577	1	JANUARY 31, 1986
III	15	439577	2	
III	14	436072	1	NOVEMBER 17, 1985
III	13	436072	2	
III	12	436073	1	
III	11	436073	2	
III	10	436074	1	
III	8	436074	2	
III	7	436075	1	
III	6	436075	2	
III	5	436076	1	
III	4	436076	2	

TABLE II-continued

SURFACE DESCRIPTION		MINING TITLE DESCRIPTION		DATE STAKED	
RANGE	LOT	LICENSE	CLAIM		
III	3	416975	1	MAY 16,1986	
III	2	416974	2		
III	1	416974	1		
SOUTH	9	436078	2	NOVEMBER 18,1985	
SOUTH	8	436078	1		
SOUTH	7	436077	2		
SOUTH	6	436077	1		
SOUTH	5	439578	1	JANUARY 31,1986	
SOUTH	4	439578	3	MARCH 21,1986	
SOUTH	3	443278	1		
SOUTH	2	443277	1		
SOUTH	1	443276	1		
IV	8	434491	1	JULY 15,1985	
IV	7	434491	2		
III	W1500'	7	436075	1	NOV 17,1985
III	W1500'	8	436074	2	
III	W1500'	10	436074	1	
III	W1500'	11	436073	2	
III	W1500'	12	436073	1	
III	W1500'	13	436072	2	
III	W1500'	14	436072	1	
III	W1500'	15	439577	2	JAN 3,1986
III	W1500'	16	439577	1	

TABLE III

Claims Owned by Lacana
Grand Calumet Township Property
Pontiac-Temiscamingue County, Quebec

SURFACE DESCRIPTION		MINING TITLE DESCRIPTION		DATE STAKED
RANGE	LOT	LICENSE	CLAIM	
SOUTH	D	450286	1	JUNE, 1986
	E	450287	1	
	F	450287	2	
	G	450344	1	
	10	450288	1	
RESERVE I	1	450282	1	JUNE, 1986
	2	450282	2	
	3	450283	1	
	4	450283	2	
RESERVE II	1	450276	1	JUNE, 1986
	2	450276	2	
	3	450277	1	
	4	450277	2	
	5	450278	1	
RANGE I	5	450293	2	JUNE, 1986
	6	450294	1	
	7-NORTH 1/2	450295	1	
	7-SOUTH 1/2	450294	2	
	8-NORTH 1/2	441239	1	
	9-NORTH 1/2	441240	1	
	9-SOUTH 1/2	441239	2	
	10-NORTH 1/2	441241	1	
	10-SOUTH 1/2	441240	2	
	11	441241	2	
	12	441242	1	
	13	441242	2	
	14	441243	1	
	15	441243	2	
	16	441244	1	

TABLE III-continued

SURFACE DESCRIPTION		MINING TITLE DESCRIPTION		DATE STAKED		
RANGE	LOT	LICENSE	CLAIM			
RANGE I	17	441244	2	JUNE, 1986		
	18	441245	1			
	19	441245	2			
	20	441246	1			
	21	441246	2			
	22-NORTH	1/2	441247		2	
	22-SOUTH	1/2	441247		1	
	23-NORTH	1/2	441248		2	
	23-SOUTH	1/2	441248		1	
	24-NORTH	1/2	441249		2	
	24-SOUTH	1/2	441249		1	
	II	A	450292		1	JUNE, 1986
		1	450292		1	
2		450293	3			
3		450291	1			
5		450290	1			
6		450289	2			
7		450289	1			
8		450288	2			
9		441424	1			
10		441253	2			
11		441254	1			
12		441254	2			
13		441255	1			
14		441255	2			
15		441256	1			
16		441256	2			
17		450344	2			
18		450345	1			
19		450345	2			
20		450250	1			
21		450250	2			
22		450251	1			
23		450251	2			
24		450252	1			
25		450252	2			
26		450253	1			

TABLE III-continued

SURFACE DESCRIPTION		MINING TITLE DESCRIPTION		DATE STAKED	
RANGE	LOT	LICENSE	CLAIM		
IV	1	441237	1	JUNE, 1986	
	2	441237	2		
	3	441238	1		
VI	1	450339	2	JUNE, 1986	
	2	450340	1		
	3	450340	2		
	4	450341	1		
	5	450341	2		
	6	450342	1		
	7	450342	2		
VII	1	450336	1	JUNE, 1986	
	2	450336	2		
	3	450337	1		
	4	450337	2		
	5	450338	1		
	6	450338	2		
	7	450339	1		
VIII	1	450272	1	JUNE, 1986	
	2	450272	2		
	3	450273	1		
	4	450273	2		
	5	450274	1		
	6	450274	2		
	7	250275	1		
IX	1	450280	1	JUNE, 1986	
	2	450280	2		
	3	450280	3		
	4	450280	4		
	5	450281	1		
	6	450281	2		
	8	450281	4		
	9	441425	1		OCT 23, 1986
	10	441425	2		OCT 23, 1986
	11	441426	1		OCT 23, 1986
	12	450275	2		JUNE, 1986
	7	450281	3		JUNE, 1986

HISTORY AND DEVELOPMENT

The best summary of the history of New Calumet Mines is from assessment reports by James, Buffam, and Cooper (1964), and Martin (1968).

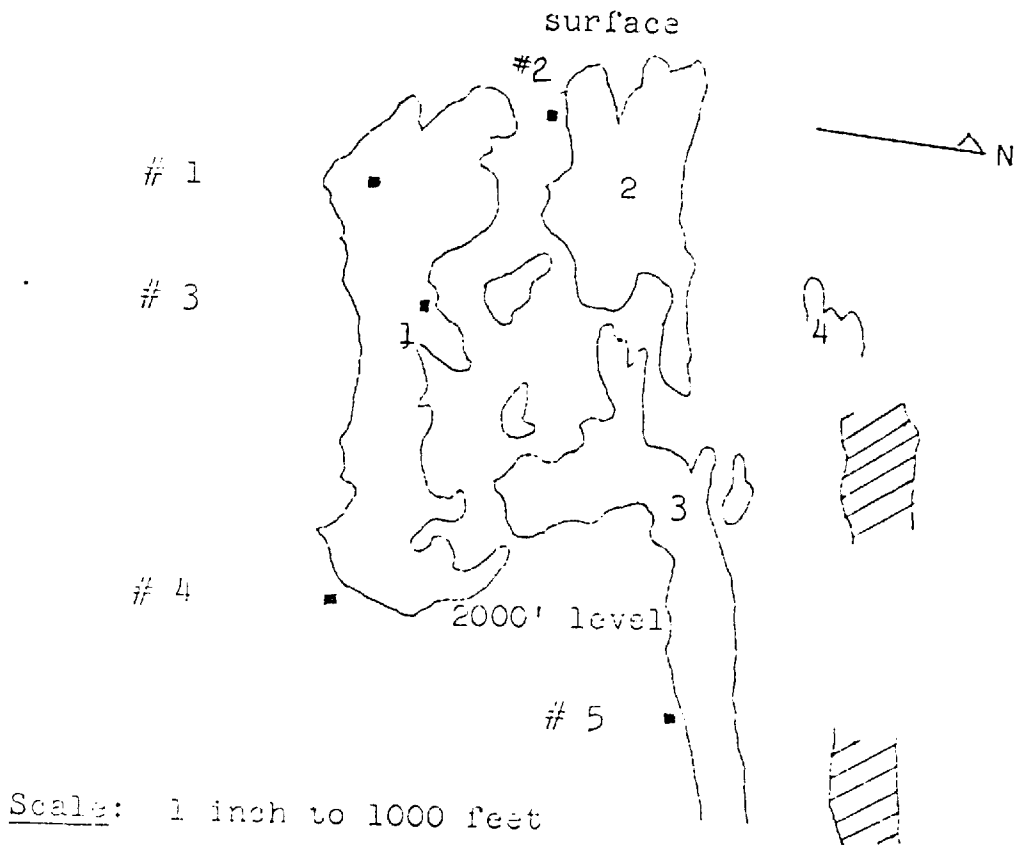
Lead, zinc, and silver mineralization was discovered on Calumet Island around 1893. A 150 ton a day gravity concentrator was erected in 1912 and produced for a short period only. In 1937 Calumet Mines Ltd. took over the property and by 1942 delineated over 1,000,000 tons of Pb-Zn-Ag ore. In 1942 the company was reorganized and the name changed to New Calumet Mines Ltd.

Production started in 1943 after a 500 ton per day concentrating mill had been erected. The mill was subsequently upgraded to 800 tons a day and produced at variable mill rates until 1968. From 1943 to 1968 N.C.M. milled 3.8 million tons of ore with an average grade of 5.8% zinc, 1.6% lead, 2.16 opt silver, and 0.013 opt gold.

Closure of the mine was likely due to the lack of reserves combined with low metal prices and high production costs.

In 1964 N.C.M. purchased the mineral rights for land situated to the north of mining concession 187. N.C.M. were unable to acquire mineral rights for the property situated to the south of the mining concession and thus could never fully explore the south-easterly extension of the mine horizon.

The three main massive sulphide bodies are the Longstreet, Macdonald, and Grand Calumet (figure 3). They were exploited from three shafts and two winzes (table IV).



Developed sulphide zones

Potential sulphide zones

- 1. Longstreet zone
- 2. McDonald zone
- 3. Grand Calumet zone
- 4. Ste. Anne zone

#3 - Shaft - ■

Figure 3- Horizontal projection of the New Calumet deposit, showing the spatial relation between the individual sulphide zones.

TABLE IV

SUMMARY OF NEW CALUMET MINE UNDERGROUND DEVELOPMENT

Shafts	Depth of Shaft	Levels at
No. 1	0 - 745	100,200,300,400,500, 600,700 ft.
No. 2	0 - 687	100,200,300,400,500, 600 ft.
No. 3	600 - 1539	750,900,1050,1200, 1350,1500 ft.
No. 4	0 - 2050	1675,1800,1925,2050, 2175 ft.
No. 5	2050 - 2400	2050,2150,2250,2350 ft.

The Longstreet Zone extends from surface to a depth of 2100 feet. The Macdonald Zone, 600 feet northwest of the above, extends from surface to the 900 foot level and parallels the Longstreet Zone. Down dip from the Macdonald Zone the Grand Calumet Zone extends from the 900 foot level to below the deepest mine level at 2350 feet. Very limited production resulted from a 4th zone, the Ste. Anne Zone, located to the north of the main massive sulphide ore bodies.

On and near Calumet Island past explorative activity, apart from N.C.M., includes work by Kerr-Addisson and Preussag carried out in the sixties and seventies. These companies explored for base metals and uranium.

At present, St. Joe's Canada has staked a lead silver property 20 kilometers north of the island in paragneiss, and in the same area Novamin is working on a carbonate-hosted zinc occurrence.

Field Work 1986

Grid Area

The 1986 field program for the Calumet Mine Project consisted of geological mapping, prospecting, trenching, geophysical and geochemical surveys, and diamond drilling. It focussed on the N.C.M. minesite and immediate surrounding area. The Calumet Project started on May 20 and was completed September 20, 1986, utilizing a crew of four. The crew included Chris Bishop (project geologist), Mario Gonthier (geologist), Steve Kahn, and David Gaszi (field assistants). Overall project supervision was provided by Lee Barker (chief geologist) and D. Villeneuve (regional geologist) of Lacana Mining Corporation.

Prior to the beginning of the field program at least 7 man days were spent meeting and negotiating with the local landowners to request permission to conduct work on their land.

A grid, totalling 54 line miles, covers lots 5 to 15 of range IV and lots 6 to 15 of range III (figure 4). The grid is centered on the #1 shaft of N.C.M.. Explorex of Val d'Or cut, chained, and picketed 23 line miles while Lacana personnel completed the remaining 31 line miles. The line spacing is at 200 ft. with a station interval of 100 ft.. In farmer's fields, in order not to interfere with farming activities, as soon as the grid lines were established the surveys were conducted, and upon completion the pickets were removed.

Covering the grid area, a ground magnetometer and VLF-EM survey were completed. A separate report by J. Hansen of Geotest Corporation, dated November 14, 1986, deals with the geophysical

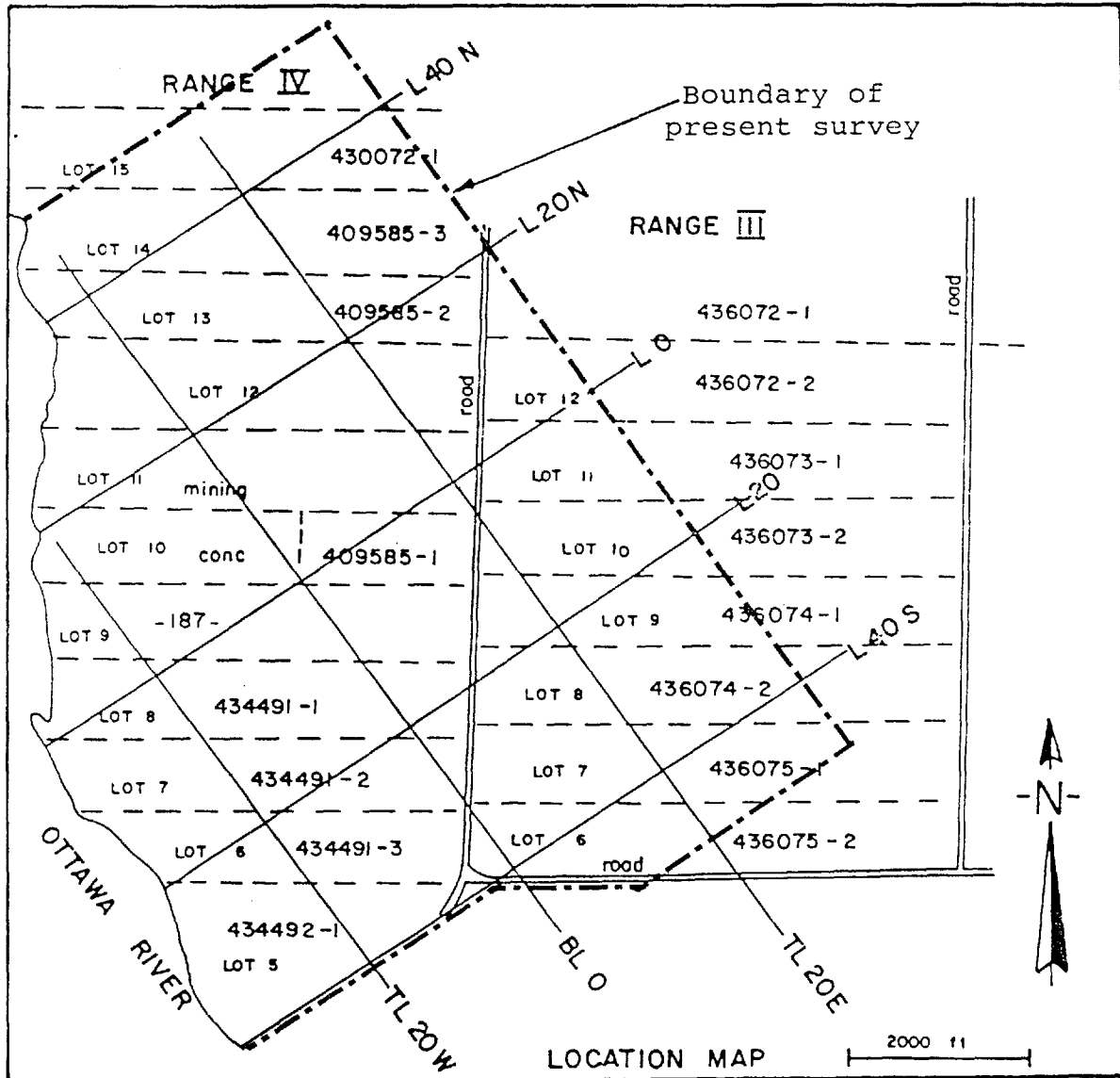


FIGURE 4-Sketch of Mine Grid

surveys.

Geochemical surveys utilized humus and B-horizon sample media and were conducted by Lacana personnel, requiring 10 man days to complete. In Range IV, 500 samples are from lots 7 and 8, 100 samples were taken on lot 9, and 78 samples are from lot 11. Humus and B-horizon soil samples were analyzed for Au, Ag, Pb, Zn and a few were also analyzed for Cu.

A total of 68 man days were spent by 2 geologists to map and prospect the grid area. A total of 203 rock samples were collected and analyzed for gold and silver.

On the mining concession (R. IV, lot 9,10,11) a fairly extensive program of trenching, stripping, and sampling was conducted and required 53 man days of labor and mapping, and approximately 6 days of heavy equipment work (a bull dozer and a backhoe). A total of 340 samples, mostly continuous chip samples cut with a rock saw, were analyzed for gold and silver.

From July 21 to September 10, 1986, a total of 10,818 feet were drilled, all on the mining concession. Drilling was conducted by Tindale Drilling Ltd. of Midland Ontario. A total of 1,400 core samples and 500 sludge samples were sent to Bondar and Clegg of Ottawa for analysis.

Prospecting-Other Areas

LaSalle Property

Two man days were spent conducting a magnetometer and VLF-EM survey and four man days of prospecting were spent on this property located in Range I, lot 14 and 15. A total of 10 samples were collected and analyzed for Au, Ag, Pb, and Zn.

Quebec-Ni Property

This property is located in Range IX lots 9, 10, 11. Five man days were spent prospecting this property and 6 samples were analyzed for Au, Ag, Ni, Co, Ti, Pt, Pa.

Range IX Lot 1

Two man days of prospecting and mapping were conducted on this lot. Five samples were analyzed for Au and Ag.

South Range Lot 1, 2, Range II Lot 1~~2~~, Range III

Lot I

A total of 4 man days were spent prospecting in this area and 5 samples were collected and analyzed for Au, Ag.

Geology

I Regional Geology

The regional geology has been compiled by Baer, Poole and Sanford (1971) as GSC map 1334A.

The Grand Calumet Island area is within the Grenville structural province of the Canadian Shield. The island lies within the Central Metasedimentary Belt (Grenville Supergroup) (figure 1). The Aphebian age rocks of the Ontario Gneissic belt form an older basement underlying the Helikian aged rocks of the Grenville Supergroup. Isotopic age dating of the rocks within the Grenville Province reflect the last period of metamorphism during the Grenvillian Orogeny, about 950 M.a.. A good general description of the southwestern Central Metasedimentary Belt and its associated sulphide mineralization has been given by Sangster and Bourne (1982). The following overview is taken mainly from this source.

Rocks of the southwestern Grenville Supergroup range in metamorphism from upper greenschist to granulite but are most commonly at the amphibolite grade. These rocks are believed to be comprised of a thick basal series of metavolcanics overlain by a thick series of intercalated marbles and arkosic metasediments. The Grenville Supergroup is cut by rocks of at least two intrusive suites and is overlain by younger sedimentary rocks, the Flinton group, which are in turn metamorphosed.

The New Calumet Mine property is located within a tongue of Helikian aged paragneiss that extends from Calumet Island to Shawville, 20 kilometres to the southeast. It is surrounded by

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Helikian aged marble to the northwest and south, and by Aphebian aged biotite and quartzofeldspathic gneisses and Archean potassic granite to the northeast.

Grand Calumet Island has been mapped by Ells (1907), Goransen (1925), and Osborne (1944). Osborne's map of the southern half of Calumet Island is represented in figure 5.

Hornblende gneiss and granular amphibolite occupies most of the southern half of Calumet Island and extends eastward onto the Quebec mainland. Quartz rich segregations are common along the north edge of the hornblende gneiss. West of the amphibolite lies a five kilometer long belt of leucocratic to melanocratic biotite gneisses which contain lenses of amphibolite. Within the biotite gneisses, massive sulphides ore bodies mined by New Calumet Mine lie at the contact between a siliceous biotite gneiss and a carbonated amphibolite. Quartz rich segregation bands are common throughout the biotite gneisses.

The northwest edge of Osborne's map area, and the west, south, and east edges of the southern half of the island are underlain by marble containing lenticular bodies of amphibolite and rusty-weathered biotite gneiss.

Six small, quartz poor, fine grained granite stocks are found within the amphibolites on the southern half of the island. These intrusions may be related to a large granite mass which outcrops east of the island. Other intrusive rocks include a medium grained, dark green gabbro which extends on to the island from the Quebec mainland and two fine to medium grained, unmetamorphosed, east-west trending diabase dikes which cut the gneisses and marbles on the west side of Calumet Island.

Osborne proposed that the rocks on the southern portion of Calumet Island form the nose of an overturned, recumbent anticline. The fold is outlined by the marble, and by foliations recorded on the mountain at the south end of the island. The fold can also be observed on aerial photographs. The axial plane of this fold strikes approximately north 15 degrees west and dips 30-40 degrees east. Osborne suggests that it has been modified by a later deformation associated with east-west shearing. Most geologists who have studied this area concur with the theory that the gneisses of Calumet Island are sedimentary derived and may have lenses of volcanics. If Osborne's structural interpretation is correct then the paragneisses occur stratigraphically below the marble and according to Sangster and Bourne they would be at the top of a volcanic pile.

(II) Local Geology

The distribution of rock types on the mine grid was mapped by Lacana staff in 1986 (figure 6) and the results correlate well with geology maps from reports by Moorehouse (1941), Osbourne (1944), and New Calumet Mines Ltd.. Those reports recognized amphibolite, biotite gneiss, and marble as the three main units but their nomenclature of the biotite gneiss can be genetically misleading; for example, mafic granite gneiss, granite migmatite, and biotite and injected biotite gneiss. Lacana's 1986 field program utilized nomenclature describing the biotite gneiss from a metamorphic and mineralogical perspective; for example, mesocratic to melanocratic biotite gneiss, leucocratic biotite gneiss, and siliceous biotite gneiss, respectively. Older reports also denoted quartz-rich segregations, or sweats, as being lit-par-lit structures. Although

somewhat misleading, this term aptly describes the closely spaced, more or less parallel quartz veinlets and in this report lit-par-lit structures is used interchangeably with quartz segregations.

Within the mine grid, contacts and foliations strike north 30 degrees west and dip an average of 35 degrees east. In ascending structural sequence, from west to east, the rock types present are marble, leucocratic biotite gneiss, siliceous biotite gneiss with lenses of marble, massive sulphides, and calc-silicates, carbonated amphibolite, an intercalated sequence of amphibolite and leucocratic to melanocratic biotite gneiss, and hornblende gneiss. A cross-section of this sequence is represented in figure 7. The writer considers the youngest formation to be the limestone and that the strata is overturned to the west. A diabase dike splits the mine grid in north and south halves.

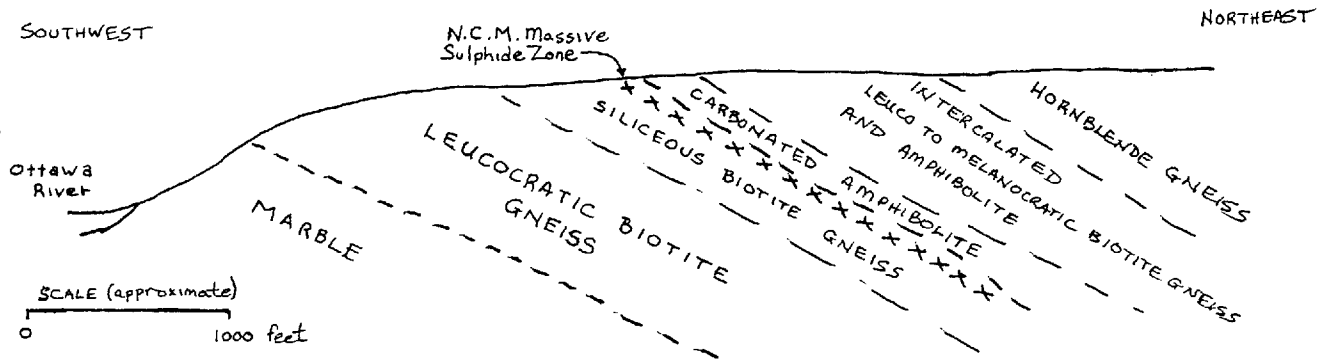


FIGURE 7-sketch cross-section of mine grid geology.

Leucocratic biotite gneiss shares most of the contact with the marble except for a 3500 foot long by 250 foot wide wedge of amphibolite south of the diabase dike. Locally carbonate alteration

and calc-silicate development extends upwards into the first few feet of amphibolite. The sharp contact between marble and overlying rocks is usually marked by a steep cliff or slope which parallels the Ottawa River.

The siliceous biotite gneiss has a gradational contact with the underlying leucocratic biotite gneiss. It is host to economic mineralization, has a strike length of at least 4800 feet, and varies between 100 to 300 feet true width. The contact between siliceous biotite gneiss and overlying carbonated amphibolite is sharp and a siliceous halo is sometimes present in the first 20 feet of amphibolite.

The carbonated amphibolite is unique in the area except for a small lens about 2000 feet west near the river. Its lateral extent is coincident with that of the ore-bearing section of siliceous biotite gneiss and it has a true thickness of between 150 to 300 feet. Diamond drill core indicates less carbonate within the amphibolite moving up and away from the ore horizon. The contact between the carbonated amphibolite and overlying amphibolite or leucocratic to melanocratic biotite gneiss is gradational to sharp and interfingered.

East and overlying the carbonate amphibolite is a 500 to 1000 feet (true width) zone of intercalated amphibolite and leucocratic to melanocratic biotite gneiss. These units typically have a lensoid shape and the contacts are somewhat arbitrary due to a gradational and interfingered nature. Overlying the intercalated units is hornblende gneiss which starts approximately 1500 feet east of the baseline. This contact may be in part a fault, as it is often a swamp or creek with 10 to 15 foot scarp-like rock banks.

The main intrusion in the immediate mine area is a post-Grenville diabase dike which trends east southeast and cuts all rock types west of the mine. It was observed in one outcrop and is mapped on the basis of old maps and cross-sections and a linear magnetic feature.

A detailed description of lithological units follows. Since Lacana did not conduct petrographic work or whole rock analysis, all descriptions are based on preliminary field observations supplemented by petrographic work done by Sangster (1967), Moorhouse (1941) and Osborne (1944). The nomenclature (figure 6) utilized is the one established by Lacana during the 1986 mapping program and the units are described from west to east starting with the proposed youngest non-intrusive unit.

Marble

The marble is coarsely crystalline calcite which becomes more siliceous and dolomitic towards the eastern contact. Dolomitic marbles contain rare lenses of quartzite and meta-arenite. They may also contain either fine grained euhedral sphalerite, specular hematite, pyrite, or fine grained and disseminated graphite.

Diopside and tremolite form reaction rims surrounding siliceous bands. Serpentine, phlogopite, chondrodite, sphene, chlorite, and brucite have also been noted. Plastic deformation is common where marble has been injected into the overlying leucocratic biotite gneiss.

Leucocratic Biotite Gneiss

This unit is a grey, medium to coarse grained, moderately to

well lineated and/or foliated leucocratic biotite gneiss with up to seven percent, one to three millimeter in diameter, pinkish-red garnets. In older reports this unit was referred to as migmatite due to abundant quartz "sweats" or quartz segregation bands.

This gneiss is composed primarily of quartz and feldspar with lesser amounts of biotite, hornblende, and garnet. From previous petrographical work accessory minerals observed are clinopyroxene, epidote-clinozoisite, paragonite, hypersthene, enstatite, and anthophyllite. This unit contains less than two percent pyrite and pyrrhotite.

Siliceous Biotite Gneiss

The siliceous biotite gneiss hosts the base metal and auriferous mineralization as well as the associated calc-silicate rock, white carbonate zones, and the coarse biotite zones found generally in proximity of the massive sulphide ore. The siliceous biotite gneiss is grey to dark grey, fine to medium grained, and well foliated. It is composed of abundant quartz, lesser amounts of feldspar, and 5-25 percent biotite. Locally sillimanite, cordierite, diopside, calcic amphiboles, talc, and garnet were observed. Sangster (1967) also noted the presence of Gahnite ($ZnAl_2O_4$) and zircon. This unit commonly contains up to 10 percent pyrite and/or pyrrhotite, and in proximity of the massive sulphide mineralization stringers and disseminations of galena, sphalerite, and chalcopyrite were observed. Coarse biotite layers are fairly common as well as quartz segregation bands and lenses. The quartz lenses are concordant and are up to 1 foot wide. They give this unit a lit-par-lit appearance.

Carbonated Amphibolite

The carbonated amphibolite directly overlies the base metal mineralization and the siliceous biotite gneiss and is therefore the structural hangingwall of the massive sulphide ore. This unit is highly to moderately altered, has a characteristic mottled texture, and is fine to medium grained. The mottles form a well developed lineation. The intensity of alteration or carbonization increases towards the underlying siliceous biotite gneiss.

The amphibolite contains at least three amphiboles, plagioclase, biotite, diopside, and minor quartz, calcite, and scapolite. Minor pargasite and gahnite were also noted. Medium grained aggregates of oriented lathes of hornblende is the principal amphibole and minor cummingtonite is associated with it. Some tremolite occurs with interstitial calcite, primarily in the proximity of the base metal mineralization. Lit-par-lit lenses are present but not highly developed and consist primarily of equal amounts of quartz and intermediate plagioclase.

Leucocratic to Melanocratic Biotite Gneiss

This unit lies above the carbonated amphibolite and is intercalated with amphibolite and hornblende gneiss. The rock is similar to the footwall leucocratic biotite gneiss but has an increased and variable mafic content. The principal minerals are quartz, plagioclase, biotite, and hornblende.

Amphibolite and Hornblende Gneiss

This unit predominates with increasing structural elevation. The rocks are dark green, fine to medium grained, and are massive to poorly foliated. They commonly contain porphyroblasts of hornblende or biotite.

Intrusive Rocks

The largest intrusion in the mine area is a vertical diabase dike, 100 feet thick, which trends east southeast. The dike crosscuts all stratigraphy and the sulphide zone and is therefore younger than mineralization. Although the dyke was not observed east of the mine horizon, the magnetic response indicates it likely continues further to the east.

Pegmatites are common in all the gneisses and in the main marble unit.

Structure

The geological structure of the mine area is difficult to discern due to the multiple deformational and metamorphic events before uplift and erosion. Metamorphic grade is middle to upper amphibolite. As stated previously, rock units and foliation within the mine area trend northwest and dip an average of 35 degrees northeast.

A traverse along cliffs adjacent to the Ottawa River shows the regional foliation to be broadly warped. Schistose zones, probably reflecting shearing, are evident on amphibolite cliff faces. The

variability of fold hinges, fold axes, and foliations evident on Figure 6 and on old reports, plan maps, and cross-sections suggest that this area has experienced a minimum of at least two folding events.

An interesting feature occurs where the amphibolite and leucocratic biotite gneiss crosscut the marble south of the juncture between the diabase dike and the Ottawa River. Foliations and contacts indicate this feature is a large kink-type fold which extends up into the mine horizon. The forces producing this structure may also be responsible for the small oval-shaped outcrop of rusty-weathering biotite gneiss and the smaller lens of carbonated amphibolite found at the southwestern border of the kink.

Faulting can only be inferred at this time. The diabase dike was probably injected in a late extensional fault or fracture, as a lineation crosses the island from east to west along the same trend of the dike and little to no offset is visible between strata. The author proposes that the contact between the intercalated horizons and the hornblende gneiss is also a fault. Evidence corroborating this theory are results of the N-S VLF-EM profiles (anomaly I-I, geophysical report) and a large lineation which crosscuts the whole island on the same trend. No movement can be inferred at this time.

(III) The N.C.M. Zn-Pb-Ag-Au Mine Horizon

The siliceous biotite gneiss hosts the New Calumet sulphide zone and the mine horizon is conformable with the closely overlying carbonated amphibolite. The mine horizon consists of a number of pods of massive sulphides, calc-silicate rock, marble or white carbonate zones, and coarse biotite rich zones. It is also

interlayered with siliceous to calcareous amphibolite and siliceous biotite gneiss. The sulphide body is relatively tabular and has a pinch and swell form. It generally lies along one stratigraphic horizon although vein-type lenses do occur above and below the main horizon, sometimes within amphibolite. The textural and mineralogical relations within and around the mine horizon indicate that these rocks were subject to the Grenville Orogeny. They have lost their primary characteristics and the present mineral assemblage is a metasomatic assemblage.

Mineralogy and Units

The four mineralogical packages recognized are massive sulphides, calc-silicate rock, marble, and coarse biotite, and they occur as pods, lenses, banding, and disseminations.

The white carbonate, or marble, is fine to coarse grained, white to beige, and often has a granoblastic texture. Other constituents can include disseminated sulphides, calcic amphiboles and pyroxenes, and epidote. It can occur as pods of up to 40 feet wide or in thin bands.

The locally massive sulphides are coarse, massive, and dark colored, and are comprised mainly of sphalerite, pyrrhotite and galena, in that order. They may have interstitial calcite or less often quartz. Sulphides also occur as heavy to light disseminations throughout the other horizons and extend into the hanging wall and footwall rocks. Other observed opaque minerals are pyrite, marcasite, chalcopyrite, tetrahedrite, plagioclase, arsenopyrite (Sangster, 1967), molybdenite, polybarite, argentite, and native gold (Moorhouse, 1941). The reader is referred to Sangster for a detailed

description of sulphide mineralogy and textures, and for a mine-wide study on trace element variation in sulphides.

The calc-silicate rocks are light green to green, fine to coarse grained, and exhibit a reticulate to poorly lineated fabric. Calcic-amphiboles of the actinolite-tremolite series are the most common calc-silicate minerals. Observed accessory minerals are sillimanite and sericite (Moorhouse, 1941) as well as pyrite, pyrrhotite, galena, sphalerite, and chalcopyrite.

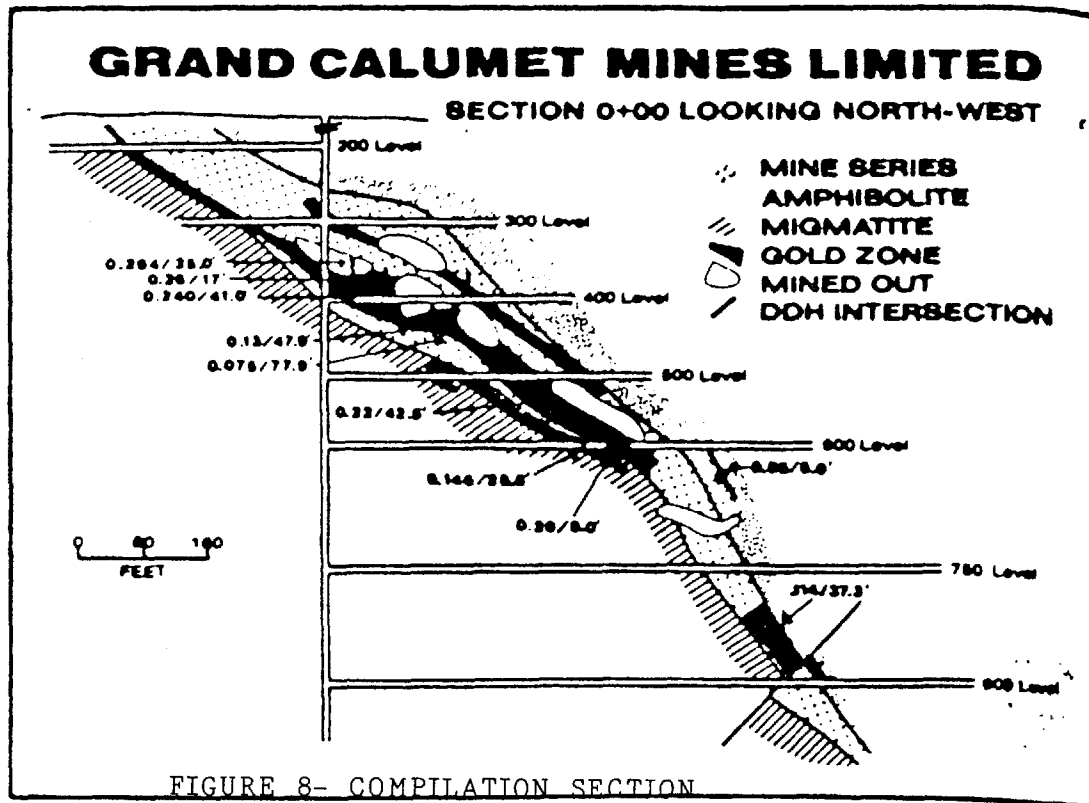
Coarse biotite-phlogopite occurs in bands of up to fifteen feet wide, has a well-foliated to reticulate fabric, and is either well silicified, moderately permeable, or very mildly calcareous. Disseminated and blebby pyrite and pyrrhotite range from one to ten percent. Coarse biotite bands commonly occur at the contacts of the other main mineralogical packages.

Thin, fine to medium grained, sulphide rich veinlets cross cut the mine horizon, hanging wall, and footwall. Sangster (1967) observed that these veinlets are most abundant in amphibolite immediately overlying sulphide zones. They range in width up to a few inches, have sharp contacts with the host rock, and contain angular fragments of the wall rock.

Form of the Massive Sulphide Orebodies

The mine horizon trends north 30 degrees west and dips an average of 30 degrees east. This attitude can vary considerably depending on depth and location with it dipping as much as 70 degrees locally. The pinch and swell structure, the flexures in the dip plane, and the often tight folding and dislocation of the sulphide bearing horizon can be seen on N.C.M. cross-sections, level plans,

and stope plans (figures 8 and 9) and is abundant evidence of structural disturbance. The higher concentrations of sulphides commonly occur at flexures and within noses of minor folds, and high grade ore shoots often have a pencil like form.



The main ore zones are the Longstreet, Macdonald, and Grand Calumet. These sulphide bodies plunge 30 to 40 degrees towards north 45 to 60 degrees east. Two minor sulphide zones were found at each end of the mine horizon, the Ste. Anne zone to the north and the Bowie zone to the south.

The Longstreet zone surfaces by the #1 shaft (BL 0+00), varies in strike length from 400 to 800 feet and ranges in thickness from one to 80 feet (12 foot average). The thickest portion occurs from just below surface to about the 600-foot level, but it continues down below the 2,050 level, a dip length of over 3,000 feet. N.C.M.

records indicate that this is the most auriferous massive sulphide zone.

The Macdonald and Grand Calumet zones are 200 to 600 feet north on the same stratigraphic horizon. They vary in strike length from 400 to 1200 feet and average 600 feet. The Macdonald zone is thickest from surface to the 600-foot level and trails off in a lower grade section to the 900-foot level. The Russel zone, 100 to 200 feet north of the Macdonald zone at surface, is a high grade pod that joins the Macdonald zone at the 500 foot level. The Grand Calumet zone starts below the 900-foot level, extends to at least the 2,350-foot level, and has an average thickness estimated to be twelve feet. Together, the Macdonald and Grand Calumet zones have a dip length of over 3,500 feet.

The Ste. Anne zone is the northern extension of the known mine horizon. It has been intersected at depth but was only mined between the 200 and 300 foot levels. Mine records indicate a sharp fold in the mine horizon between the Russel and Ste. Anne zones which offsets the mine horizon 600 feet to the northeast. Little continuous economic mineralization was found in the area between the Russel and St. Anne Zones.

The Bowie zone is the southern extension of the known mine horizon. N.C.M. records outline this sulphide zone as representing a minor S-fold of about 100 feet wide. A drift was driven adjacent to this structure at the 200 level but only minor mining occurred. The Bowie Zone surface pit is 45 feet deep and represents the main bulk of sulphides excavated. The fold structure plunges into the diabase dike structure at depth.

Structure

The structure of the mine horizon was produced by several folding events which are discussed in more detail later in the report. At least two events are evident in mine plans and sections (figures 8, 9 and 10). The first is the trend and plunge of fold axis equivalent to that of the massive sulphide bodies (plunging 30-40 degrees towards north 45-60 degrees east). These structures appear similar to the apparent plunge and trend of fold axis of the kink fold which trends from the Ottawa River up through and between the Russel and Ste. Anne zones. The second event produced warping along the dip plane of the mine horizon and is probably responsible for minor S folds, noted by Osborne (1944, p.14), with axes trending east-southeast and pitching 25-30 degrees in the plane of the mine horizon.

Five faults have been recorded in the mine literature and are described by Sangster (1967) (figure 11). Little reliable research has been performed concerning the relative movements associated with these faults. Up dip projections of the 900 level fault indicate that it surfaces near the lineation and proposed fault at the contact of the intercalated units and hornblende grain at 11+00 E. More work is needed before this fault and others can be positively correlated with surface features. Sulphides have been observed at fault-sulphide zone intersections at the 900 foot level.

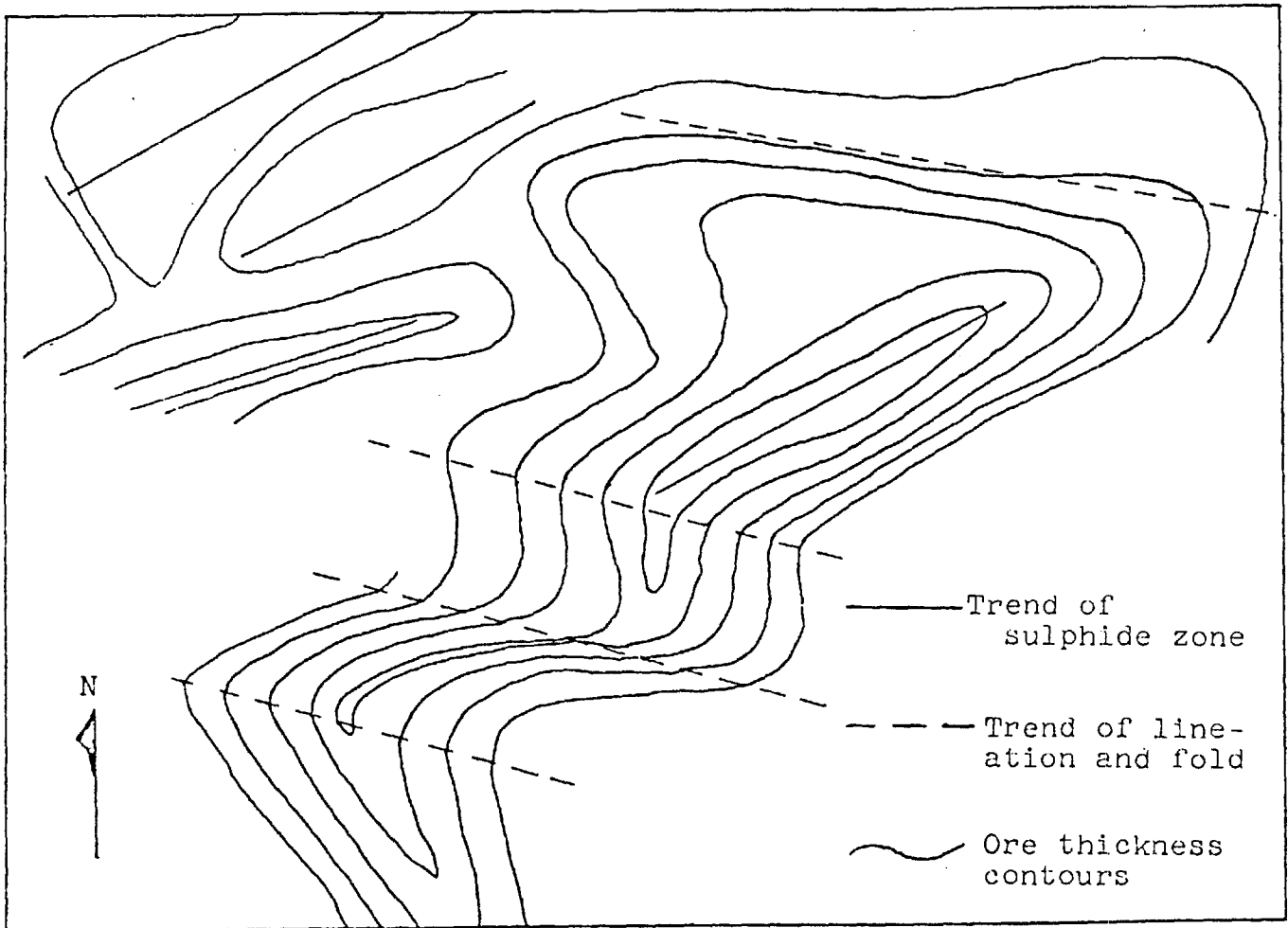


Figure 10- Structural control of ore shoots (after Osborne, 1944).

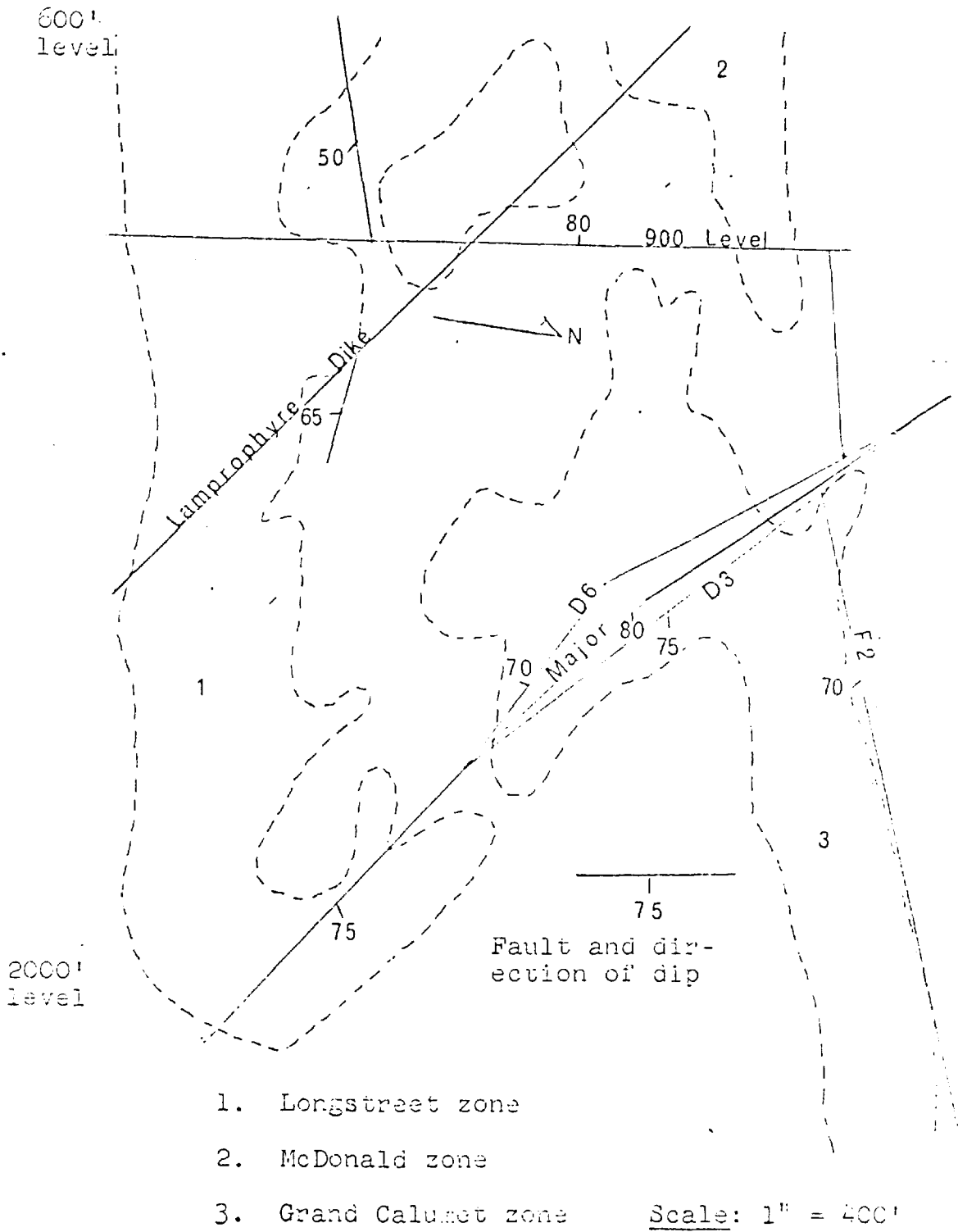


Figure 11- Trace of faults cutting the New Calumet sulphide deposit on a section parallel to the dip.

(IV) Detailed Geology - 1986 Surface Mapping, Trenching, and Sampling

The purpose of 1986 detailed work was to:

- 1) correlate and verify N.C.M. plan maps,
- 2) look for extensions of the mine horizon, and
- 3) sample surface exposure to verify their gold content.

The mine area is covered in figure 12. Most of the main mine horizon is masked by tailing piles, swamps, overburden, and mine debris, and therefore much of the areal extent of the siliceous biotite gneiss and mineralized zones between the Bowie and the Ste. Anne zones are plotted using up dip projections from N.C.M. cross-sections and 1986 diamond drill sections. Three areas are discussed; the Central Region (Longstreet, Macdonald, and Russel zones), the Ste. Anne Zone and Northern Extension, and the Bowie Zone and Southern Extension. Trenching, mapping, and sampling are reviewed in each. Subsequent sections discuss geological features outside the N.C.M. mine horizon.

(A) Central Region

The central region runs from the diabase dike (L3+00S) by the #1 shaft to the northeast tailings pile (L 18+00N) and includes the Longstreet, MacDonald, and Russel zones. The Longstreet zone is completely masked by 10 to 20 feet of oversize tailings and therefore no surface work was done in this zone.

Macdonald Zone

The Macdonald zone is exposed in a 100 feet by 70 feet open pit

mined by N.C.M. and is located at L10+00N, 4+50W adjacent to the #2 shaft. Although the massive sulphide ore is mostly mined out, part of the mine horizon as well as the hangingwall and footwall rocks are exposed on the north and east faces of the pit (figure 14).

On the footwall or northwest side of the pit a green, medium grained, siliceous, moderately foliated amphibolite is exposed. The biotite content averages 4 percent but reaches up to 30 percent locally. Lit-par-lit structures are common and up to 3 percent sulphides (po, py, sp, ga) are concentrated at the edges of the lenses. Overlying this unit is a one to three foot thick horizon of coarse grained massive sulphides (sp>>po>>ga) in a calcareous matrix. This unit is interfingered with pods of coarsely crystalline marble and lenses of coarse grained, reticulate textured calc-silicate rock (mainly composed of actinolite or tremolite). The marble contains two to ten percent disseminated sphalerite and the calc-silicate rock contains two to five percent disseminated pyrrhotite, sphalerite, pyrite, and galena. A nine foot halo of five percent disseminated sulphides extends into the hangingwall siliceous biotite gneiss, which comprises most of the pit. It has a cherty appearance, an average of three percent disseminated pyrite and pyrrhotite, and a variable biotite content (up to 25 percent). On the southeast wall of the pit, near the east corner, is a 10 foot wide lense of interfingered coarse grained marble, calc-silicates, and biotite-phlogopite containing up to 10 percent disseminated and blebby pyrite, pyrrhotite, and minor sphalerite. A tiny lens, 2 feet by 8 feet, of carbonated amphibolite was noted in the south corner of the quarry.

Due to the unfoliated nature of the mine horizon and the mining,

the structure is difficult to determine. Foliation measurements indicate a shallow dip to the northeast but the massive sulphide body dips to the northwest. This is probably due to a flexure in the plane of the dip. Slickensides are common around the massive sulphides.

Three foot continuous chip samples were taken across stratigraphy as best as possible and all units were sampled. Anomalous gold values were obtained from 10 feet within the footwall amphibolite, through the massive sulphide unit, and 6 feet into the overlying siliceous biotite gneiss. The 15 foot interval averaged 0.027 opt gold and 10.00 opt silver, or a gold equivalent (Au+Ag) of 0.193 opt.

Russel Zone

The Russel zone is located north of the MacDonald zone (figure 12). On line 15+00, 3+00W an area, 130 feet by 40 feet, was stripped (figure 15) to re-open old trenches formerly excavated by N.C.M. The mine records indicate the bulk of the Russel zone mineralization is located to the west under a tailings pile. Attempts to trench further to the west were unsuccessful due to deep overburden.

The main unit exposed in the Russel trench is a fine to medium grained, massive to well foliated siliceous biotite gneiss containing 1 to 8 percent biotite and minor garnets locally. Its hosts tiny pods of disseminated pyrrhotite and sphalerite within a siliceous to rarely calciferous matrix. Disseminated sulphides are concentrated around the old trenches at the east and west end. On the border of the pit at the east end of the trench S-folded beds of calc-silicates and coarse biotite rich lenses are common. The coarse biotite lenses

weather to a distinct yellow color and the oxidized rock is friable. Lit-par-lit structures are common.

Three foot long continuous channel samples were taken across the stratigraphy as best as possible. Anomalous gold and silver values are localized around the old N.C.M. trenches and range from 100 to 500 ppb gold with 10 to 45 ppm silver. A recessive schistose rock, probably coarse biotite, returned the highest gold value of 1845 ppb gold, with only 2.5 ppm silver.

The rocks exposed in the Russel trench are folded. Foliations dip between 30 to 40 to the east and the strike of the foliation varies from an east-northeast direction to a northwest direction. Coarse biotite schists are common near the nose of the major fold and on the inside of the east limb. There are two sets of minor fold axes, one plunges 26 degrees towards the northeast while the other plunges 40 degrees east-southeast. Sulphides occur as small, sub-economic pods and heavy disseminations near the hinge of the major fold.

The Russel Zone is within a large scale fold observed from L14+00N to 18+00N between 6+00W and 2+00E. This is substantiated by a large fold, or kink, displayed by foliations in the carbonated amphibolite from L6+00N to 12+00N. The author surmises that this fold is related to the kink seen in units just south of the intersection of the Ottawa River and diabase dike.

(B) Ste. Anne Zone and North Mine Horizon Extension

The north extension includes the Ste. Anne trenches and it extends from L18+00N to at least L40+00N (figure 12). Previously N.C.M. trenched the Ste. Anne Zone and two trenches were excavated during the 1986 field season.

N.C.M. cross-sections indicate the Ste. Anne zone mineralization comes to surface in the area of Lacana and N.C.M. trenches. They also show a steeper dip of the mine horizon, about 35-45 degrees to the east. The footwall is under the tailings pile and is presumably leucocratic biotite gneiss. The hangingwall carbonated amphibolite is not present at the Ste. Anne Zone, instead the hanging wall consists of intercalated leucocratic to melanocratic biotite gneiss and hornblende amphibolite.

There are two Ste. Anne trenches. Trench #2 (figure 16) has a wide "L" configuration and is 210 feet long by an average of 25 feet wide. The trench crosscuts a zone just south of the N.C.M. trenches (figure 12). Ste. Anne trench #1 (figure 17) is located north of trench 2 near the Ste. Anne Shaft, centered on L20+00N at 4+00E.

A very competent, grey, moderately foliated siliceous biotite gneiss comprises the main rock type of each trench. Similar characteristics also include:

- 1) The Mine horizon - centrally located convoluted bands of massive sulphides, calc-silicates, marble, disseminated and blebby sulphides, or a combination of the above. Stringers of sulphides are found in fractures in the hangingwall and in the footwall.

- 2) Quartz rich segregations are found throughout trench #2 and in the hanging wall of trench #1. These parallel, conformable siliceous bands are 2 to 12 inches wide and are up to 50 feet long. They are often boudinaged and undulated.
- 3) Coarse biotite pods or lenses are 1 to 2 feet wide and as much as 10 feet long. Highly weathered and well foliated biotite is in a quartz matrix with 1 - 4% disseminated pyrite and pyrrhotite. These lenses are common in the footwall side of the trenches.
- 4) Hangingwall silicified amphibolite - occurs in both trenches overlying siliceous biotite gneiss.
- 5) Garnet development - trench #2 has sparse garnets locally while trench #1 has an identifiable garnet horizon beneath (west) the mineralization.

The trenches differ in two ways:

- 1) The mine horizon consists of only calc-silicate rock in trench #2 and of marble, calc-silicate rock, and 2 to 4 inch bands of massive sulphides in trench #1.
- 2) The horizon directly above the mineralized horizon at trench #1 is a melanocratic siliceous biotite gneiss whereas in trench #2 it is a broadly warped, moderately weathered, medium grained quartz mica calc-silicate gneiss.

This area was labelled the "zone of dislocation" during the summers field work because of its complicated structure. The foliation of both footwalls trends north northwest and dips northeast, similar to the regional foliation. The mineralized zones of both are severely contorted within a twenty foot horizon, to the

point where sulphide bands in trench #1 form a figure eight. The rocks of the hangingwall are also highly disturbed. The hangingwall calc-silicate horizon in trench #2 dips 30 to 40 degrees northwest and the curvilinear nature of the schistosity suggests a fold axis trending east southeast. Lit-par-lit development in trench #1 splays into wide horse tails covering 180 degrees of the compass. This structural disturbance may be due to the imposition of 2 or more folding events.

Continuous channel samples were taken across stratigraphy in both trenches. Trench #2 is barren except for a 1395 ppb gold analysis from a coarse biotite schist. Trench #1 has two anomalous zones. The structural footwall of the sulphide mineralization averaged 200 ppb gold and 50 ppm silver over a true width of 30 feet and was capped by a garnetiferous horizon which returned values of 690 ppb gold and 50 ppm silver. The overlying 20 feet were barren. Then the mine horizon, consisting of massive sulphides and calc-silicate rocks, averages 200 ppb gold and 3 to 4 opt silver over a ten foot true width. Both zones are highly anomalous in silver, averaging 2 to 3 ounces over a total of 50 feet.

The northern extension of the mine horizon is located to the north of the Ste. Anne trenches and from N.C.M. diamond drilling is known to extend up to L27+00N. The siliceous biotite gneiss, which hosts the mine horizon, was followed to L28+00N. Little evidence of massive sulphide mineralization was observed after the last of the N.C.M. trenches, at L22+00N, 4+00E. Grab samples from pyritiferous siliceous biotite gneiss which outcrops to the north of Ste. Anne trenches returned values of between 200 to 300 ppb gold and 5.0 ppm silver. This is positive surface evidence for continuing anomalous

gold and silver concentrations extending to the north.

Beyond L28+00N the mine horizon is masked by an 800 foot square overgrown agricultural field. No information was ever recorded from this area. The field is surrounded by leucocratic to melanocratic biotite gneiss. North and east of the field outcrops of biotite gneiss containing magnetite and pyrite are anomalous in silver, containing up to 6.0 ppm Ag.

East of the baseline, between line 32+00N and 44+00N (figure 6), the variable strike of the foliation outlines a fold similar to the kink fold of the central mine area.

(C) The Bowie Zone and South Mine Horizon Extension

The southern extension of the mine horizon extends south from the diabase dike to L20+00S (figure 12). It is exposed in the Bowie pit, and trenches excavated by Lacana.

Maps by N.C.M., Osborne, and Moorhouse show the mine horizon folding to the east and pinching out beside the Bowie zone. Evidence collected during the summer of 1986 proved this incorrect (figure 19). The mine horizon is deflected to the west, trending south 10 degrees east, and extends for at least 1200 feet to the south into a lot whose surface rights are owned by B. Murphy. The presence of pits and trenches along the mine horizon suggests that N.C.M. personel had an idea that this was the true strike extension. N.C.M. mine records indicate that drilling in this region only extended up to the northern boundary of Lot 8, now owned by B. Murphy.

The mine horizon extends south from the Bowie pit to at least L16+00N, 9+50W. To the west and underlying the mineralized and

altered zone is garnetiferous leucocratic biotite gneiss . To the east and overlying the mine horizon, in ascending structural order, is a carbonated amphibolite with an enclosed horizon of slightly mineralized siliceous to leucocratic biotite gneiss, leucocratic to melanocratic biotite gneiss, and hornblende gneiss.

Bowie Zone

The Bowie zone lies between L3+00S to L6+00S from the baseline to 5+00W (figure 19).

The original discovery (circa 1893) was at the Bowie pit (figure 20). It is 45 feet deep and has been refilled with tailings. Presumably a massive sulphide pod was extracted from the Bowie pit as evidenced by an adjacent rubble pile consisting of boulders of massive sphalerite, calc-silicate rock, and coarse biotite rock.

The 2 to 3 foot pods of sulphides left in the southern flank of the pit are enclosed within a 35 foot true width of siliceous biotite gneiss. A siliceous amphibolite with pods of siliceous biotite gneiss underlies and overhangs the host rock. Massive sulphide development is centrally located within the siliceous biotite gneiss and to a lesser extent, along with calc-silicates and coarse biotite, at each amphibolite contact. No marble horizon was evident.

Other than minor fold axis, which plunge 28 degrees towards northeast, the structure at the pit is different than that of the average mine horizon. Foliations and contacts strike northeast and dip 30 to 40 degrees south east. Coarse biotite and sulphide zones have a sub-vertical dip.

From the hangingwall through the central massive sulphide unit

and into the footwall (figure 20) an average of 0.065 opt Au and 5 opt Ag was obtained over a 40 foot true width. If the precious metal content (Au and Ag) is converted into gold equivalent, utilizing current gold and silver prices, the average grade at the Bowie pit is 0.145 opt Au (equivalent) over 40 feet. Within this interval an average of 0.130 opt Au and 8 opt Ag over 6 feet was obtained at the hangingwall contact. Within the central massive sulphide unit samples returned 6 feet of 0.09 Au and 9 opt Ag. The first three feet of the footwall siliceous amphibolite assayed 0.140 opt gold and 5.09 opt silver.

Eighty feet south of the Bowie pit a 170 foot long trench was excavated during the past summer. It is centered on the mine horizon at L5+00S, 4+45W (figure 21). It crosscuts the same strata as the Bowie pit but the siliceous biotite gneiss is 80 feet true width. The hangingwall amphibolite becomes increasingly calciferous towards the east. The siliceous biotite gneiss contains an average of 4 percent disseminated pyrite and pyrrhotite along with discrete horizons containing 1 to 5 percent garnets. Intercalated bands of coarse biotite and calc-silicates comprise the last 15 feet to the footwall. Foliations in this trench strike north to northeast and dip 30 to 45 degrees east.

Concentrations of gold and silver are mildly anomalous from the center of the trench to the footwall siliceous amphibolite contact, a true width of about 35 feet. Gold ranges from 100 to 1000 ppb and averages 200 ppb, while silver averages 15 ppm.

In an area located some 200 feet east of the Bowie pit several outcrops were stripped and cleaned to expose the hangingwall rocks of the Bowie Zone (figure 22). The rocks consist of a >100 foot thick

sequence of carbonated amphibolite which contains a 30-50 foot wide unit of leucocratic biotite gneiss. The intensely carbonated amphibolite commonly contains 2 to 3 inch wide biotite rich bands. In the proximity of a ventilation raise (L5+00S at 1+70W), an exposure of amphibolite consisting of sub-angular, elongated amphibolite fragments in a matrix of white calcite and biotite has the appearance of a fragmental tuff. Dr. Michel Gauthier of the Universite du Quebec at Montreal believes this is a cataclastic texture rather than a primary volcanic feature.

The amphibolite is well foliated and layered. The foliation curves across the trench and the unit is thus folded. The foliation dips at 30 to 45 to the east. The minor fold axis of folded pegmatitic segregation lenses plunge 30 degrees to the north-northeast.

Adjacent to a ventilation raise (L5+00S at 1+70W, figure 22) a 3 foot chip sample from a carbonated amphibolite returned 0.148 opt Au and 0.25 opt Ag. Out of 40 continuous chip samples collected from the stripped area, only 3 returned moderately anomalous values in gold. This indicates the hanging wall rocks contain only sporadic high gold values.

South Mine Horizon Extension

The area of the Bowie zone was mapped at a scale of 1:1200 (figure 19) in a successful attempt to prove that the mine horizon folds to the south, contrary to data in old reports. All observed foliations indicate this fold and the discovery of N.C.M. pits containing disseminated sphalerite and galena, calc-silicate rock, and coarse biotite zones along this trend confirms it. The pits are

located at L7+00S, 7+00W and at L16+00S, 9+50W. A weak magnetic anomaly coincides with the proposed extension of the mine horizon. The south extension of the mine horizon and its hangingwall to the east lie in a swamp trough. Little outcrop is present.

Grab samples taken from the pit at L7+00S, 7+00W returned assays highly anomalous in gold and zinc. Gold assays ran between 0.020 to 0.141 opt. Grab samples from the pit at L16+00S, 9+50W averaged 100 to 300 ppb gold and 10,000 ppm zinc. The trench is in a small outcrop surrounded by swamp and is probably not the main mine horizon.

A garnetiferous leucocratic biotite gneiss underlies the mine horizon. Within this unit a magnetite-bearing horizon is present an average of 600 feet west of the mine horizon. It is composed of intercalated leucocratic biotite gneiss and fine grained amphibolite with fine-grained blebs of magnetite ranging from 1 to 10 percent. This unit is 10 to 50 feet wide, extends from L6+00S, 14+00W to L18+00S, 12+00W (figure 6), and was trenched by N.C.M. All fifteen samples taken in this horizon returned background values in gold and silver.

(D) Other Areas (Mine Grid)

Belgian Zone

Intercalated leucocratic to melanocratic biotite gneiss and amphibolite hosts the Belgian zone, which is located at 7+00E between line 10+00N and 14+00N (figure 12). Two N.C.M. trenches expose disseminated sphalerite, galena, pyrrhotite and pyrite in calc-silicate rock, coarse biotite rock and marble pods. Grab

samples revealed anomalous concentrations of gold and silver, the highest assaying 0.140 opt gold and 1.93 opt silver.

The Belgian zone is expressed by a weak magnetic anomaly which extends towards the south for at least 800 feet. It may be related to the 900-level fault which, if followed up dip, should surface near this area. If this theory is correct then the possibility of mineralized faults should be considered. The Belgian zone is considered to be a medium priority exploration target.

Magnetite Bearing Horizons

Magnetite bearing horizons were found adjacent to the south and north mine horizon extensions within leucocratic biotite gneiss and to the east within amphibolite. Sampling returned background values but it is possible that potentially auriferous horizons occur adjacent to the magnetic bearing units, similar to the auriferous horizons found by drilling in 1986. The magnetite bearing horizons might be used as a marker horizon

(E) Regional Prospecting

Many pits and trenches are present on Calumet Island. Most of these expose magnetite, pyrite, and pyrrhotite bearing horizons within 200 feet of the marble contact. Samples taken from these areas were not anomalous in gold or silver and therefore these areas do not warrant further work. Two 50 foot shafts were also located, one at the Lasalle property and one on the Quebec Nickel property.

Lasalle Property

The Lasalle property is located beside Tancredia on Range I, lots 14 and 15. Samples of the rubble from the seventy year old shaft returned values 8 percent zinc, 4.5 percent lead, 1.5 opt silver, and 60 ppb gold. The host hornblende gneiss contains lit-par-lit quartz lenses and small lenses of a rusty weathered quartz-mica schist. Several diamond drill holes were located and they were allegedly drilled with a packsack drill by a prospector (Mme Lasalle, personal communication 1986). A small grid (600 feet by 600 feet) was emplaced, and magnetic and VLF-EM surveys carried out. The small size of the grid and the presence of hydro wires, farm machinery, fences, and buildings contributed to the inconclusive results of the surveys. This property warrants further evaluation.

Quebec Nickel Property

The Quebec Nickel property is located in Range IX, lot 10 and 11. The shaft was driven in a nickel, copper, and silver showing near the limestone contact. Massive pentlandite is present. The host rock is cherty and felsic looking and contains 5 to 10 percent pyrite concentrated in thin laminations. Several schistose zones observed probably represent shear zones. Grab samples returned background gold values and uneconomic silver values. One sample, taken near a quartz vein, assayed 260 ppb gold and should be followed up.

Structure

The structure of the mine horizon and surrounding area was produced during several deformational events related to the Grenville orogeny. These events produced the following structures:

- 1) Calumet Anticline - Osborne's work indicates an axial plane trending north 20 degrees west and dipping 20 to 35 degrees northeast, and a fold axis plunging 25 to 30 degrees toward north 20 to 40 degrees east.
- 2) Massive Sulphide Ore Shoots - these plunge 30 to 40 degrees towards north 45 to 60 degrees east, a slight eastern skew from the Calumet Island anticline fold axis and therefore not related to it.
- 3) Kink Folds - Large kinks in regional foliation extend from the Ottawa river, through the mine horizon, and can be seen east of the baseline around L32+00N. The attitude of the associated fold axis has not been calculated but it appears to be similar to the trend and plunge of the massive sulphide ore shoots.
- 4) Warping of the Mine Horizon - this structure can be seen in cross-sections and especially stope sections. The author suspects that this structure is associated to minor folds in the sulphide zone observed by Osborne. Fold axis trend east southeast and pitch 25 to 30 degrees down the plane of the mine horizon. Contrarily dipping horizons (dipping west) observed at surface in the Macdonald and St. Anne zones are probably a product of this warping.

The warping observed in the horizons and foliations on cliff faces could either be related to events that produced structures

2, 3, or 4. More work is needed before a positive correlation can be made.

Two major lineations are evident on aerial photographs of Calumet Island and they have been proposed as major faults by the author. One trends east and is coincident with the diabase dike, which cross-cuts all geological strata. The presence of the diabase dike implies that this was an extensional fault. It may be related to the post-Grenvillian Ottawa Graben system.

The other proposed fault parallels the base line at L12+00E (figure 12) and coincides with the contact between intercalated biotite gneiss and amphibolite, and hornblende gneiss. The attitude and movement associated with this proposed fault has never previously been discussed, primarily due to a lack of data. Two interesting coincidences can be related to this fault and may imply attitude and movement. The first is the fault trends the same as the regional foliation and it bisects, similar to an axial plane, fold limbs of the Calumet Island Anticline outlined by Osborne's structural data and the form of the mountain at the south end of the island. This suggests that the proposed fault could be an axial planar fault associated with the anticline and that it may have a similar attitude as the regional foliation. The second coincidence is the occurrence of kink-like folds, outlined by Lacana's 1986 structural data, on either side of the proposed fault. The axial planes of the kink folds follows a sinuous path, possibly caused by the fourth structural feature noted above, but the overall plan view of the kinks gives them the appearance of drag folds. This would imply contrary movement between limbs of the Calumet Anticline and either dextral fault movement or a dextral asymmetric fold.

The author realizes that there may be other explanations for observed features and welcomes other positive ideas. The deductions formed above seem the most plausible and the following sequence of events are proposed:

- 1) Calumet Island Anticline formation - concentrating of massive sulphides in hinges or folding of a syngenetic massive sulphide horizon.
- 2) Dextral Drag folding - related to dextral assymmetric folding of Calumet Anticline. Reconcentration of sulphides in fold noses plunging 30 degrees towards the northeast.
- 3) Broad Warping of Mine Horizon - produced from the northeast - southwest shearing event proposed by Osborne. Fold axis plunge 20 degrees towards the southeast. This event could be important if gold mineralization, discussed later in the report, is concentrated in the hinge areas of folds.

Geophysics

Geophysical surveys conducted on the Calumet Island mine grid include VLF-EM and magnetics. These surveys were conducted by Lacana field technicians and data was plotted and interpreted by Jens Hansen, a consultant geophysicist from Ottawa, Ontario. The reader is referred to his report (Appendix I) for a preliminary evaluation of the magnetic and electromagnetic data.

a) Magnetics

Magnetic readings were highly variable due to the magnetite content of the country rocks. The survey results outlined:

- 1) the contact between non-magnetic dolomite and more magnetic amphibolite,
- 2) the highly magnetic N.C.M. mine horizon,
- 3) magnetite-bearing horizons within the mine grid,
- 4) the moderately magnetic diabase dike,
- 5) weak anomalies over the southern extension of the mine horizon where the base metal content has dropped,
- and 6) a weak linear anomaly over the Belgian zone which extends 800' south of the zone.

b) VLF Electromagnetics

Many conductors are present on the mine grid. VLF results along the lines (E-W readings) are considered more reliable than readings perpendicular to the lines (N-S readings). Conductors are related to shear zones, massive sulphide zones, permeable coarse biotite units, conductive overburden, or man-made conductors (e.g. fences, power

lines). Many of the conductors deserve a follow up.

c) Geophysical Follow-up

A detailed interpretation of geophysical data should be done. Special attention should be given to delineating migmatite zones and coarse biotite units because they have been proven to contain highly anomalous and economic concentrations of gold. The migmatite unit has a high magnetic susceptibility which is probably due to the presence of magnetite. The coarse biotite units have little magnetic expression due to the lack of pyrrhotite and magnetite, but may be a strong conductor due to its permeability.

Geochemistry

Detailed orientation and pilot soil surveys were conducted over the mine horizon to establish optimum parameters for geochemical detection of gold, silver, lead and zinc mineralization. Results revealed widespread windborne contamination from the tailing piles. Only the southern extension of the mine horizon was covered with a soil survey. A and B soil horizons were sampled. These samples were analyzed for indicator elements (Au, Ag, Zn, Pb) and results defined mineralized horizons and areas affected by windborne contamination. All samples were processed and analyzed using standard geochemical techniques by Bondar and Clegg of Ottawa. Gold analysis were done by fire assay followed by D.C. Plasma determination. The lower detection limit for gold was 1 ppb.

Chris Gleeson, a geochemical consultant from Iroquois, Ontario, spent one day on site reviewing soil profile developments and

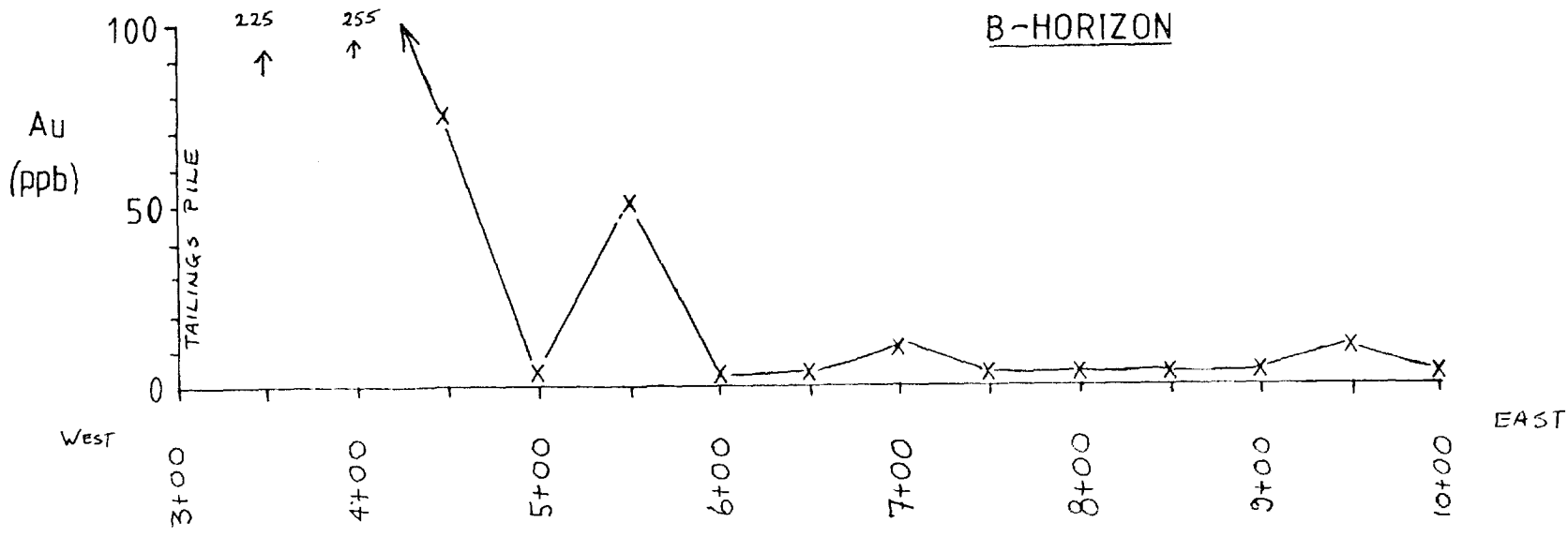
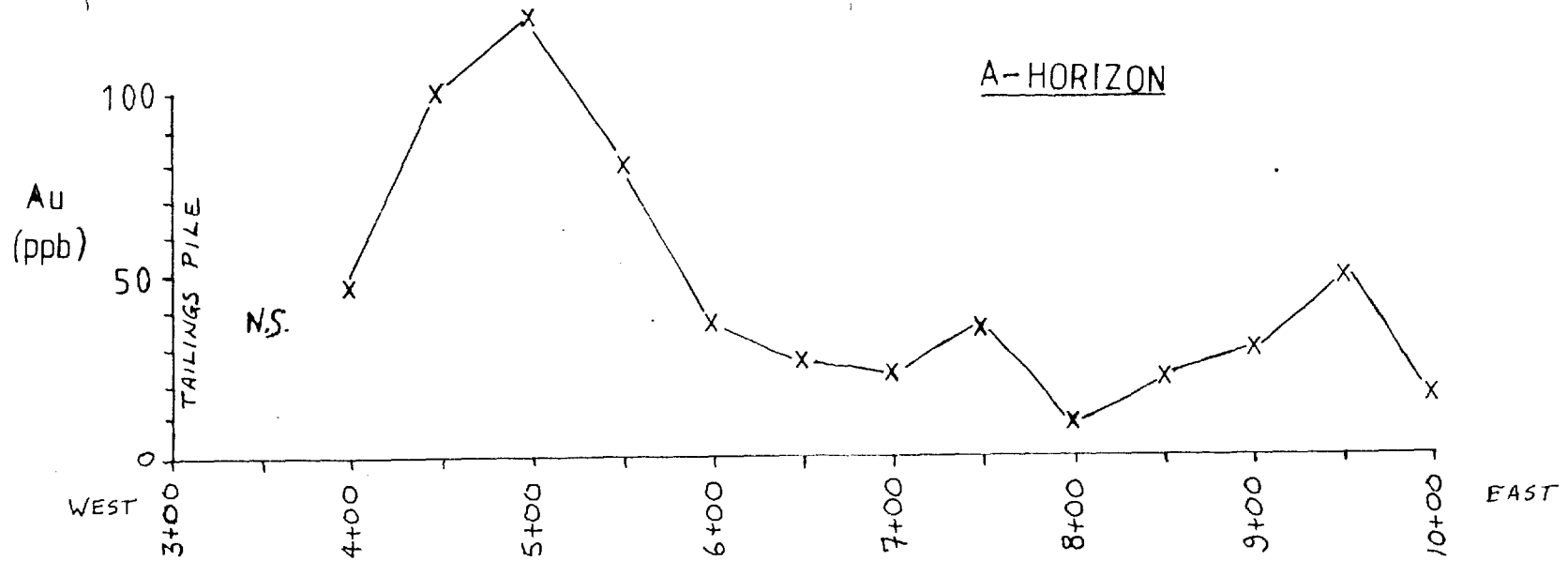


FIGURE 23 - Pilot Soil Survey, Au Results from L 22+00 N

sampling techniques with Lacana staff. The terrain and soil cover varies widely.

The overburden in the property area consists of lacustrine deposits from the Quaternary Champlain Sea. These clay and sand deposits locally overlie thin sandy till deposits. In the mine area much of the overburden has been disturbed and is in part covered by large tailing piles and waste rock. A fair portion of the property consists of farmer's fields which are covered by lacustrine clays. Swampy areas are underlain by thick peat deposits.

Pilot soil surveys were conducted in the area of the Bowie zone and the Ste. Anne zone. Three lines, 800 to 1000 feet long, were sampled over each zone and the sampling started from tailing piles. Gold concentrations from A and B horizons on L22+00N (Ste. Anne zone) are shown in figure 23. The results show greater background gold concentrations in A-horizon than in B-horizon, reverse to what is usual. This is conclusive evidence of windborne contamination in the A-horizon. Contamination in the B-horizon is restricted to the first 300 feet. Zn, Ag, and Pb indicator elements gave similar results.

South Extension Soil Grid

The South Extension soil sampling survey covers an area between lines 0+00 and 20+00S, by the base line and tailings pile to the east and the Ottawa River to the west. Lines are at 200 foot intervals and sampling was done every 50 feet. A-horizon samples were collected over the whole grid while B-horizon samples were taken between lines 6+00S to 20+00S and from 7+00W to 19+00W. Surface geology and diamond drilling indicate an auriferous and sulphide rich

horizon striking from line 6+00S, 6+50W to at least line 16+00S, 9+50W, which is covered by this soil sampling survey. The results are plotted and contoured on 1:2400 scale maps on figures 24 and 25 (map pocket).

Windborne contamination has severely affected the A-horizon results on the east half of the grid, and to a lesser extent on the west half of the grid. Background values are high and the contrast between threshold and anomalous values are low to non-existent. Although a small anomaly in all elements is present over the south part of the mine horizon, windborne contamination negates the viability of A-horizon sample media.

On the other hand, B-horizon sample media yielded excellent results. Threshold values for amphibolite and leucocratic biotite gneiss are; for gold (ppb), 3 and 2; for silver (ppm), 0.2 and 0.3; for zinc (ppm), 90 and 200; and for lead (ppm), 10 and 20. Contrast between threshold and anomalous values are high enough to make mineralized horizons easily discernable.

From the B-Horizon results (figure 25), strong gold, silver, and zinc anomalies coincide with, and are slightly displaced west of the known mineralization. The lead anomaly is weaker but still distinguishable. All anomalies extend from line 7+00S, 7+00W to line 18+00S, 10+00W. Anomalous values for the indicator elements range as follows;

- (1) Gold - 7 to 21 ppb with highs of 127 and 3295 ppb
- (2) Silver - 0.5 to 1.3 ppm, high of 9.0 ppm
- (3) Zinc - 300 to 600 ppm
- (4) Lead - 30 to 50 ppm

Several other spot anomalies should be followed up. The most notable

is a gold anomaly (of up to 15 ppb Au) extending from line 10+00S to 14+00S, 18+00W which is located at the contact between amphibolite and biotite gneiss.

The 1986 soil survey indicated that B-horizon sample media is much more effective than A-horizon sample media in distinguishing anomalous zones within 2000 feet of tailings piles. B-horizon results give discernable halos of 50 to 100 feet for gold and silver, and 200 to 400 feet for zinc and lead. Although indicative, lead anomalies have a lower contrast and as a cost savings measure can be dropped from future soil surveys.

Diamond Drilling 1986

The purpose of the 1986 diamond drilling program was:

- 1) to sample the entire width of the mine horizon in areas where N.C.M. obtained economical gold values and thereby determine the extent, distribution, and continuity of the gold mineralization around and within the massive sulphide mineralization.
- 2) to test other gold bearing horizons in the vicinity of the massive sulphide zone which were located by N.C.M. but remained underdeveloped.
- 3) to follow-up targets outlined by the surface exploration program.

A report and compilation map on N.C.M. gold intersections was prepared by D. Villeneuve prior to the 1986 field program (see memo dated January 24, 1985 and figure 12). It outlined three possible gold bearing horizons. The possible auriferous horizons are the Upper, Main, and Migmatite (Lower) Gold zones. The majority of N.C.M. gold intersections are located in the Longstreet zone and this is where half of the 1986 diamond drill holes were drilled.

The major drilling and planning problem is the presence of stopes which makes it difficult to conduct systematic exploration in the mined areas by surface diamond drilling. Holes were drilled at the edges of stopes and sometimes through pillars less than 40 feet wide. A few drill holes ended in stopes and were abandoned

The following is a discussion of the drill results which begin with the Russel and Macdonald zones, followed by the Longstreet zone, and the Bowie zone. Drill hole locations and attitudes are

Table V - Calumet Island Diamond Drilling 1986

HOLE NO	COLLAR LOCATION (FEET)	DIP (DEG)	BEARING (DEG)	DEPTH (FEET)	ZONE DRILLED
CA-86-001	L6+00N, 4+65W	-60	238	348.5	MACDONALD
CA-86-002	L7+00N, 4+65W	-60	238	310.0	MACDONALD
CA-86-003	L11+00N, 2+00W	-70	238	459.0	MACDONALD
CA-86-004	L11+00N, 0+00	-80	238	459.0	MACDONALD
CA-86-005	L10+50N, 2+00E	-70	328	479.0	RUSSEL
CA-86-006	L10+50N, 2+00E	-90	-	660.0	LONGSTREET
CA-86-007	L1+255, 2+65W	-50	238	379.0	LONGSTREET
CA-86-008	L2+00S, 2+25W	-50	238	409.0	LONGSTREET
CA-86-009	L0+35S, 0+05E	-90	-	579.0	LONGSTREET
CA-86-010	L0+86N, 0+70W	-90	-	310.0	LONGSTREET
CA-86-011	L0+20S, 1+43E	-80	238	340.0	LONGSTREET
CA-86-012	L1+48N, 1+40E	-90	-	700.0	LONGSTREET
CA-86-013	L0+20N, 0+64E	-90	-	400.0	LONGSTREET
CA-86-014	L6+00S, 1+10W	-50	306	349.0	BOWIE ZONE
CA-86-015	L7+50S, 0+38E	-45	306	410.0	BOWIE ZONE
CA-86-016	L7+50S, 0+05W	-70	238	370.0	SOUTH EXTENSION
CA-86-017	L7+00S, 0+25W	-47	306	357.0	BOWIE ZONE
CA-86-018	L1+10S, 4+18E	-90	-	950.0	LONGSTREET
CA-86-019	L8+36N, 2+10E	-86	238	660.0	MACDONALD
CA-86-020	L3+12N, 2+37E	-90	-	790.0	LONGSTREET
CA-86-021	L2+00N, 1+10W	-70	238	410.0	LONGSTREET
CA-86-022	L1-48N, 2+33E	-90	-	690.0	LONGSTREET

TOTAL FOOTAGE 10,818.5 FEET

summarized in Table V and figure 12, , and gold and silver intersections are summarized in Tables VI, VII, and VIII and figure 12. Two sets of sections are available for reference. One set at 1" = 50' shows the geology, the sample intervals, and the analytical results. Another set, at a scale of 1" = 100', combines the N.C.M. information with the 1986 diamond drill hole data and highlights the better mineralized sections. The latter are used for this discussion(appendix III). Assay results are included in the drill logs of Appendix II.

Macdonald and Russel Zones

Ca-86-001 to 006, and 019 were drilled in this zone.

Drill holes Ca-86-03, 04, and 06 were drilled on section 11+00N (appendix III), spaced 200 feet apart. Drill hole Ca-86-03 was positioned to test the mine horizon in an area where N.C.M. obtained gold values at the 85' level (0.25 opt Au and 6.25 opt Ag/11.5 ft) and on the 200' level, associated with the massive sulphide mineralization. Hole 3 intersected 2 mineralized zones. The first, from 25.75 to 45.25 ft., consists of a 1 foot wide massive sulphide unit with associated calc-silicate rock and white carbonate zone which returned 0.033 opt Au and 7.27 opt Ag over 5.45 ft. (table VI). The second zone, at a point where the hole penetrated through a pillar, intersected 10 ft of massive sphalerite and galena followed by a white carbonate zone and calc-silicate rock containing stringers and disseminations of sphalerite and galena. The interval between 184 ft. and 213.5 ft. averaged 0.09 opt Au and 8.3 opt Ag over 29.5 ft. including an 8.5 ft. thick unit of calc-silicate rock, situated below the massive sulphide unit, which returned 0.205 opt Au and 7.96 opt Ag. The second mineralized zone is one of the better examples of the gold distribution within the mine horizon. Above the massive sulphide unit a 2.5 ft. interval of silicified biotite gneiss with stringers of sphalerite and galena assayed 0.106 opt Au and 6.6 opt Ag. The massive sulphide unit contains low gold values (0.037 opt) but high silver (up to 13.7 opt). Underlying this unit a silicified biotite gneiss with stringers of sphalerite and galena contains 0.066

Table VI - Macdonald and Russel Zones,
Important Drill Intersections 1986,

HOLE #	SECTION	LOCATION	DIP (DEG)	INTERVAL (FEET)	WIDTH (FEET)	AU (OPT)	AG (OPT)	AU/AG* GOLD EQUIV. (OPT)	COMMENTS
CA-86-									
1	6+00N	4+67W	-60	52-55	3	0.039	4.02	0.106	MAIN ZONE
				55-58	3	0.002	2.27	0.039	
				58-61	3	0.010	14.36	0.249	
		COMBINED		52-61	9	0.017	6.88	0.132	
2	7+00N	4+65W	-60	16-20	4	0.034	8.64	0.178	MAIN ZONE
				20-25.5	5.5	0.009	2.43	0.049	
		COMBINED		16-25.5	9.5	0.021	5.53	0.113	
3	11+00N	2+00W	-70	45-50.5	5	0.033	7.27	0.154	UPPER ZONE
				184-186.5	2.5	0.106	6.60	0.216	MAIN ZONE
				186.5-191.5	5	0.015	8.74	0.161	MAIN ZONE
				191.5-196.5	5	0.037	13.70	0.265	MAIN ZONE
				196.5-202	5.5	0.066	7.23	0.181	MAIN ZONE
				202-205	3	0.035	1.61	0.062	MAIN ZONE
				205-209	4	0.196	9.21	0.349	MAIN ZONE
				209-213.5	4.5	0.214	6.85	0.328	MAIN ZONE
		COMBINED		184-213.5	29.5	0.090	8.30	0.228	
4	10+95N	0+00	-80	86-90	4	0.056	-	0.056	HANGING WALL
				374.7-328.5	3.8	0.068	2.80	0.115	MAIN ZONE
5	OFF SECTION - 328	AZMITH							
	10+50N	1+92E	-70	335-340.5	5.5	0.027	5.98	0.127	MAIN ZONE

*Gold equivalent - Au @ \$350.00/ounce (US)
Ag @ \$ 5.75/ounce (US)

opt Au and 7.23 opt Ag over 5.5 ft. This is followed by the calc-silicate rocks which contain the highest gold values as mentioned previously.

If the precious metal content (Au and Ag) of the entire section from 184 - 213 ft. is converted into gold equivalent, utilizing current gold (\$350.00 US) and silver (\$5.75 US) prices, the average grade of the second zone in hole 3 is 0.228 opt Au (equivalent) over 29.5 ft. From here on this calculation will be referred to as (Au + Ag) Au equivalent.

Drill hole CA-86-04 (section 11+00N), positioned 200 northeast of 3 intersected a narrow massive sulphide zone which is likely the down dip extension of the first or upper mineralized zone intersected in hole 3. No significant gold values were obtained. The down dip extension of the second or lower mineralized zone of hole 3 was intersected in hole 4. It is much narrower and only the upper portion of the zone assayed 0.068 opt Au and 2.8 opt Ag over 3.8 ft. Hole 4 intersected a third mineralized zone below the second zone which returned negligible gold values. In the upper portion of hole 4 a value of 1940 ppb Au over 4 ft was obtained at the contact between carbonated amphibolite and siliceous biotite gneiss.

Drill hole CA-86-06, drilled 100 ft. NE of hole 4, intersected only one mineralized zone consisting of coarse biotite rock and calc-silicate rock with stringers and disseminations of sphalerite and galena. No significant gold or silver values were obtained.

Hole Ca-86-05 (section 10+50N) was drilled from the same set up as hole 6 at a dip of -70 and was oriented parallel to the baseline at an azimuth of 328 degrees . Its purpose was to test a high grade gold mineralized zone on the 300 ft. level of the mine. This zone is

associated with a NE-SW trending lense of base metal mineralization mined by N.C.M.. The better N.C.M. values are 0.52 opt Au and 35.32 opt Ag over 9.8 ft. in hole 3-114 and 0.23 opt Au and 8.73 opt Ag over 10.9 ft. in hole 3-130.

Hole 5 intersected calc-silicate rocks and coarse biotite zones sparsely mineralized with sphalerite and galena from 335.25' to 349.25'. The best assay obtained in this zone is 0.027 opt Au and 5.98 Ag over 5.5 feet or a 0.127 opt (Au + Ag) gold equivalent.

CA-86-001, 002, and 019 were drilled between the Macdonald and Longstreet ore shoots. Ca-86-019 (section 8+36 N) passed between two small stopes at 560'. The targeted N.C.M. gold intersection on the 500' level was not encountered, indicating the gold distribution is erratic. Ca-86-001 and 002 (sections 6+00 N , 7+00 N) were collared in the crown pillar of the mine to test sub-surface mineralization where N.C.M. reported 0.91 opt Au and 1.85 opt Ag over 14 ft., at a depth of 25 ft.. Both holes intersected calc-silicate rock and white carbonate zones containing disseminated sphalerite and galena, near the surface. The best gold value obtained was 0.039 opt Au with silver ranging from 2 to 14 opt (table VI). In gold equivalent hole 1 averaged 9 feet of 0.132 opt Au.

Longstreet Zone

Ca-86-007 to 013, 018, and 020 to 022 were drilled in the Longstreet zone (figure 12).

Ca-86-021 (section 2+00 N) cut three overlapping mine horizons between the 200 and 300 foot levels. N.C.M. intersected several gold

Table VII - Longstreet Zone,
Important Drill Intersections 1986,

HOLE #	SECTION	LOCATION	DIP (DEG)	INTERVAL (FEET)	WIDTH (FEET)	AU (OPT)	AG (OPT)	AU/AG* GOLD EQUIV. (OPT)	COMMENTS	
8	2+00 S	2+25W	-45	290-295	5	0.050	-	0.050	FOOTWALL	
				295-300	5	0.033	-	0.033	AU MIGMATITE	
9	0+355	0+05E	-90	207-210	3	0.050	1.30	0.072	HANGING WALL STRINGERS	
				260.3-262.3	2	0.620	-	0.620	HANGING WALL	
				262.3-267	4.7	0.048	0.12	0.050	CONTACT ZONE	
				267-271.8	4.8	0.098	0.21	0.101		
				COMBINED	260.3-262.3	11.5	0.115	0.10	0.115	
				277-279	2	0.019	3.55	0.078	MAIN ZONE	
				309-314	5	0.036	3.80	0.099	FOOTWALL	
				314-317.7	3.7	0.037	5.58	0.130	AU MIGMATITE	
				317.7-320.3	2.6	0.040	9.91	0.205		
				COMBINED	309-320.3	11.3	0.037	5.70	0.132	
10	0+86N	0+70W	-90	307.8-310	2.2	0.018	4.79	0.098	MAIN ZONE	
12	1+48N	1+40E	-90	425-430	5	0.009	7.92	0.141	MAIN ZONE	
				430-432	2	0.007	3.83	0.071		
				COMBINED	425-432	7	0.008	6.50	0.116	
				433-446	3	0.133	9.01	0.280	LOWER MAIN	
				446-451	5	0.011	3.37	0.067	ZONE	
				COMBINED	435-451	8	0.050	5.00	0.133	
				486-491	5	0.016	0.68		FOOTWALL	
				491-496	5	0.013	0.37		AU MIGMATITE	
				496-501	5	0.018	0.25			
				501-505	4	0.024	0.11			
505-529.5	4.5	0.019	0.20							
529.5-512.5	3	0.180	0.62	0.140						
512.5-517	4.5	0.032	1.07	0.050						

* Gold equivalent - Au @ \$350.00/ounce (US)
Ag @ \$ 5.75/ounce (US)

Table VII - Continued

HOLE #	SECTION	LOCATION	DIP (DEG)	INTERVAL (FEET)	WIDTH (FEET)	AU (OPT)	AG (OPT)	AU/AG* GOLD EQUIV. (OPT)	COMMENTS
CA-86-									
12	1+48N	1+40E	-90	517-522	5	0.159	0.76	0.172	FOOTWALL AU MIGMATITE
				522-527	5	0.037	0.13		
				527-532	5	0.028	0.04		
				532-537	5	0.032	0.08		
				537-542	5	0.022	0.73		
				542-547	5	0.016	0.16		
				547-552	5	0.029	0.05		
				552-557	5	0.046	0.08		
				557-562	5	0.016	0.10		
		COMBINED		529.5-522	12	0.097	0.71	0.109	
13	0+20N	0+64E	-90	343.5-345.5	2	0.025	6.00	0.125	UPPER MAIN ZONE
				345.5-351	5.1	0.039	10.68	0.217	
				351-353.5	2.5	0.005	10.36	0.178	
				353.5-354.7	1.2	0.002	13.24	0.223	
		COMBINED		343.5-345.5	10.8	0.024	10.27	0.195	
				360-364.6	4.6	0.039	18.27	0.343	
18	1+105	4+48E	-90	490-494.2	4.2	0.040	0.25	0.044	MAIN ZONE
				494.2-498.5	4.3	0.104	1.50	0.129	
		COMBINED		490-498.5	8.5	0.072	0.87	0.086	
20	3+12N	2+37E	-90	455-460	5	0.548	0.30	0.548	HANGING WALL
				489-494	5	0.050	0.02	0.050	
				508-513	5	0.052	0.81	0.065	
				513-523	10	0.032	0.70	0.044	
				558-562.8	4.8	0.019	5.21	0.106	MAIN ZONE
				562.8-567.2	4.4	0.046	3.52	0.075	
		COMBINED		558-567.2	9.2	0.017	4.36	0.090	
				589-594	5	0.071	0.12	0.074	
				660-665	5	0.064	0.55	0.078	FOOTWALL AU MIGMATITE
				670-675	5	0.039	0.12	0.041	

*Gold equivalent - Au @ \$350.00/ounce (US)
 Ag @ \$ 5.75/ounce (US)

Table VII - Continued

HOLE #	SECTION	LOCATION	DIP (DEG)	INTERVAL (FEET)	WIDTH (FEET)	AU (OPT)	AG (OPT)	AU/AG* GOLD EQUIV. (OPT)	COMMENTS
CA-86-									
22	1+48N	2+33E	-90	540.5-545.5	5	0.044	<0.01		FOOTWALL AU MIGMATITE
				545.5-549.8	4.3	0.022	0.08		
				549.8-553	3.4	0.012	0.14		
				553-556.4	3.6	0.011	0.44		
				556.4-560	3.6	0.035	0.20		
				560-565	5	0.057	0.61	0.067	AU MIGMATITE
				565-570	5	0.297	0.61	0.307	
				570-575	5	0.139	0.23	0.142	
				575-580	5	0.169	0.67	0.180	
				580-585	5	0.024	0.09	0.024	
				585-590	5	0.022	0.21	0.025	
				590-595	5	0.090	0.12	0.092	
				595-600	5	0.370	0.06	0.371	
				600-605	5	0.106	0.31	0.111	
				605-610	5	0.258	0.20	0.261	
				610-615	5	0.189	0.40	0.195	
				615-620	5	0.312	0.63	0.322	
	COMBINED			560-620	60	0.169	0.35	0.175	
	WITH HIGH GRADE SECTION			595-620	25	0.247	0.32	0.252	

*Gold equivalent - Au @ \$350.00/ounce (US)
 Ag @ \$ 5.75/ounce (US)

values in the 0.1 opt range on the 200 foot level associated with the upper mineralized horizon, but Ca-86-021 indicated this horizon is pinching out. The 80 foot wide middle horizon consists of calc-silicates, coarse biotite, and a 30 foot section of marble. Values of 500 ppb Au and 1 opt Ag were obtained from a coarse biotite unit. No expression of the lower mine horizon was observed and it has therefore pinched out. An interesting feature of the middle marble horizon is the presence of a fluorite-filled, 10 foot long fracture sub-parallel to the core axis. Also present is a highly silicified, 30 foot wide fault zone at the bottom of the hole.

Ca-86-010, 011, and 013 (section 0+00) hit stopes between the 300 and 400 foot levels and had to be discontinued. All three holes returned low gold values and up to 18 opt silver (table VII, hole 13) in the calc-silicate and coarse biotite rock directly above the stopes (mine horizon).

Ca-86-009 (section 0+00) was sunk through the #1 shaft pillar, traversed a drift, and ended in the footwall leucocratic biotite gneiss. The mine horizon is about 50 feet true width and is composed of pods and lenses of calc-silicates, marble, coarse biotite, and massive sulphides. This width returned assays up 10.0 opt silver and averaged 0.040 opt gold. Visible gold was observed in siliceous amphibolite directly overlying the siliceous biotite gneiss and this area averaged about 0.115 opt gold over a 11.5 ft. or a true width of 8.5 ft. The sample with the visible gold assayed 0.62 opt Au over 2 feet. Several zones of coarse biotite underlying the mine horizon ran 100 to 500 ppb gold.

Ca-86-012 and 022 (section 1+48 N) were collared 100 feet apart and passed through 20 to 35 foot wide pillars. The mine horizon was

intersected at the 400 and 500 foot levels, respectively, and it contains highly anomalous to economic grades of gold and silver, the best being 0.133 opt Au and 9.01 opt Ag over 3 ft in hole 12. Some 30 to 60 feet below the mine horizon in the footwall, a horizon with anomalous to economical gold values was intersected in both holes 12 and 22. This horizon has a particular mineral assemblage and is distinctly different than the mine horizon which hosts the massive sulphides. It is referred to as the Gold Migmatite zone mainly because on the older set of mine plans, utilized for the preliminary evaluation of the deposit, N.C.M. had gold values associated with a migmatite unit which was subsequently re-interpreted as an ore alteration unit (mine horizon). Although the gold zone is not associated with a migmatite the term Au-migmatite will be used for this auriferous zone.

The Au-migmatite zone in hole 12 and 22 consists of grey, fine grained, well foliated siliceous biotite gneiss with 20 to 30 percent bands of coarse biotite, 1 to 20 percent garnets, 10 to 20 percent amphiboles, and moderate to intense lit-par-lit development. Subhedral garnets are 1 to 5 millimeters wide and are commonly in pods lineated along the foliation. Coarse grained, radiating clusters of dark green, euhedral amphibole (probably actinolite-tremolite) crystals can be up to 3 centimeters long. Garnets and amphiboles are associated with coarse biotite bands and can be intermixed. Amphibole content increased towards the bottom of this horizon. Sulphides are in abnormally low concentrations with respect to the mine horizon, averaging between 2 to 5 percent. Pyrite is the most common, while pyrrhotite is rare. The amount of pyrrhotite does not explain the very high magnetic susceptibility and

therefore fine grained, disseminated magnetite is suspected.

The origin of the Au-migmatite is unknown but the mineralogical habits and textures suggest that more than one deformational event contributed to its formation. The best evidence is the difference between clusters of garnets and amphiboles. Garnets formed first in masses of euhedral crystals and were subsequently deformed into lineated pods of fractured, subhedral crystal forms. The radiating habit of euhedral amphiboles infers that they were not affected by deformational events and that they appeared at the last stage of the formation of the Au-migmatite.

The Au-migmatite zone in Ca-86-012 averaged about 0.030 opt gold and 0.33 opt silver over a 65 foot true width, including 12 feet of 0.097 opt gold and 0.71 opt silver. The same horizon 100 feet down dip, in Ca-86-022, averaged 0.169 opt gold and 0.35 opt silver over a 55 foot true width with a 23 foot high grade section of 0.247 opt gold and 0.32 opt silver. The minerals and fabric which make this horizon distinct are much more pronounced in Ca-86-022. Three visible gold specks observed in Ca-86-022 were not related or enclosed by any one mineral or mineral assemblage other than the Au-migmatite as a whole. They appear in either garnet masses, siliceous biotite gneiss, or are encased in silica.

The Au-migmatite zone grades quickly into a leucocratic biotite gneiss in both Ca-86-012 and 022. A thirty foot wide, magnetite bearing, fine grained amphibolite is present within the first 50 feet of this unit. Magnetite occurs as fine grained blebs of up to 3 millimeters in diameter and varies from 1 to 10 percent.

Ca-86-020 (section 3+12 N) was collared 150 feet north of Ca-86-02 and was drilled through a pillar in the mine horizon at 530 feet

depth. A 5 foot intersection, running 0.548 opt gold, was found in siliceous amphibolite directly overlying the siliceous biotite gneiss. Several low grade intersections are located above and below the mine horizon, they ran between 2 to 5 opt silver and are weakly anomalous in gold. A zone similar to the Au-migmatite was intersected beneath the mine horizon at a depth between 580 to 700 feet. Coarse biotite is very common but garnets, amphiboles, and lit-par-lit structures are rare. This zone averaged 200 to 300 ppb gold with three five foot sections assaying between 0.039 to 0.071 opt Au. The first 60 feet of this horizon averaged about 1.0 opt silver. A magnetite bearing amphibolite is present under the Au-migmatite zone, as in holes 12 and 22, but the upper contact between the amphibolite and leucocratic biotite gneiss consists of a 40 foot wide, highly silicified fault zone.

Ca-86-018 (section 1+08 S) was drilled as close as possible to the south edge of the Longstreet ore zone and intersected the mine horizon at the 600 foot level. Many high grade N.C.M. intersections are present in the stope area to the north but unfortunately there was no pillar large enough to drill through. A shallowly dipping offshoot of the main horizon was intersected between the 400 and 500 foot levels and a 5 foot wide marble unit assayed 0.104 opt gold and 1.25 opt silver. The main mine horizon was not encountered at the 600 foot level, per say, but this was expected since N.C.M. did not find any massive sulphides. Instead, a very wide zone of siliceous to leucocratic biotite gneiss with 10 to 20 percent coarse biotite bands was present and it extends from 600 to 825 feet. This zone is similar to the Au-migmatite but not as well developed. Only minor amphibole, garnet, and lit-par-lit structures are present. Gold

concentrations are low, averaging 50 ppb and one 5 foot section contained 500 ppb.

Ca-86-007 (section 1+25 S) and 008 (section 2+00 S) tested the extension of the Longstreet mine horizon on the south side of the diabase dike. The mine horizon was intersected above 200 feet depth with a gold content ranging from 200 to 500 ppb and moderately high silver values. Ca-86-008 cut a Au-migmatite like unit 120 feet under the mine horizon which averaged 1200 ppb gold over ten feet.

Bowie and South Extension Zones

Ca-86-014, 015, and 017 were drilled in the Bowie zone and Ca-86-016 was drilled in the mine horizon which extends south of the Bowie zone. The N.C.M. 200 level and stope plans for this area indicate several low grade intersections (approximately 0.070 opt gold).

Table VIII - Bowie and South Extension Zones,
Important Drill Intersections 1986,

HOLE #	SECTION	LOCATION	DIP (DEG)	INTERVAL (FEET)	WIDTH (FEET)	AU (OPT)	AG (OPT)	AU/AG* GOLD EQUIV. (OPT)	COMMENTS
CA-86-									
15	OFF SECTION	306 azimuth							
	7+505	0+05	-45	225.5-228	2.6	0.060	0.71	0.07	UPPER
				228.1-230	1.9	0.098	1.85	0.125	ZONE
16	7+50S	0+05W	-70	274-279	5	0.151	0.2		MAIN ZONE

*Gold equivalent - Au @ \$350.00/ounce (US)
Ag @ \$ 5.75/ounce (US)

The outline of the mine horizon at the 200 level forms an isoclinal S-shaped fold, 100 feet wide. Trenching and mapping confirm this fold on surface. The Bowie surface pit is actually the mined out core of the fold and only minor pods of massive sulphides extend below a depth of 50 feet. Ca-86-014, 015, and 017 (section Bowie Zone) were drilled through the minor fold to test the continuity of the gold values obtained in the Bowie pit.

All three holes intersected the same stratigraphic sequence and confirmed the presence of a second mineralized horizon within the overlying carbonated amphibolite. In descending structural order the units consist of leucocratic biotite gneiss, carbonated amphibolite with a 50 foot horizon of mineralized siliceous biotite gneiss, siliceous biotite gneiss hosting the main mine horizon, and leucocratic biotite gneiss. The biotite gneiss within the carbonated amphibolite grades from melanocratic to leucocratic to siliceous, and at the lower contact there is a mineralized horizon similar to the mine horizon. Very little of this horizon was mined by N.C.M..

The upper mineralized horizon consists of calc-silicates and coarse biotite. Assays from the three holes indicated that gold concentrations increase at depth with the deepest intersection (Ca-86-015) running 0.07 opt gold and 1.0 opt silver over 4.5 feet. The lower and main mine horizon consists of marble, calc-silicates, and coarse biotite with minor disseminated sulphides. Only weakly anomalous values were obtained from this zone and they are usually associated with coarse biotite rich zones. Gold values range from 100 to 400 ppb and silver assays range from 0.5 to 3.0 opt.

Ca-86-016 (section 7+50 S) intersected the mine horizon 250 feet south of the Bowie zone at 200 to 300 feet depth. The same sequence of strata as the Bowie zone is present. The upper mineralized zone averages between 100 to 400 ppb gold and 10 ppm silver over 24 feet. The main mineralized horizon has narrowed to 30 feet width and consists mainly of siliceous coarse biotite with calc-silicates. It is weakly anomalous in gold and silver. Within this unit a 5 foot section returned an assay of 0.151 opt gold . Since the southern extension of the mine horizon is not mined, relatively unexplored, and considering several gold values were obtained, this unit will warrant further work.

Conclusions

The 1986 mapping, trenching, and sampling program resulted in the discovery of several surface gold and gold-silver occurrences either associated with the base metal bearing mine horizon or in other areas of the property. These are mainly the Bowie Zone, the southern extension of the mine unit, and the Belgian trench area.

Contradictory to the N.C.M. maps the mine horizon was found to extend at least 1200 feet further to the south.

Soil sampling of the B-horizon successfully detected the southern extension of the mine horizon and has revealed to be a more responsive sample medium than the humus layer. Soil sampling, especially of the humus horizon, in proximity of the tailing piles was not successful due to abundant contamination.

Magnetic and VLF-EM surveys were carried out over the mine grid. Anomalous responses from both surveys were detected over known base metal mineralization. Other anomalies require further investigation.

Lacana's 1986 drilling program confirmed the presence of anomalous to ore grade concentrations of gold in and around the N.C.M. mine horizon. Four zones of gold mineralization are considered; the Upper Gold zones, the Main Gold zones, the Migmatite (Lower) Gold zones, and Minor Gold zones.

The Upper Gold zones consist of spotty, high grade gold mineralization at the contact between siliceous biotite gneiss and overlying carbonated amphibolite. It occurs in the silicified portion of the carbonated amphibolite directly adjacent to the contact and is best represented in Ca-86-009 and 020 with gold assays of 0.620 opt over two feet and 0.548 opt over five feet,

respectively. Little silver is associated with this zone. The gold mineralization in the Upper Gold zone appears erratic and therefore the potential of the Upper Gold zone at this stage appears very limited.

The Main Gold zone is associated with the N.C.M. mine horizon. Significant gold mineralization occurs in massive sulphide units, and in coarse biotite rock, marble units, and calc-silicated rocks containing stringers and disseminations of sphalerite and galena laterally and adjacent to the massive sulphide pods. Gold grade is generally low, 0.05 opt to 0.25 opt, but the silver content is high, 2 to 18 opt, making this zone economic.

From Figure 12 many of the gold intersections obtained by N.C.M. from their underground and surface diamond drilling are associated with the main massive sulphide ore bodies, especially with the Longstreet zone. During the course of the preliminary evaluation of the deposit it was apparent from closely spaced underground drill holes that the gold distribution is very erratic and from that data no economically significant auriferous ore body could be outlined. However, clusters of gold intersections appear to be confined to certain areas. The problem then was to determine whether:

- 1) The gold distribution is truly erratic.
- 2) Is the gold distribution related to a structural control other than that which controls the distribution of the massive sulphide zones.
- 3) Is the erratic nature of the gold distribution due to incomplete sampling of the mine horizon. N.C.M. likely preferentially or exclusively sampled areas which contain sufficient visible base metal sulphide.

- 4) Are there any associated auriferous horizons to the massive sulphide unit on the mine horizon.

Results from the 1986 drill program indicate, from four holes which intersected the main sulphide ore bodies, significant gold values are discontinuous between holes spaced 50 to 200 feet apart. The results also show that although the massive sulphide zones are enriched in gold, the majority of the better gold values were obtained in rock which contain a lesser amount of base metal mineralization adjacent to the massive sulphides, within the mine horizon as well as in the immediate foot wall and hanging wall. Significant silver values are commonly associated with the gold values in these zones. There is an insufficient number of 1986 drill holes to be conclusive. There may yet be an auriferous ore zone(s) of sufficient size to be economical or, more likely, unmined areas of the mine horizon where the combined gold and silver content would be sufficient to be economic. For example holes Ca-86-001, 002, 003, 005, verified N.C.M. records indicating that the lateral zones contain economic to sub-economic precious metal contents. If precious metal content (Au + Ag) is converted into gold equivalent then grades run from 0.100 to 0.400 opt gold (equivalent). Due to an incredible number of stopes, systematic exploration of the mine horizon would best be conducted by underground sampling and diamond drilling.

The Bowie zone and the southern extension of the mine horizon was neither mined nor explored by N.C.M., and therefore has excellent potential.

The Migmatite Gold zone is situated in the footwall of the N.C.M. mine horizon and is comprised of a siliceous, garnetiferous,

calcic-amphibole gneiss with coarse biotite bands and moderate to intense development of quartz-rich segregations. This zone was intersected in Ca-86-009, 012, 020, and 022, and the edges of migmatite-like zones were intersected in Ca-86-002, 008, 018 and 021. These holes indicated that higher grade gold values are associated with a greater development of garnets, quartz segregation bands, and calcic-amphiboles. In this zone, silver grades are commonly less than 1.0 opt and therefore are less significant for an economic evaluation.

It appears that the main Migmatite Gold zone intersected by Lacana in 1986 underlies and parallels the Longstreet zone. Economic gold grades and widths begin at the 400 foot level and become wider and higher grade to at least 550 feet depth. Early indications suggest highly variably widths and grades but these variables are still largely unexplored. N.C.M. drill holes intersected auriferous Migmatite Gold zones at the 500, 600, 1000, 1200 and 1300 foot levels but continuity between intersections has not been proven. Migmatite-like units were encountered by N.C.M. at other levels but few were tested for gold potential.

The Migmatite Gold zone is of greater interest than other Gold zones because of its potential grades and widths, it is unmined and unexplored, and there are a few indications that it might have strike lengths and down dip extensions.

A feature which is relatively unique to the Migmatite Gold zone is an underlying magnetiferous, fine grained amphibolite. This footwall amphibolite is common in many drill holes but it rarely contains magnetite, except under the Migmatite Gold zone. This unit might be useful as a marker horizon.

Minor gold zones include mine horizon offshoots and stringer or base metal sulphide veins. The best examples are in Ca-86-018 and the Belgian zone at surface. Ca-86-018 intersected a marble horizon at 500 feet depth, 100 feet above the mine horizon. A 8 foot interval assayed 0.072 opt gold and 0.87 opt silver. N.C.M. records indicate this zone is an offshoot of the main mine horizon at the 400 foot level. The Belgian trench contains marble, calc-silicate rock, coarse biotite rock, and massive to disseminated sulphides. This zone coincides with the up dip projection of the 900 level fault and is possibly related to it. Very little is known about this zone but grab samples assayed up to 0.150 opt gold.

REFERENCES

- Ells, R.W., 1906, Geology of portions of Pontiac, Carleton, and Renfrew Counties: Geol. Surv., Rept. No. 977.
- Goranson, R.W., 1925, Calumet Island, Pontiac County, Quebec: Geol. Surv. Can., Summary Rept., Part C, p. 105-124.
- James, W.F., Buffam, B.S., Cooper, M.A., 1964, Report on New Calumet Mines Ltd.: Unpublished mine evaluation report.
- Martin, W.C., 1968, A Review of the Calumet Mine Geology: Unpublished exploration evaluation report.
- Moorehouse, W.W., 1941, Geology of the zinc-lead deposit on Calumet Island, Quebec: Geol. Soc. America Bull. V. 52, p. 601-632.
- Osborne, F.F., 1944, Calumet Island Area, Pontiac County, Quebec: Dept. Mines, Geol. Report. 18, 30 p.
- Sangster, A.L., 1967, Metamorphism of the New Calumet sulphide deposit, Quebec: Unpublished M.Sc. Thesis, Carleton University.
- Sangster, A.L., and Bourne, J., 1982, Geology of the Grenville Province, and regional metallogenesis of the Grenville Supergroup: in Precambrian Sulphide Deposits, R.W. Hutchinson, C.D. Spence, and J.M. Franklin, eds., Geol. Ass. of Can., Sp. Paper 25.

CA-86-01

LACANA MINING CORPORATION

DIAMOND DRILL RECORD

CA-86-1

Hole #

Page 1 of 7

Property: NEW CALUMET MINES Location L6+00N, 4+67 W Down Hole Surveys Acid test Drilled By: TINDALE Drilling
 Area (Map #): _____ Grid: _____ Depth: 348.5 Az: - • Dip: -60° From-To: Jul 21 - Jul 22 / 86
 Claim #: _____ • Size(s): BQ
 M.D./County: GRAND CALUMET ISLAND Length: 348.5 (Units: ft) • Logged By: D. Villeneuve
 Province: Qué Azimuth: 238 • Dip Collar: -60 • Signed: Denis Villeneuve

Remarks: _____

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS			
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb	Ag ppm
0	16	Casing	Overburden: Core Recovered from 15' to 16'									
16	21	Pegmatite	Very coarse crystals of feldspar and quartz with minor coarse biotite crystals		6302	16	21	5'			15	6.8
21	39	ALTERED LEUCOCRATIC Biotite Gneiss	Drab grey, siliceous and felsic, fine to medium grained, 5-15% Biotite. Poorly foliated									
					6303	21	24	3'			5	8.9

Ministère de l'Énergie et des Ressources
 Service de la Géoinformation
 Date: 28 AVR. 1987
 No G.M.: 44397

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS		
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb
39-63.5			<u>MINERALIZED CALC-SILICATE Rock</u> : Green to dark green, medium to coarse grained, non foliated - completely recrystallized rock composed of calcic amphiboles with quartz, feldspar, randomly oriented coarse biotite. Several highly carbonated sections								
	39-49.25		up to 30% py & Po, narrow zones with disseminated sp, Ga ± cpy		6308	39-44	5	0.002	0.54		
			overall <2% base metals.		6309	44-49.25	5.25'	0.001	0.57		
					6310	49.25-52	2.75	0.002	0.53		
	49.25-52		White carbonate zone: calcite, with green amphiboles, 2-5% py-po, 4% sp, trace Ga								
	52-58		5% locally up to 30% Py & Po. Disseminated sp and narrow bands of massive sp & Ga.		6311	52-55	3'	0.039	4.02		
					6312	55-58	3'	0.002	2.27		

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS		
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb
		58-61	Gemi Massive Sulphide Zone: mottled texture, highly carbonated (30% calcite)		6313	58-61	3'	0.01	14.36		
			up to 35% Sp, 10% Gc, 15% py, Po		6314	61-63.5	2.5	0.005	2.33		
		61-62	Coarse calcite vein, ~2% Sp.								
		62-63.5	Leached altered zone, grades into coarse biotite zone with up to 10% Sp, minor Gc.								
63.5-172		LEUCOCRATIC BIOTITE GNEISS: Grey Brown felsic unit, siliceous, fine to medium grained, 5-20% biotite, Abundant recrystallized zones of quartz & feldspar (segregation and sweets). Well foliated at 75 to 90° to LCA.									
		63.5-78	Contains 10% to up to 25% py & Po		6315	63.5-68	4.5			95	32.9

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS			Avg ppm
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb	
			tr cpy, mottled texture, some coarse biotite		6316	68-73	5'			145	11.0	
					6317	73-78	5'			100	7.7	
	78-100		2-5% py, trace cpy,		6318	78-83	5			50	2.1	
	100-107		Slightly more mafic, 10% almandine garnet, trace Py		19	83-88	5			75	1.8	
					20	88-93	5			100	1.0	
	107-114		5% diss. Py		21	93-98	5			35	0.5	
	114-127		2-3% diss py		22	98-103	5			<5	0.1	
	127-168		Very siliceous with 5% diss. py		23	103-107	4			<5	0.3	
	168-172		Several silicified sections, 4% py & pink calcite and fluore veinlet at 172'		24	107-111	4			<5	0.7	
					6325	111-114	3			<5	0.7	
					26	114-119	5			<5	0.1	
					27	119-124	5			<5	0.2	
172-215		<u>GARNETIFEROUS BIOTITE GNEISS</u> Similar			28	124-129	5			<5	0.5	
			to above unit except slightly more mafic, 20-25%		6329	129-134	5			<5	0.7	

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS			
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb	As ppm
			Biotite, 5-10% almandine garnet, well foliated at 70-90°. Trace - 1% diss. py.		6330	134	139	5			15	0.4
					6331	139	144	5			25	0.6
					32	144	149	5			20	0.6
215-238		<u>AMPHIBOLITE</u>	Green, fine grained, 60-70% mafic minerals, trace py, cpy.		33	149	154	5			25	0.8
					34	154	159	5			15	0.5
			226-228 Irregular vein quartz in brecciated section with micro-faults, trace 1/2% py & cpy.		6335	159	164	5			10	0.4
					36	164	169	5			5	20.1
					37	169	172	5			5	20.1
					6338	172	175	3			25	0.1
238-262		<u>Garnetiferous LEUCOCRATIC Biotite Gneiss</u>	Grey brownish, med. grained, 5-20% biotite 1-5% garnet. Cfm's trace - 1% py	Fol 90°	6339	226	228	2'			45	20.1

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS				
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb	Ag ppm	
			24.5-25.5 white quartz vein										
30.5	174.5		<u>LEUCOCRATIC Biotite Gneiss</u> - Grey-Brown,		6346	30.5	35	4.5			60		16.9
			very siliceous, fine to med. grained. Abundant		6347	35	40	5			125		37.4
			quartz ± feldspar segregational bands & lenses		6348	40	45	5			125		25.9
			Composed of 5-25% biotite, some bluish		6349	45	50	5			10		8.5
			talcs. Foliation at 70-90° to LCA.		6350	50	54.5	4.5			60		18.2
			30.5-54.5 Several quartz segregation bands,		63								
			Trace - 3% py										
			54.5-62.5 altered section with coarse		6351	54.5	58.5	4			10		4.0
			biotite - foliation varies 20-65° to		6352	58.5	62.5	4			15		4.6
			LCA, bluish mineral common		6353	62.5	67.75	5.25			20		4.0
			(in part talc?), up to 5% py & Po		6354	67.75	72.5	4.75			<5		1.5

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS			
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb	Ag ppm.
	62.5-67.75		Contains few large brown garnets, 2-4% py & Po.									
	67.75-72.5		Grey silicified zone: mostly all quartz and light green mineral, 1% biotite. Contains 2% po, py, trace Galena at 72'.									
	72.5-158.5		Several quartz ± feldspar segregation bands. Contains 2-5% py, locally up to 10%. Trace cpy and sp in coarse biotite at 74.5'.		6355	72.5-75	2.5			25		8.3
					56	75-80	5			110		8.0
					57	80-85	5			330		8.1
					58	85-90	5			65		4.9
	158.5-167		Pyrite Zone: 10-50% pyrite in silicified & well foliated biotite gneiss. Semi massive py between 160.3-165		59	90-95	5			170		4.1
					6360	95-100	5			320		1.8
					61	100-105	5			55		0.7
					62	105-110	5			90		0.5

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS		
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb
		167-174.5	Siliceous Biotite gneiss - 2% py		6363	110-115	5			30	0.7
					64	115-120	5			25	0.2
174.5-185.25		AMPHIBOLITE: Dark green, fine grained, poorly foliated at 90°. <10% biotite, locally silicified.			6365	120-125	5			25	0.5
					66	125-130	5			<5	0.1
					67	130-135	5			10	<0.1
					68	135-140	5			10	0.1
					69	140-145	5			5	0.8
		174.5-177	Silicified, chloritized, locally recrystallized with biotite, epidote. Contains 2-3% py		6370	145-150	5			20	1.4
185.25-188.25		Silicified Zone: Grey to light green f-g. quartz & feldspar with rare muscovite and locally 30% secondary biotite.			71	150-155	5			25	0.7
					72	155-158.5	3.5			15	0.2
					73	158.5-160.3	1.8			25	<0.1
					74	160.3-165	4.7			25	0.1
188.25-226.5		GARNETIFEROUS Leucocratic Biotite gneiss: Grey-brown, 10-25% biotite, siliceous,			6375	165-167	2			10	0.2
					76	167-170	3			25	0.1

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS		
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb
			quartz + feldspar. Trace to 5% pinkish garnets. Foliation at 80° to LCA. Trace - 3% Py. - 5" wide qtz vein at 218.5' at 85° to LCA.		6377	170-174.5	4.5			25	20.1
					6378	174.5-179	4.5			25	20.1
					6379	179-185.25	6.25			25	20.1
					6380	185.25-188.25	3'			25	20.1
					6381	188.25-192	4.75			25	20.1
226.5-270.5		<u>AMPHIBOLITE</u> : Green to dark green fine to medium grained, poorly foliated at 80° to LCA. Trace Py.			6382	242-247	5			25	20.1
					83	247-251.5	4.5			25	20.1
		247-262	Mixed Amphibolite with siliceous zones. mafic biotite gneiss grades into leucocratic amphibole-quartz-felds-gneiss. Nil to 2% py.		84	251.5-257	5.5			25	20.1
					6385	257-262	5			25	20.1
					6386	262-267	5			25	20.1

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS		
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb
270.5	294	AMPHIBOLITE & Biotite - Hornblende - Gneiss = Dark green to brown, mafic rock, variable composition 10-30% biotite, up to 40% chloritized amphibole. Contains trace to locally 2% py. Poorly foliated to laminated at 75-90° to LCA.			Sludge CA-8602	11	20'	0.025			
						20	30'	0.007			
						30	40'	0.004			
						40	50'	0.003			
						50	60'	<0.001			
						60	70'	<0.001			
294	310	AMPHIBOLITE: Same as 270.5 - 270.5. Trace py & cpy		Fol. 75-80°		70	80'	0.005			
						80	90'	0.007			
310						E.O.H. Casing Pulled				Lost water after 90'	

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS		
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb
			43.75-44.25 15-45% Sp with 5-10% gw, mottled texture.								
		44.25-45.25	MASSIVE Sulphide Zone: up to 90% sp, 10% GA, 15% py, minor calcite, quartz & chalcite.		G396	44.25-45.25	1'	0.001	3.12		
45.25	G3		<u>LEUCOCRATIC BIOTITE GNEISS: Siliceous</u> & silicified, upper portion mineralized with base metals, rest contains Pkpy. Grey brown, coarse to fine grained, well foliated at 60 to 90° to LCA. Several qtz-segregation bands & veinlets. 15-20% Biotite.								
		45.25-50.7	Biotite gneiss with narrow cross		G397	45.25-50.7	5.45	0.033	7.27		

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS			
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb	Ag ppm
99	186.5	LEUCOCRATIC Biotite Gneiss: Grey brownish, siliceous & silicified, 10-25% biotite, med grained. abundant quartz segregation bands from 99-140.5. Po & Py throughout	Fol.	75-85°	6405	99	103	4'			45	5.0
					06	103	107.25	4.25			10	2.3
					6407	107.25	108.25	1'			30	5.6
					6408	108.25	113	4.75			5	3.8
99	107.25	Silicified < 2% Po & Py			09	113	118.5	5.5			25	4.2
107.25	108.25	Coarse biotite < 2% sp stringer			6410	118.5	121.5	3			10	4.1
108.25	113	Silicified < 2% Po, Py. Coarse biotite at 112.5'			11	121.5	125.5	4			15	3.8
					6412	125.5	130.5	5			10	4.7
113	118.5	10% Po & Py, disseminated & stringers. Folding - foliation at 20° to LCA.			13	130.5	135.5	5'			10	6.4
					14	135.5	140.5	5			5	6.4
					6415	140.5	145	4.5			20	15.9
118.5	125.5	2-5% Po, Py, minor muscovite			16	145	150	5			10	5.7
125.5	140.5	5-10% Po > Py			17	150	155	5			20	3.1
140.5		Brecciated zone at 20°, wt. Sp, Gu			6418	155	159	4			15	3.1

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS			
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb	
			and Calcite + pyrite in fractures									
	140.5-159		10-15% Po >> Py, disseminated									
	159-174		Silicified diorite gneiss, with		6419	159-164	5			25		3.0
			10-15% Po, Py, trace cpy		6420	164-169	5			25		2.9
			stringers.		21	169-174	5			45		3.0
	174-184		Less silicified, 10-15% Py & Po		22	174-179	5			130		4.6
			trace cpy, folded from 176-184		6423	179-184	5			95		6.0
			as foliation wanders 0-40° to LCB.									
	184-186.5		Mineralized Stringer Zone: Brecciated,		6424	184-186.5	2.5	0.106	6.6			
			some coarse quartz ± minor tremolite.		6425	186.5-191.5	5	0.015	8.74			
			Several stringers & disseminations		6426	191.5-196.5	5	0.037	13.70			
			of Ga, Sp, Cpy as well as Po & Py									
			<1% cpy, 2% Ga, 4% Sp									

Ag ppm.

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS		
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb
186.5	196.5		<u>MASSIVE BASE METAL ZONE: Coarse</u> Sphalerite & Galena in mottled texture Carbonate (calcite) matrix. 50-60% Sp, 10-20% gal, 5-10% Po & Py rest is calcite, biotite, minor chloritized mafic mineral. <u>Now foliated.</u>								
196.5	213.5		<u>MINERALIZED Calc-Silicate Rock</u> <u>AND CARBONATE zone; Stringer</u> <u>zone with Cu > Zn (Ncm. ore alteration)</u>								
196.5	202		Siliceous zone: altered biotite gneiss with some Calc Silicate rock and narrow white carbonate bands. Overall 5% gal, 5% sp, 1-2% cpy		6427	196.5	202	5.5	0.066	7.23	

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS		
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb
			10-15% Po & Py with semi massive stringers of coarse Sp & Ga								
202	205		White Carbonate Zone: >80% calcite, minor tremolite-actinolite, actinolite, minor Ga, SP, CPY, all <2% with 3% py & Po		6428	202	205	3'	0.035	1.61	
205	213.5		Calc-silicate Rock: medium foliated, coarse calcic-amphibole with altered feldspar + quartz, locally carbonated. Contains up to 5% Po ± Py, 1-3% Ga, CP, SP, disseminated or fracture filling stringers.		6429	205	209	4	0.196	9.21	
					6430	209	213.5	4.5	0.214	6.85	

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS			
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb	Ag ppm
		234-236	Several bands of coarse biotite		6436	234-236	2			15	1.8	
			with up to 5% py + Po, 3% sp		37	236-241	4'			20	0.6	
			at 234'		6438	241-245.5	4.5'			40	2.1	
		241-25	Coarse biotite-garnet band, 4" wide with cpy									
		243.5-245.5	Coarse biotite with garnets with up to 5% Po, py, trace - 1% cpy and Sp at 245.5'									
		245.5-251	Several coarse biotite bands with garnets & trace cpy, minor Po, Py		6439	245.5-251	5.5			20	0.6	
					40	251-256	5			10	0.1	
					6441	256-261	5			10	0.3	
		265.15-270	Several irregular quartz veins with up to 5% py-Po, Tr-1% cpy stringers.		42	261-265	4			25	0.8	
					6443	265-270	5			150	2.7	

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS		
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb
	270-288		Highly silicified section with		6444	270-275	5			150	2.2
			2-5% py & Po, trace cpy		45	275-280	5			70	0.7
	288-297.5		<2% py		46	280-285	5			165	1.1
	297.5-304.5		up to 40% pink garnets.		47	285-288	3			100	1.7
	304.5-309.25		Coarse Biotite Zone with		48	288-293	5			30	0.3
			quartz veins and up to 10% py,		49	293-297.5	4.5			160	0.8
			Po and several translucent quartz		64 50	297.5-301	3.5			15	0.2
			lenses.		51	301-304.5	3.5			20	0.2
	309.25-313.5		Siliceous zones mixed with		52	304.5-309.25	4.75			80	1.4
			coarse biotite bands, 2-5% py, Po,		53	309.25-313.5	4.25			130	1.2
			Trace cpy.		54	313.5-318	4.5			70	0.9
	313.5-330.25		Contains <2-5% py, Po, Coarse		6455	318-323	5			40	1.4
			biotite band with Sp at 322.5'		56	323-328	5			30	1.0
	330.25-332		Altered mottled zone: greenish		57	328-332	4			5	1.0

INTERVAL FROM TO	ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS			Ag ppm.
					FROM	TO		Au oz/T	Ag oz/T	Au ppb	
		siliceous with alt. feldspar, purple fluorine lenses. 4% diss. Py & Po.									
	332-344.5	2-4% diss. Py & Po		6458	332-336	4			5	20.1	
				59	336-340	4			<5	0.3	
344.5-348		<u>Biotite Gneiss</u> : Grades into fine grained Amphibolite.		60	340-344.5	4.5			15	0.3	
				6461	344.5-348	3.5			<5	20.1	
348-354		<u>Leucocratic Biotite Gneiss</u> : Same as 213.5-344.5		6462	348-354	6'			5	0.3	
354-388.5		<u>MIGMATITE</u> : Biotite-Hornblende gneiss, fine to medium grained, grey to green, leucocratic to mesocratic. Lined rock		6463	354-359	5			<5	20.1	
				6464	359-364	5			<5	20.1	
				6465	364-369	5			<5	20.1	

INTERVAL FROM TO	ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS		
					FROM	TO		Au oz/T	Ag oz/T	Au ppb
		rather than foliated - Contains Pegmatite dykes.								
	354-374	Folded section, lineation at 30-70° to LCA. Trace Py.								
388.5-414	<u>PEGMATITE DYKES</u> : Mixed with some migmatite, Pegmatite contains 10% biotite, variable quartz, rest feldspar. Migmatite contains carbonate veins - irregular contacts at low core angles			6466	388-393	5			25	<0.1
				67	393-398	5			25	<0.1
				6468	398-403	5			25	<0.1
				69	403-408	5			25	0.1
				70	408-414	6			25	<0.1
414-459	<u>MIGMATITE</u> : Green, intermediate in composition, although variable, Biotite & / or hornblende form lineation at 70-90° to LCA. except 0-30° from 335'-338'			6471	414-419	5			25	<0.1

Ag ppm.

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS				
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb	Ag ppm	
		Trace Pyrite											
	427-429		Leached altered zone - quartz and carbonate along fractures at low core angles		6472	427-429	2'				<5		20.1
	459'	EQH.	Casing pulled.										
	<u>Sludge</u>	CA-03			<u>Sludge</u> CA03								
			Accepted					Accepted					
		10-19	0.002			79-89	20.001						
		19-29	0.004			89-98.5	0.015						
		29-39	0.007			98.5-108.5	0.025						
		39-49	0.051			108.5-118.5	0.001						
		49-59	missing			118.5-128.5	0.002						
		59-69	"			128.5-139	0.004						
		69-79	0.001			139-149	20.001						

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS		
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb
			<i>Au opt</i>								
<i>Sludge</i>		<i>CA-03</i>	<i>149-159 ①</i>	<i>0.001</i>	<i>Sludge CA-03</i>	<i>279-289</i>	<i>0.013</i>				
			<i>149-159 ②</i>	<i>0.002</i>		<i>289-299</i>	<i>0.016</i>				
			<i>159-169</i>	<i><0.001</i>							
			<i>169-179</i>	<i>0.005</i>							
			<i>179-189</i>	<i>0.026</i>							
			<i>189-199</i>	<i>0.034</i>							
			<i>199-209</i>	<i>0.03</i>							
			<i>209-218.5</i>	<i>0.104</i>							
			<i>218.5-228.5</i>	<i>0.039</i>							
			<i>228.5-238.5</i>	<i>0.038</i>							
			<i>238.5-249</i>	<i>0.018</i>							
			<i>249-259</i>	<i>0.019</i>							
			<i>259-269</i>	<i>0.01</i>							
			<i>269-279</i>	<i>0.016</i>							

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS			
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb	Ag ppm
			5-15% biotite, well foliated at 65-75° to LCA. Small quartz veins and quartz segregation bands and lenses.									
	149.2-152		5-10% Po, minor Py, chloritized biotite		6492	149.2-152	2.8			15		11.2
					6493	152-155	3			10		11.3
	152-170		2-5% Po ± Py, 2-6" quartz veins at 80° to LCA.		6494	155-160	5			55		11.7
					6495	160-165	5			20		11.2
	170-173.5		Mottled texture, altered zone, not foliated, secondary biotite, bleached moderately silicified zone, bluish mineral, likely talc from garnets.		6496	165-170	5			20		12.9
					6497	170-173.5	3.5			20		5.8
	173.5-180.25		2% Po, some garnets, duct folding,		6498	173.5-178	4.5			15		5.3

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS			
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb	
			mottled texture.		6499	178	180.25	2.25			15	3.5
180.25	207	AMPHIBOLITE	Dark green, fine grained, silicified, some quartz veins, magnetic with 5-10% altered garnets.									
180.25	188		Abundant bleached, silicified fractures, main direction at 0-20° to LCA. Several 3-4" wide qtz veins at 70-90° to LCA, 2-4% diss. Po.		6500	180.25	185	4.75			10	1.0
					73201	185	188	3			20	2.3
					73202	188	192	4			10	1.1
					73203	192	197	5			10	1.0
					73204	197	202	5			25	2.2
188	207		1-2% diss. Po, bleached fractures near lower contact.		73205	202	207	5			20	0.9

Ag ppm

INTERVAL FROM . TO	ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS		
					FROM	TO		Au oz/T	Ag oz/T	Au ppb
207-238	SPARCELY	MINERALIZED LEUCOCRATIC BIOTITE	fol.							
		GNEISS: Same as 149.2 - 180.25 except	75-90°							
		few some Carbonate zones and coarse								
		biotite zones with sp & Cpy								
207-209		Hydrothermally altered, brecciated		73206	207-211.5	4.5			30	5.1
		zone. Bleached & silicified, 2-4%		73207	211.5-217	5.5			30	7.8
		Py & Po stringers.								
209-211.5		2-5% diss. Po & Py								
211.5-217		Carbonated zone: 20% white								
		calcite, epidote, bleached, recrystallized								
		altered zone, now foliated,								
		mottled texture. Development of								
		secondary biotite. 2-4% diss. Po, Py.								
217-217.5		Black some biotite zone with								

Ag ppm.

INTERVAL FROM TO	ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS		
					FROM	TO		Au oz/T	Ag oz/T	Au ppb
	231-235.25	2-3% diss. Po, Py.								
	235-238	Bleached altered, mottled zone, silicified, carbonated fractures at 20° to L.A.		73213	235.25-238	2.75			10	1.5
238-267	<u>AMPHIBOLITE</u> : Dark green, fine grained, massive with diorite gneiss from 256.5 to 260'. Locally bleached & altered silicified zones, 1-4% Po & Py.			73214	238-243	5			30	0.4
				73215	243-248	5			20	1.3
				73216	248-253	5			15	1.4
				73217	253-256.5	3.5			20	2.0
				73218	256.5-260	3.5			15	3.0
267-324.7	<u>LEUCOCRATIC</u> <u>Riotite Gneiss</u> : siliceous, silicified, fine to medium grained, grey brown, 10-25% diorite		Fol. 75°	73219	260-263	3			30	6.9
				73220	263-267	4			35	12.7
				73221	267-272.5	5.5			10	8.6
	267-272.5	Highly silicified zone, Tr-22 po, py		73222	272.5-277	4.5			10	9.1

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS		
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb
		279.5-316.5	2-5% diss. Po ± Py, trace cpy		73223	277-282	5			10	5.3
		316.5-324.7	5-10% diss. Po & Py, also stringers		73224	282-287	5			40	4.9
					73225	287-292	5			15	3.7
324.7-336		MINERALIZED ALTERED ZONE : Small massive sulfide zone in altered biotite gneiss and calc-silicate rocks.			73226	292-297	5			20	4.0
					73227	297-302	5			20	4.0
					73228	302-307	5			20	4.8
		324.7-324.9	Massive sphalerite: with 10% po, 2% galena and 1% cpy, also 15% translucent quartz.		73229	307-312	5			20	3.3
					73230	312-316.5	4.5			20	3.7
					73231	316.5-320	4.5			20	4.1
		324.9-328.5	Silicified partially recrystallized biotite gneiss with 5-25% Po, trace to locally 5% sp & Ga, trace-1% cpy locally.		73232	320-324.7	4.7			35	5.9
					73233	324.7-328.5	3.8	0.068	2.8		
					73234	328.5-330.75	2.25	0.002	0.20		
					73235	330.75-334.5	3.75	0.001	0.09		
		328.5-330.75	Coarse Biotite Zone: 5% py, Po		73236	334.5-336	1.5	0.015	3.20		

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS		
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb
336-339.5		Leucocratic Biotite Gneiss: Siliceous		70-80°	73237	336-340			20		4.2
		silicified, Brown, med to fine grained			73238	340-345			40		1.6
	336-345.75	22% po, py, garnets			73239	345-347.75			360		9.6
	345.75-346.75	5% po-py, tr. cpy.									
	346.75-347.75	Coarse biotite zone: 90% biotite, 1% cpy,									
		1% Sp., Tr Ga, 3% po, py									
	347.75-354.5	5% po, py, tr cpy			73240	347.75-351	3.25		80		13.6
	354.5-355.5	Bleached silicified fracture zone, 2% py			73241	351-355.5	4.5		50		6.2
	355.5-358.5	5% po, py			73242	355.5-360	4.5		60		4.7
	358.5-360	Vein quartz, 40% diss. - po, py, tr. cpy			73243	360-365	5		20		3.8
	360-366.5	2-5% po, py			73244	365-370	5		30		4.7
	366.5-384	Moderately to highly silicified			73245	370-375	5		70		5.3
		as quartz segregation bands and			73246	375-380	5		80		5.0
		irregular veins, 2-5% po, py			73247	380-384	4		210		5.6

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS			
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb	Ag ppm
			Variable < 5% Po, Py, tr Cpy.									
			395.5-398.5 Black coarse biotite zone: 80% biotite & some bluish altered garnets, feldspar lath (K spar) & possible actinolite-tremolite. Cr's up to 2% sp, tr Cpy, up to 10% Po & Py.									
			398.5-400.5 Mixed calc. silicate & coarse biotite zone. Abundant tremolite locally. trace sp, cpy, up to 5% po, Py.		73252	398.5-400.5	2'			25	4.5	
			400.5-435 <u>LEUCOCRATIC Biotite Gneiss: Siliceous</u> locally silicified, grey-brownish, fine to medium grained, locally garnetiferous. Contains 2-5% Po, Py, trace cpy to 412'		73253	400.5-405	4.5			50	3.7	
					73254	405-410	5			55	4.7	
					73255	410-415	5			15	0.8	
					73256	415-420	5			< 5	0.4	

CA-86-05

LACANA MINING CORPORATION

DIAMOND DRILL RECORD

CA-86-5
Hole #. _____ Page 01 of 11

Property: New Calumet Mines Location L 10+50N Down Hole Surveys acid test Drilled By: D. Villeneuve
 Area (Map #): _____ Grid: 1+92E Depth: 150' Az: _____ Dip: -70° From-To: July 29 #30+/86
 Claim #: _____ 300 _____ -69° Size(s): BQ
 M.D./County: Grand Calumet Length: 479' (Units: ft) 459 _____ -69° Logged By: D. Villeneuve
 Province: Quebec Azimuth: 328 Dip Collar: -70° Signed: D. Villeneuve

Remarks: _____

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS		
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb
0	11	OB.	Casing - Sand & Boulders								
11	312.5	ALTERED AMPHIBOLITE: (Hanging wall amphibolite)	Dark green, fine grained, massive to poorly foliated, locally well foliated. Mottled texture rock, carbonated. Contains nil to up to 50% biotite. Contains trace to 2% py throughout								
	11-26		Highly carbonated, up to 25% calcite.								
	30-32		Highly silicified zone with 5% py		73261	30-32	2'			10	0.6

Ag ppm

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS			
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb	Ag ppm
			grades into bleached zone with biotite.		22698	39-44	5			140	1.3	
49-53.75			Two bleached silicified zone,		22699	44-49	5			45	1.6	
			contacts at 75° to 20° to LCA. Up to 32° locally.		73262	49-53.75	4.75			30	2.1	
56-61			Biotite rich zone, up to 70%.		73263	56-61	5'			40	1.6	
97-98			Fractured zone, bleached, silicified. Controlling fractures at 15° to LCA.		73264	97-98	1'			5	0.7	
102-119			Highly pervasively carbonated.									
119			Light green silicified fracture or shear at 30° to LCA.									
123-124.5			Light green, highly silicified fracture zone or shear with contacts at 75 to 45° to LCA.		73265	122-125	3'			25	0.3	

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS			
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb	
			Grey brownish, siliceous and silicified as quartz veinlets and segregation bands. Upper contact gradational over 5', interbedded with amphibolite layers. Foliation variable from 0 to 45° to LCA with fold nose at 321°.									
					73268	312.5-315	3.5				10	2.3
					73269	315-320	5				10	5.0
			Contains some biotite rich layers, partially altered and recrystallized (locally mottled texture)		73270	320-324.75	4.75				10	7.2
			Contains trace to 3% diss. Ps, minor py.									
			324.75-327.25 Several irregular quartz and quartz-carbonate lenses, minor Bx		73271	324.75-332	7.25				30	9.9
					73272	Combined with 73271						
			327.25-328.25 Highly carbonated zone, (70% calcite), minor quartz, 3% diopside		73273	332-335.25					20	11.5

Ag ppm

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS					
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb	Zn %	Pb %	
			Light green, mottled texture, locally silicified. Mainly light green calcic amphibole, chloritized mica, quartz - carbonate. Contains trace - 5% Ga either disseminated over fractures, trace to 3% sp mostly as staurolite, 5% Po, Py.											
340.75	341.75		Biotite rich zone with 3" wide white carbonate zone with Sp & Ga.		73275	340.75	344.25	3.5	0.003	1.26	0.77	0.32		
341.75	344.25		Altered biotite gneiss & biotite rich zones, 22% Po.											
344.25	349.25		Mottled textured biotite gneiss, contains up to 30% randomly oriented coarse biotite. Moderate		73276	344.25	349.25	5'	0.001	0.20	0.06	0.03		
					73277	349.25	354	4.75'	0.001	0.70	0.95	0.31		
					73278	354	358.25	4.25	0.001	0.27	0.06	0.05		

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS		
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb
			pervasive silicification. Contains 3-4% diss. Po.								
349.25	413.75		<u>LEUCOCRATIC Biotite gneiss</u> : Locally altered with narrow bands or stringers of SP, Ga and cpy. Contains some biotite rich zones and minor calc-silicate. Foliation very variable - abundant folding. Most common at 80-70° to LCA.								
349.5	358.25		5-10% po, py, variable secondary biotite to narrow biotite rich bands. 2% SP & Ga, stringers between 350.5 & 351.5. Gentle fld at 355.5 (fol. 0-20°)								
358.25	363		4 bands up to 4" wide with		73279	358.25	363	4.75			990

Ag ppm

46.9

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS			
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb	
			up to 20% Sp & Ga in proximity of narrow coarse biotite rich bands and minor calc-silicate rock.									
			5% po, py, trace cpy. Foliation 80°									
	363-383.5		Structurally disrupted zone:		73280	363-368	5			20		8.6
			abundant folding, minor displacement		73281	368-373	5			40		14.8
			along minor faults, several narrow		73282	373-378	5			15		8.7
			biotite rich bands, quartz veinlets.		73283	378-383.5	5.5			50		15.0
			Narrow intervals with <10% Sp & Ga.									
			± minor cpy. Disseminated Sp & Ga									
			between 381.5 & 383.5.									
			Overall 2-5% po, py, locally up to 10%.									
	383.5-385.5		White carbonate zone, some		73284	383.5-385.5	2'			150		26.2
			coarse biotite rich zones & calc-silicate, up to 10% Sp, 3% Ga									

Ag ppm

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS			
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb	
			± 5% po, Py, trace cpy.									
			385.5-390.25 Mottled textured altered zone with silicified calc-silicate rock towards 390', trace cpy, ± 5% po, Py		73285	385.5-390.25	4.75'				10	5.9
			390.25-396 Folded biotite green with biotite rich bands, 2-10% po, py and narrow SP, Ga, cpy stringers at 393'.		73286	390.25-396	5.75'				10	8.9
			396-396.5 Possible altered shear zone, silicified bleached and shear planes filled with hard black mineral, 3% py.									
			396.5-404 2-5% po-py, trace cpy.		73287	396-400	4'			±	105	25.6
			404-407 Light green bleached silicified possible shear zone, same as 396-396.5.		73288	400-404	4'				5	7.0
					73289	404-407	3'				10	4.8
			2-3% py, shearing at 60-80° to LCR.		73290	407-410	3'				35	5.7

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS				
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb		
413.75	427	AMPHIBOLITE: Dark green, fine grained, massive to weakly foliated at 75° to LCA. Chloritized amphibole with up to 5% Biotite, minor garnet, <2% disc. Po.			73291	410	413.75	3.75			50	4.3	
427	444	LEUCOCRATIC Biotite GNEISS: Grey brownish, siliceous and silicified, 5-15% biotite, fine grained, well foliated at 70° to LCA, overall 2-5% Po, Py, trace spy.			73292	427	430.25	3.25			10	4.4	
					73293	430.25	433.5	3.25			70	34.6	
					73294	433.5	438	4.5			16	11.5	
					73295	438	439.5	1.5			45	60.9	
		430.25-431.25 Biotite rich zone with 10% Sp, 5% Gw, 10% Po, Py			73296	439.5	444	4.5			20	7.6	
		433-433.5 Narrow white carbonate zone, 60% calcite, 5% diopside.											
		439-439.5 30% Sp, 10% Gw, 10% Po, Py											

Ag ppm

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS		
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb
AAA-479		AMPHIBOLITE	Same as 413.75-427.		73297	444-449	5'			10	
			except contains 10% anhedral chloritized hornblende porphyroblasts. Trace Po, Py								
A79'		EOH	5' casing + shoe left in hole.								

Ag ppm.

0.4

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS		
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb
CA-05	11-19		149-159	<0.001	279-289	<0.001		429-439		0.002	
	19-29		149-159	0.009	289-299	"		439-449		0.002	
	29-39		159-169	<0.001	299-309	"		449-459		0.002	
	39-49	0.006	169-179	"	309-319	"		459-469		0.001	
	49-59	0.001	179-189	"	319-329	"		469-479		0.002	
	59-69	<0.001	189-199	0.003	329-339	0.005					
	69-79	"	199-209	<0.001	339-349	0.014					
	79-89	"	209-219	"	359-369	<0.001					
	89-99	"	219-229	"	369-379	0.003					
	99-109	"	229-239	"	379-389	0.004					
	109-119	"	239-249	"	389-399	0.003					
	119-129	"	249-259	"	399-409	0.002					
	129-139	"	259-269	"	409-419	0.001					
	139-149	"	269-279	"	419-429	<0.001					

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS			
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb	Ag ppm
			throughout. Massive to well foliated, variable foliation from 8' to 192' (several folds). 45-60° from 8-20', 0-30° from 165-180', 50-70° from 185-255', 0-30° from 292-375'. Generally trace to <2% diss. Po.									
	21-25'		2-5% Po, quartz or qtz-ent veinlets		14301	21-25	4'			10		0.9
	37.5-39		Bleached silicified fracture zone at 10-20° to LCA		14302	37-42	5			30		2.2
					14303	42-47	5			80		2.8
	39-55.25		3-5% diss. Po, locally silicified		14304	47-52	5			60		1.9
	55.25-56.75		Irregular vein quartz at 30-45° to LCA with coarse biotite bands,		14305	52-55.25	3.25			75		1.8
			5% Po, Py		14306	55.25-56.75	1.5			25		1.4

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE °	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS			
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb	Ag ppm
	64-65		Grey silicified zone, 5% disc. Psp.		14307	64-65	1			20	1.7	
	71.25-72.5		Grey silicified zone followed by quartz vein from 71.25-72.5 containing 20% SP and 5% Gw. Likely remobilized base metal mineralization into fracture zone.		14308	71-73	2			85	10.9	
	120.75-140		Unaltered, massive, fine grained reynoldsite amphibolite or intrusive									
	154-155		Grey green altered silicified zone at 45° to LCA.		14309	154-155	1			5	1.2	
	155-170		Coarse grained amphibolite hornblende partially to completely chloritized									
	292-297		Light green alteration, possible development of actinolite-tremolite		14310	292-297	5'			25	1.6	

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS			Ag ppm
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb	
			crystals in proximity of fold nose. Pol. at 0° to LCA.									
		315'	Narrow carbonated zone (4" wide)									
		317.5-318	1" wide carbonate layer with 40% sp, 1% Gw. Layer at 20° to LCA.		14311	317-318	1'			400		8.5
		341-349	Mottled zone with possible light green actinolite. Consists of coarse euhedral crystals.									
		352.75-355	Moderately silicified zone, 2% diss. Po.		14312	352-355	3'			20		1.3
		393.25-410	LEUCOCRATIC BIOTITE GNEISS: Gray brownish, fine to medium grained, mixed with amphibolite layers and locally abundant		14313	393-397	4			15		2.0
					14314	397-401	4			25		5.1
					14315	401-405	4			15		3.2

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS			
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb	
445	521.5		<u>AMPHIBOLITE</u> : Dark green, fine grained, 40-60° chertized hornblende, massive to very poorly foliated. Minor carbonate and bleached fractures throughout. Trace Pb, Py, minor biotite.									
463	464.5		Light Green bleached highly fractured to brecciated zone. Minor calcite & quartz. Lower contact sharp at 40° to LCP.		14322	463	465	2'			25	0.2
					14323	486	488	2'			20	0.4
					14324	505	506	1'			20	0.4
486.25	488		Same as above.									
505	505.5		Same as above.									
521.5	566.5		<u>LEUCOCRATIC Biotite Gneiss</u> : with narrow mineralized bands and biotite rich zones. Fine to medium grained, siliceous									

Ag ppm

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS			
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb	Ag ppm
			<i>and silicified. Foliation at 65° to LOM</i>									
	521.5-531		<i>2% Po, Py</i>		14325	521.5-526	4.5			20		4.2
	531-541		<i>2-5% Po, Py and at 537' stringer of sp + Ga.</i>		14326	526-531	5			15		3.8
					14327	531-536	5			20		5.2
	541-542		<i>1" wide white carbonate band followed by semi massive sulphides</i>		14328	536-541	5			110		57.0
			<i>≈ 20% Sp, 5-10% Ga, 15% Po, Py.</i>		14329	541-542	1			30		6.8
					14330	542-545	3'			85		16.9
	542-544.25		<i>3-4 small stringers of sp & Ga, 5% Po, Py</i>									
	544.25-545		<i>Grey silicified zone, 4% Po, Py</i>									
	545-546.75		<i>up to 20% Po, Py, massive stringers</i>		14331	545-550	5			30		7.5
	546.75-554.75		<i>Several silicified sections, 2-5% Po + Py, some coarse Po, Py stringers, trace Cpy.</i>		14332	550-554.75	4.75			55		3.6
					14333	554.75-555.75	1'			100		4.8

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS			
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb	Ag ppm
	554.75-555.75		Grey siliceous zone with up to 2% cpy, 3% po, py.									
					14334	555.75-559	3.25			30		3.6
	557.5-559		Biotite rich zone (90% biotite) with 10% po, py, tr cpy		14335	559-563	4'			65		3.9
	559-566.5		Silicified with abundant quartz segregation bands. Nil to 3% muscovite, 2% po, py, trace cpy.		14336	563-566.5	3.5			190		8.0
	566.5-575.25		<u>Slightly MINERALIZED ALTERED ZONE</u> Mixed coarse biotite zone, minor calc-silicate and silicified biotite gneiss.									
	566.5-572		mainly non foliated coarse secondary biotite (up to 90%) up to 20% po, py		14337	566.5-569	2.5	0.002	0.21			
					14338	569-572	3	0.001	0.31			

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS		
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb
			Trace cpy, sp, Gw. with local concentrations.								
572	574.25		Green calc-silicate rock mixed with coarse biotite zones.		14339	572	575.25	3.25	0.002	0.46	
			Trace - 1% Sp + Gw. 2-5% Po, Py								
			Trace cpy.								
			574.25-575.25 Silicified zone, 5% po, py, tr-1% cpy								
575.25	583		LEUCOCRATIC Biotite Gneiss: Same as		14340	575.25	580	4.75			20
			521.5-566.5. Trace py		14341	580	583	3			10
583	587.5		AMPHIBOLITE: Dark green, fine grained, minor silicification, trace sulphides.		14342	583	587.5	4.5'			5

Ag PPM

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS				
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb	Ag ppm.	
587.5	608	Leucocratic Biotite Gneiss: ± garnets, grey brownish green, migmatitic, some more mafic sections. Well foliated at 45-60° to LCA. Siliceous and locally silicified. Nil to 1% py, trace Ps.			14343	587.5	592	4.5			<5	0.2	
						14344	592	597	5			<5	0.3
608	660	Migmatite: Green to dark green, lined hornblende-Biotite Gneiss, mixed felsic to mafic, gradational composition changes. Well foliated to lineated at 60° to LCA. 1-2% garnets locally, nil to trace pyrite.											
		645.5-646.5	highly carbonated and silicified zone		14345	645	647	2'			5	0.1	
		648-649	Same as above		14346	647	649	2'			5	10.1	

660' E.O.H. Casing pulled.

Sludge Samples

LACANA MINING CORPORATION

DIAMOND DRILL RECORD

Hole # _____ Page _____ of _____

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS		
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb
CA-06	8'-20'		140'-150'	<0.001							
	20-30		150-160	"							
	30-40		160-170	"							
	40-50		170-180	"							
	50-60		180-190	"							
	60-70		190-200	"							
	70-80		200-210	"							
	80-90		210-220	"							
	90-100		220-230	"							
	100-109.5		230-240	"							
	109.5-120		240-250	"							
	120-130		250-260	"							
	130-140		260-270	"							
			270-280	0.002							

CA-86-07

LACANA MINING CORPORATION

DIAMOND DRILL RECORD

ca-8607
Hole # Page 1 of

Property: New Calumet Mines Location L 1+25S Down Hole Surveys Atid test Drilled By: TINDALE DRILLING
 Area (Map #): Grid: 2+65W Depth: 76' Az: • Dip: -54° From-To: Aug 3 to Aug 4/86
 Claim #: 200' • -52° Size(s): BQ
 M.D./County: GRAND CALUMET Length: 379 (Units: ft.) 379' • -51° Logged By: D. Villeneuve
 Province: QUE. Azimuth: 238 • Dip Collar: -50 • • Signed: [Signature]

Remarks:

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS		
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb
0-76		OB	Casing - mostly clay.								
76-111.5		DIABASE	fine grained, massive, chloritized								
111.5	113.2	ALTERED MINERALIZED ZONE	Soft, highly chloritized zone, minor epidote and minor carbonate with 5% sp, 2% Gw, 2% py		22501	111.5-113.2	1.7'	0.025	2.81	2.88	2.88
											2.88
											1.34

Pb %
1.34

INTERVAL FROM TO	ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS			Ag ppm
					FROM	TO		Au oz/T	Ag oz/T	Au ppb	
113.2-183.5	ALTERED & DEFORMED	LEUCOCRATIC Biotite Gneiss: Green to grey, biotite commonly completely chloritized, variable silicification, mottled texture locally. Contains variable pyrite either disseminated or as coarse crystals filling fractures. Well to poorly foliated at 65-70° with local variations and kinetic folding. - Commonly brecciated and sheared.									
113.2-125	Silicified and chloritized			22502	113.2-117	3.8			140	31.2	
	mottled texture, contains 2-5% py			22503	117-121	4			60	11.6	
	Minor hematite stain			22504	121-125	4			10	14.3	
125-134	5% to up to 20% disseminated,			22505	125-130	5			16	9.5	
	or stringers or coarse pyrite filling fractures			22506	130-134	4			10	6.3	

INTERVAL FROM . TO	ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS			Ag Ppm
					FROM	TO		Au oz/T	Ag oz/T	Au ppb	
	134-140.5	Silicified + locally brecciated with 5% disseminated pyrite or py in fractures.		22507	134-137	3			5	5.4	
			22508	137-140.5	3.5			20	8.4		
	140.5-144	Several highly chloritized bands, carbonated with some epidote. Bands at 30-80° to L.A. Overall 5% pyrite.		22509	140.5-144	3.5			185	44.0	
	144-158	Grey siliceous, contains 5-10% py, minor sp at 153.5'		22510	144-149	5			30	13.7	
			22511	149-154	5			20	8.5		
	158-173	Brecciated fault zone: blocky ore shear slides on fracture planes, open space filled with calcite and quartz crystals. Minor fractures filled with chlorite and pyrite		22512	154-158	4			25	12.1	
			22513	158-163	5			15	9.8		
			22514	163-168	5			10	4.6		
			22515	168-173	5			20	4.0		

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS		
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb
	173-177.5		Highly deformed zone with abundant tight kink folding, up to 10% py.		23516	173-177.5	4.5			10	7.4
	177.5-183.5		Contains 5-10% py.		23517	177-183.5	6'			15	6.6
183.5-192.5		SLIGHTLY MINERALIZED BIOTITE GNEISS AND COARSE BIOTITE ZONE:									
	183.5-188.5		Contains 3-5% fine grained sphalerite parallel to foliation at 75° to LCR. Chloritized biotite. Contains 5-10% py. Some coarse py associated with coarse graphite crystals locally.		22518	183.5-188.5	5			60	20.5
	188.5-192.5		Coarse partially chloritized biotite zone: > 70% biotite, locally bleached		22519	188.5-192.5	4'			10	6.4

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS			
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb	Ag ppm
			and silicified, 20% py									
192.5-295		LEUCOCRATIC BIOTITE GNEISS: Grey-Brown										
		Siliceous & silicified, 10-25% Biotite which			22520	192.5-198	5.5'				75	1.1
		is partially chloritized. Contains Tr-2% garnets,			22521	198-203	5'				30	0.5
		< 2% disc. Py			22522	203-208	5				5	0.4
		-Well foliated at 65 to 70° to LCA			22523	208-213	5				10	0.6
		266-269 Biotite rich zone, > 90% fine to coarse			22524	213-218	5				25	0.1
		biotite with large cordierite crystals at 268'			22525	218-223	5				25	0.4
		276 Foliation crenulated			22526	223-228	5				25	0.6
		281-286 Bleached silicified bands common			22527	228-233	5				5	0.9
					22528	233-238	5				25	0.7
295-349		GARNET-BIOTITE GNEISS: > 20% garnets,			22529	238-243	5				25	0.1
		Leucocratic to fairly mafic. Contains coarse			22530	243-248	5				25	0.3

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS			
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb	
			biotite zones. Overall trace py		22531	248	253	5			<5	20.1
	302-304.5		Several bleached & silicified fractures		22532	253	258	5			<5	<0.1
	310.5-313		Chloritized coarse biotite zone with		22533	258	263	5			<5	0.6
			up to 20% actinolite or tremolite. Tr. py.		22534	263	266	3			<5	0.3
	316-317.5		Same as above.		22535	266	269	3			<5	0.1
					22536	269	274	5			<5	0.2
349-379			<u>LEUCOCRATIC BIOTITE GNEISS</u> : Similar		22537	274	278	4			<5	0.3
			to above but trace to 4% garnets. Grey-brown		22538	278	281	3			<5	0.4
			silicious and silicified as quartz aggregation		22539	281	286	4			<5	0.2
			bands. Trace to less than 2% py. Foliation at 70° to LCR.		22540	302	305	3			<5	0.4
					22541	305	310	5			<5	0.1
379			E.O.H. casing pulled.		22542	310	314	4			<5	0.1
					22543	314	318	4			<5	1.7

Ag ppm

CA-86-08

LACANA MINING CORPORATION

DIAMOND DRILL RECORD

CA-86-08
Hole #. Page 1 of

Property: NEW CALUMET MINES Location L 2+00S Down Hole Surveys Acid test Drilled By: TINDALE DRILLING
 Area (Map #): Grid: 2+25W Depth: 200 Az: • Dip: 48 • From-To: Aug 5 to Aug 6/86
 Claim #: 409 • 47° Size(s): BQ
 M.D./County: GRAND-CALUMET Length: 409 (Units: ft.) • Logged By: D. Villeneuve
 Province: Que' Azimuth: 238 • Dip Collar: -45° • Signed: Dennis Villeneuve

Remarks:

INTERVAL FROM TO	ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL FROM TO	SAMPLE LENGTH	ASSAYS			Ag ppm
							Au oz/T	Ag oz/T	Au ppb	
0 - 71	OR	Casing - clay & sand.								
71 - 116.5		AMPHIBOLITE: Dark green, fine grained, weakly foliated at 60° to LCR, with chloritized hornblende porphyroblasts, locally randomly oriented coarse biotite crystals.		22704	88-93	5			20	0.7
				22705	93-98	5			15	0.8
				22706	105-110	5			25	0.3
				22707	110-113	3			65	0.3
				22708	113-116.5	3.5			115	1.8
116.5 - 180'		ALTERED LEUCOCRATIC BIOTITE GNEISS: Grey-Brown, siliceous and silicified, fine to medium grained		22544	116.5-120	3.5			55	2.7
				22545	120-124.5	4.5			25	12.8

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS			
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb	
			with several biotite rich bands, occasional mottled texture. Well foliated to locally sheared at 65° to L.A. Contains 2-5% py throughout.									
			116.5-124.5 Medium coarse biotite, some cordierite in siliceous bands, contains 2-5% py, trace sp.									
			124.5-125.2 Narrow highly carbonated bands		22546	124.5-127	2.5			45	16.6	
			126.6-127 up to 10% sp, 2% Gw.		22547	127-132.5	5.5			25	14.4	
			127-130.5 up to 5% py									
			130.5-132.5 Biotite rich band, partially chloritized 5% py.									
			132.5-143.3 2-5% py		22548	132.5-138	5.5			10	13.6	
			143.3-145.5 Greenish silicified zone, 2% py		22549	138-143.3	5.3			10	9.7	
			147.5-148.5 Coarse biotite rich zone, chloritized		22550	143.3-148.5	5.2			10	14.7	

Ag ppm

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS			
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb	Ag ppm
			with quartz rich bands.		22558	176	180	5			15	2.6
180	395	LEUCOCRATIC BIOTITE GNEISS: Grey-Brown,										
		fine to medium grained, locally contains up to			22559	180	185	5			10	1.3
		5% garnets, some more mafic intervals, generally			22560	185	190	5			10	2.1
		10-20% biotite. Well foliated at 60-70° to L.A.			22561	190	195	5			25	0.3
		locally 40-45°. Contains trace to 2% py			22562	195	200	5			5	0.8
		throughout. Several quartz veins + pyrometite										
		180-200 2% py										
		200-201 irregular quartz vein			22563	200	205	5			25	0.4
		201-231.6 < 2% py, quartz segregation bands,			22564	205	210	5			25	0.9
		and minor bleached silicified fractures.			22565	210	215	5			25	2.1
		231.6-233.2 white vein quartz			22566	215	220	5			25	2.8
		236.5-239 Irregular vein quartz, trace muscovite			22567	220	225	5			5	1.3

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS		
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb
		239-251	Trace - $< 2\%$ py, minor bleached silicified fractures.		22568	225-230	5			45	0.4
					69	230-235	5			45	0.6
		251-258	Partially recrystallized section, coarse quartz + orange K-spar.		22570	235-240	5			45	0.7
					71	240-245	5			45	2.3
		269-270	Pegmatite + vein quartz.		72	245-250	5			45	2.4
		275.5-277	Pegmatite		73	250-255	5			5	0.2
		289.5-297	Mixed vein quartz and coarse biotite rich bands, 52 py		74	255-260	5			45	0.6
					22575	260-265	5			45	0.7
		297-308.6	Minor leached fractures at 0-20° to LCA.		76	265-270	5			5	0.7
					77	270-275	5			5	0.3
		308.6-309.7	White vein quartz at 70° to LCA.		78	275-280	5			45	0.5
		309.7-332	Several bleached & silicified fracture zones, tr - 2% py.		79	280-285	5			25	0.1
					22580	285-290	5			65	0.5
		332-366.5	2% py		81	290-295	5			1500	0.1

INTERVAL FROM TO	ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL FROM TO	SAMPLE LENGTH	ASSAYS			Ag ppm
							Au oz/T	Ag oz/T	Au ppb	
	366.5-369.5	Dark green fine grained amphibolite or mafic dyke. Contacts at 60 to 90° to LCA.		22582	295-300	5			990	0.2
				83	300-305	5			40	0.2
				84	305-310	5			10	0.3
	369.5-376	2% py.		22585	310-315	5			190	0.5
	376-384	Greenish bleached silicified zone mixed with biotite ground. up to 5% py.		86	315-320	5			<5	0.1
				87	320-325	5			<5	0.1
				88	325-330	5			<5	0.4
	384-395	2% locally up to 5% py.		89	330-335	5			5	0.3
				22590	335-340	5			5	0.2
395-403.5		<u>AMPHIBOLITE or MAFIC dyke</u> : Dark green fine grained, massive, contacts at 70° to LCA		91	340-345	5			5	<0.1
				92	345-350	5			5	0.3
				93	350-355	5			<5	0.2
403.5-409		<u>LEUCOCRATIC BIOTITE GNEISS</u> :		94	355-360	5			5	<0.1
		< 2% py, same as 180-395		22595	360-365	5			<5	0.2

CA-86-009

Hole # 9

LACANA MINING CORPORATION

DIAMOND DRILL RECORD

Hole # 09

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FILE COPY

Property: NEW COMMET MINES Location MINE GRID Down Hole Surveys ACID TESTS Drilled By: TINDALE
 Area (Map #): _____ Grid: L 01355 Depth: _____ Az: _____ Dip: _____ From-To: Aug 7-9, 1986
 Claim #: _____ 01905E 200 _____ 88 • Size(s): BA
 M.D./County: PONTIAC Length: 579 (Units: FEET) 400 _____ 87 • Logged By: C. Bishop
 Province: QUEBEC Azimuth: _____ Dip Collar: 90 • 570 _____ 86 • Signed: Ch Bishop

Remarks: _____

INTERVAL FROM TO	ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL FROM TO	SAMPLE LENGTH	ASSAYS		
							Au oz/T	Ag oz/T	Au ppb
0-13		CASING							
13.0-137.9	2	ALTERED AMPHIBOLITE - fine to medium grained, mottle green and white, mildly to moderately carbonated, mottles form lineation @ 50-90° to CA (average 75-80°), <1% py biotite appears retrograde because most often has no preferred orientation							

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS			
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb	Ag ppb
		⊙ 32.5	Lost water									
		⊙ 14.3-16.2	mildly carbonated, moderate biotite, chlorite									
		⊙ 103.0-103.3	quartz carbonate vein ⊙ 40° to CA.									
		⊙ 103.3-107	10-20% biotite									
		⊙ 107.9-111.6	2-4% po along biotite laminations (40° to CA)		22602	108	113	5			5	1.9
		⊙ 114.6-115.9	mildly carbonated, 10-20% biotite		22603	113	118	5			<5	27.5
		⊙ 115.8-116, 117.7-118.6	1-2% disseminated po, py		22604	118	120.5	2.5			<5	30.5
		⊙ 118.4-118.5	sphalente band ⊙ 10° to CA, calcite interstitial		22605	120.5	125.0	4.5			<5	3.9
		⊙ 119.6-121.8	1-3% blebby po, py with 1" bleb of sphalente ⊙ 120.2' (10° to CA)		22606	125	130	5			5	1.7
		⊙ 118.6-121.8	very mildly carbonated, 10-20% biotite		22607	130	133	3			<5	5.5
		⊙ 124.2-126.1	very mildly carbonated, biotite 10-15%		22608	133	138	5			5	0.9
		⊙ 128.3-133.0	very mildly carbonated, biotite 10-15%									
			sphalente > galena in bands at 130.9, 131.6 at 50° to CA.									

⊙ 134.8-137.9 very mildly carbonated, increasing silicification

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS		
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb
		ⓐ 156.7-157.4	2-3% lensy blebs po		22609	165-170	5			5	0.8
		ⓐ 157.8-158.7	Pegmatite		22610	170-175	5			15	1.4
		ⓐ 165.3-167.2	silicification around vein @ 50° to CA		22611	175-180	5			45	2.4
		ⓐ 171.8-172	2% lensy blebs po		22612	180-185	5			105	3.2
		ⓐ 172.4-183.1, 187.4-213.1	INTENSELY carbonated		22613	185-190	5			50	3.8
		ⓐ 191.0-193.0	silicified fracture	50°	22614	190-195	5			10	1.0
		ⓐ 193-220	2-4% po - disseminated lenses		22615	195-200	5			10	1.2
		ⓐ 204.1-204A	sphal >> po >> ga, py, trace chlo ^{cpy}		22616	200-204	#4			10	1.4
			in calcite matrix ± epid, diop,		22617	204-207	#3			170	66.5
			granoblastic texture		22618	207-210	#3			1600	40.5
		ⓐ 205.3-206.3, 208.8-209.2	sphal, cpy, po, py, ga		22619	210-215	5			20	3.0
			disseminations around tiny bands		22620	215-220	5			20	3.0
		ⓐ 213.1-214.4, 217.6-218.5	Butt white Quartz	20°-40°							
		ⓐ 219.9-220.8	Siliceous Biotite Gneiss, 15% biotite, 1-2% po, py	50°							

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS			Ag pf
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb	
		@220.8-224	green silicified amphibolite		22621	220-224	4			10	3.1	
224-271.5			CONTACT ZONE - Silicified amphibolite with carbonate veins and short sections of chloritised siliceous quartz biotite gneiss. Moderately foliated @ 40-70° to CA 40-70° garnets locally, <2% po, py, skarn mineralization around carbonate veins & possibly calc-silicates throughout	40°								
		@224-231.6	Siliceous quartz biotite gneiss									
			15-20% biotite, chloritic 1-4% po, py	40°	22622	224-229	5			20	13.3	

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS		
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb
		⊙ 225-225.2	3% galena, po tr cpy								
		⊙ 230.4-231.6	2-5% sp, po >> py, tr ga		22623	229-233	4	0.004	0.49		
		⊙ 231.6-232.9	carbonate vein								
		⊙ 232.9-271.5	siliceous amphibolite								
		⊙ 233.3-240.5	2-20% sphal, po > ga > py		22624	233-236	3	0.009	0.78		
		⊙ 236.2-237.6	Carbonated								
		⊙ 236.2-238.5	3-5% tiny blebs silvery mineral (galena)		22625	236-240	4	0.039	3.40		
		⊙ 240.5-241.9	siliceous quartz biotite Gneiss, 4% po								
		⊙ 241.9-243.4	4% garnets, 2% po > py		22626	240-245	5	0.019	0.63		
		⊙ 245.5-246	Large blebs carbonate alteration								
			with skarn minerals		22627	245-250	5	<0.001	0.13		
		⊙ 247.6-247.8	carbonated and breccia zone								
		⊙ 249.5-259	1-4% garnets and altered garnets		22628	250-255	5	0.006	0.10		
		⊙ 253.1-254	3" gtz vein	70°							
			footwall stockwork (siliceous)	40°							

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS		
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb
		①260.3-268.2	4% po >> py		22629	255-260.3	5.3	0.013	0.04		
		①260.7	arsenopyrite?								
		①261.2, 261.5	VISIBLE GOLD - tiny blebs, occasionally siliceously enclosed		22630	260.3-262.3	2	0.620	<0.01		
		①263.3-263.5	Quartz carbonate with		22631	262.3-267	4.7	0.048	0.12		
		264-264.9	skarn minerals								
		①268.2-268.4	quartz; bull white								
		①268.4-271.5	2% lensy po, lineated	40°	22632	267-271.8	4.8	0.098	0.21		
271.5-277.2		3	SILICEOUS QUARTZ BIOTITE GNEISS, medium grained, siliceous with 3-10% biotite, moderately to well foliated 1-5% poppy, traces of sphalerite	40-70°	22633	271.8-277	5.2	0.024	0.16		

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS		
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb
277.2	279	C.S.	<u>Calc-Silicates</u> medium to coarse grained, greens and whites, probably actinolite/tremolite, diopside, coarse biotite, reticulate fabric, 1-4% po > sp > py increasing to 10% at 279		22634	277	279	2	0.019	3.55	
		⊙ 278	1" thin band of sp >> po > ga	30°							
		⊙ 278.5-279	calcite band								
279	284		STOPE								
284	284.8	C.S	<u>Calc-Silicates</u> , biotite, 22% po, py possibly boulder at bottom of stope		22635	284	284.8	0.8	0.006	0.34	

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS		
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb
		⊙289-292	1-3% sp, po > py, ga, trace cpy		22637	289-294	5	0.002	0.93		
		⊙291.6-292	20% po > py, ga in massive blebs		?						
		⊙292-299	sulphides increasing to 20% in massive blebs, sp, po >> ga		22638	294-299	5	0.002	3.03		
		⊙294.4-294.8	30% calcite								
		⊙299-300.2	fine grained calc-silicates band	50°	22639	299-300.2	1.2	0.002	1.81		
		⊙302.2-304.1	10-20% sp, po, py, trace ga in massive blebs, disseminations, net texture								
		⊙303.2-303.4	Massive bleb of po > ga, sp.		22640	300.2-304.5	4.3	0.005	4.74		
		⊙304.1-304.3	50% calcite								
		⊙304.3-305.7	4-5% po, py								
		⊙305.7-306.2	fine grained calc-silicates		22641	304.5-309	4.5		1.82	100	63.5
		⊙306.2-306.7	40% calcite, 1-3% po, py								
		⊙306.7-308.4	2-4% po, py in calc-silicates								

Ag pp

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS			
FROM	TO					FROM	TO		Ali oz/T	Ag oz/T	Ali ppb	
		③342.8-344.5	bluish opalescent quartz fragments, decreasing biotite along fractured areas, 1% sp, po, py									
					22650	342-348	6				30	3.5
		③344.5-349.9	broken, rubble core, ~70% core recovery, buff white quartz									
		③349.9-353	2-4% bluish green quartz blebs		22651	348-353	5				50	6.4
		③349.9-351	<1% sulphides po, py in pods and along fractures, also silver metallic mineral (graphite?)									
		③352-353	angular and lenticular breccia fragments (<1cm) in silica matrix									

Ag ppb

INTERVAL FROM TO	ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS			Ag ppb
					FROM	TO		Au oz/T	Ag oz/T	Au ppb	
353 - 424.4	3	SILICEOUS QUARTZ BIOTITE GNEISS									
		biotite 10-20% and locally higher concentrations, siliceous stringers or quartz boudins common, chloritic and moderately foliated	40-50°								
		sulphides <2%, fractures commonly have talc coatings	30°	22652	353-358	5				60	4.6
				22653	358-363	5				10	1.5
	@353-355.4	20-50% biotite (coarse)	50°	22654	363-368	5				20	0.8
	@355.4-356.4	quartz biotite grains, fine grained		22655	368-373	5				95	1.7
	@364.5-384.6	Coarse biotite with quartz fragments		22656	373-378	5				155	2.5
	@383.5-384.5	2% po, py		22657	378-382.5	4.5				95	5.0
	@385-385.7	74% Coarse Biotite, 4% po, py, trace sp		22658	382.5-385	4				50	1.3
	@386.5-386.6	sp, po, py, ga band.		22659	386.5-390	3.5				170	3.5

@388.6-389.9 - disseminated and blebby
po, py, trace sp, ga

Box	INTERVAL (FT)
1	13-31
2	31 - 49.9
3	49.9 - 69
4	69 - 88.3
5	88.3 - 107.5
6	107.5 - 126.3
7	126.3 - 147.1
8	147.1 - 163.1
9	163.1 - 182.5
10	182.5 - 201.0
11	201.0 - 219.3
12	219.3 - 238.1
13	238.1 - 257.3
14	257.3 - 276.4
15	276.4 - 298.7
16	298.7 - 317.0
17	317.0 - 335.7
18	335.7 - 355.2
19	355.2 - 373.5
20	373.5 - 391.0
21	391.0 - 409.0
22	409.0 - 428.1
23	428.1 - 446.8
24	446.8 - 465.7
25	465.7 - 484.4
26	484.4 - 503.0
27	503.0 - 522.3
28	522.3 - 540.3
29	540.3 - 559.4
30	559.4 - 577.1
31	577.1 - 579 EOH.

SLUDGES

INTERVAL (FT.)	ASSAY (AV O/I)
13-19	< 0.001
19-29	< 0.001
100-119	0.050
119-129	0.007
129-139	0.018
139-149	0.063
149-159	0.002
159-169	0.002
169-179	0.002
179-189	0.002
189-199	0.001
199-209	0.002
209-219	0.016
219-229	0.003
229-239	0.031
239-249	0.006
249-259	0.025
259-269	0.290

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS				
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb	Ag ppb	
			Mildly fractured @ 30°, 45°, and 15° to CA., often with schistosity with chloritic halos. Locally siliceous/ biotitic areas, < 1% sulphides										
		ⓐ 21-22	Ruble										
		ⓐ 43.5-53.5	2-4% po>py, light green bleached, mildly to moderately carbonated		22674	43.5-48.5	5			<5		2.3	
					22675	48.5-53.5	5			<5		3.1	
		ⓐ 21-31	10-15% biotite, dark green		22676	53.5-56	2.5			<5		3.4	
		ⓐ 53.5-55.2	15% biotite, dark green		22677	56-60	4			<5		3.7	
		ⓐ 55.6-70.0	chloritic		22678	60-65	5			25		4.3	
		ⓐ 62.6-69.5	very siliceous		22679	65-70	5			160		19.4	
		ⓐ 68.2-68.5	15% sphal > po > py, s.		22680 23041	70-75	5			10		1.8	
		ⓐ 68.5-70.2	2-4% disseminated po, traces of sphalerite		22681 23042	75-80	5			<5		1.2	

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS			Ag pp
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb	
169.0	214.4	2	<u>ALTERED AMPHIBOLITE</u> - as in									
			21-111.7, <2% py									
					23048	169-174	5				25	1.4
			⊙ 169-175 Heavily to moderately carbonated		23049	174-179	5				15	2.2
			with lineations 40-50° to C.A.		23050	179-184	5				25	2.0
			⊙ 175-199.8 5-10% biotite		23051	184-190	6				20	2.0
			⊙ 190.4 tiny whisp of sphalerite ⊙ 45° to CA		22683	190-195	5				20	2.0
			⊙ 198.1-203 pegmatite		22684	208.5-212.5	4				5	1.3
			⊙ 208.5-214.4 increasing biotite, increase		22685	212.5-217.5	5				20	2.3
			in disseminated po, py to 4%									
214.4	296.4	6	<u>Biotite Hornblende AMPHIBOLITE</u>									
			fine to medium grained, green, locally									
			mildly carbonated, poorly foliated									

⊙ 60° to CA, siliceous stringers common

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS			Ag ppb
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb	
299	299.5	⊙	Coarse grey and white quartz									
			1-2% py, po, trace sphalente		22696	299	301.8	2.8			15	5.0
299.6	301.8	3	Siliceous ^{Quartz} Biotite Gneiss									
			30-40% biotite, 1-4% po, py									
			2% < 1 inch bands sphalente > galena									
301.8	307.8		DRIFT									
307.8	308.3	W.C.	WHITE CARBONATE		22697	307.8	310	2.2	0.018	4.79	2.60	5.20
308.3	310	M.S.	30-40% sphalente > po > py, galena									
			with interstitial calcite and quartz									
		⊙ 309.5 - 310	Silvery mineral									
310			E.O.H - STOP - silt/rubby									

bottom therefore danger of wedging rods

8. SLUDGES

BOX #	INTERVAL (FT)
1	21 - 40.3
2	40.3 - 58.1
3	58.1 - 77.2
4	77.2 - 95.3
5	95.3 - 113.4
6	113.4 - 131.7
7	131.7 - 150.4
8	150.4 - 169.0
9	169.0 - 188.0
10	188.0 - 206.5
11	206.5 - 225.2
12	225.2 - 244.1
13	244.1 - 262.9
14	262.9 - 281.4
15	281.4 - 299.7
66	299.7 - 310 EOH.

INTERVAL (FT)	ASSAY (Au O/T)
21 - 30	0.008
30 - 40	< 0.001
40 - 50	0.004
50 - 60	< 0.001
60 - 70	0.035
70 - 80	< 0.001
80 - 90	0.002
90 - 100	< 0.001
100 - 110	< 0.001
110 - 120	< 0.001
120 - 130	< 0.001
130 - 140	< 0.001
140 - 150	0.007
150 - 160	0.005
160 - 170	0.004
170 - 180	0.003
180 - 190	0.002
190 - 200	0.002
200 - 210	< 0.001
210 - 220	0.002
220 - 230	< 0.001
230 - 240	< 0.001
250 - 260	0.002

SAMPLES

22674 - 22696 Au Ag Geochem.

22697 Au Ag PbZn Assay

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS			Ag ppb
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb	
		① 7.6-24.1	1-2% po, py - disseminated and in siliceous stringers.		22709	14	19	5			<5	0.3
					22710	19	24	5			<5	0.5
		② 9.0-9.9, 14.8-15.4	Qtz boudins									
		① 14.8-15.4	chloritic alteration									
		① 26.3-27.1	Qtz stringer @ 20° to CA.									
		② 29.1-30.0	chloritic alteration									
		① 43.2-51.5	coarser biotite in bands, quartz stringers very common (20-30%)									
51.5	70.2	CONTACT ZONE - mixed melanocratic Quartz Biotite Gneiss with siliceous sections and Amphibolite - olive green to grey, medium grained, 15-20% biotite, chloritic throughout, moderately to well foliated @ 45-50° to CA. siliceous stringers and quartz boudins common, <1% po, py										

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS			
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb	Ag ppb
285.5	290.8	3	SILICEOUS QUARTZ BIOTITE GNEISS medium grained, grey with ^{thin} black laminations, 5-8% biotite, moderately foliated/lineated @ 60° to CA, 2-5% po>>py disseminated and lensy along foliation (biotite)		22723	285	290	5			55	10.5
290.8	295.4	C.S.	Calc-SILICATES, - fine to medium grained, approaching a siliceous amphibolite, 4% biotite, weakly foliated @ 60° to C.A., siliceous stringers common		22724	290	295	5			15	3.8
295.4	299.1	3	Siliceous QUARTZ BIOTITE GNEISS bas in 285.5-290.8, garnets locally along biotite foliation, <2% po/py		22725	295	300	5			155	2.1

BOX	INTERVAL (FT)
1	6 - 24.8
2	24.8 - 44.0
3	44.0 - 61.7
4	61.7 - 80.0
5	80.0 - 98.8
6	98.8 - 118.0
7	118.0 - 137.0
8	137.0 - 156.1
9	156.1 - 174.8
10	174.8 - 193.4
11	193.4 - 212.5
12	212.5 - 231.6
13	231.6 - 250.4
14	250.4 - 269.8
15	269.8 - 288.7
16	288.7 - 307.8
17	307.8 - 338.0
18	338.0 - 340.0

<u>SLUDGES</u>	
INTERVAL (FT)	ASSAYS (Au OI)
10 - 20	<0.001
20 - 30	<0.001
30 - 40	<0.001
40 - 50	<0.001
50 - 60	<0.001
60 - 70	<0.001
70 - 80	<0.001
80 - 90	<0.001
90 - 100	<0.001
100 - 110	<0.001
110 - 120	<0.001
120 - 130	<0.001
130 - 140	<0.001
140 - 150	<0.001
150 - 160	<0.001
160 - 170	<0.001

SAMPLES

22709 - 22731

Au Ag Geochem.

CA-86-012

Hole # 12

LACANA MINING CORPORATION

DIAMOND DRILL RECORD

Hole # 12

Page 1 of 14

FILE COPY

Property: NEW CALUMET MINES Location MINE GRID Down Hole Surveys Acid Tests Drilled By: TINDALE
 Area (Map #): _____ Grid: L 1+48 N Depth: _____ Az: _____ Dip: _____ From-To: Aug 14-16 / 1986
 Claim #: _____ 1+40 E 250 ~~200~~ • 89 • Size(s): BQ
 M.D./County: PONTIAC Length: 700 (Units: FEET) 500 ~~250~~ • 89 • Logged By: CHRIS. BISHOP
 Province: QUEBEC Azimuth: - • Dip Collar: 90 • 700 ~~500~~ • 87 • Signed: _____

Remarks: _____

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS		
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb
0	6		CASING								
6	30.8	1	LEUCOCRATIC TO MELANOCRATIC QUARTZ BIOTITE GNEISS - grey to dark grey green, medium grained, 5-10% biotite, garnets locally, poorly to moderately foliated < 2% disseminated py, po	60°							

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS			
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb	
		① 30.8-46.3	green siliceous amphibolite, granular to poorly foliated, biotitic		22736	31	36	5			5	1.3
		① 31.5-32.8	4% disseminated blebs po, py									
		① 36.1-36.9	olive green mottles									
		① 46.3-47.0	quartz-carbonate alteration along fractures (30° to C.A.), minor angular fragments, 1% sulphides.									
		① 74.9-91.1	granular to poorly foliated dark green amphibolite, very mildly carbonated, slightly siliceous, 4-10% medium grained biotite	50-60°								
		① 103.7-104.1	Pegmatite	40°								
		① 128.8-129.1	Pegmatite	40°	23054	140	145	5			10	0.5
		① 160	LOST WATER RETURN		23055	145	150	5			5	0.6

① 143.8-147.- relatively unaltered Amphibolite

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS		
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb
		① 171.2-175.5	1-2% po, py disseminated								
		① 187.0-187.2	siliceous stringers filling brecciated fractures, 2% py, po in seams								
		① 185-229.5	mildly to moderately fractured	15, 30°							
		① 250-296.6	medium to large scale (5') banding of light green bleached and relatively unaltered amphibolite								
			1-2% py, po.		22737	266.6-269.6	3			5	2.2
		① 269.6-272.0	Siliceous Quartz Biotite Gneiss, very chloritic, contacts at 40°		22738	269.6-272.6	3			25	10.3
			5% po >>> py, disseminated blebs.								
		① 297-298.4	quartz carbonate halo around sub parallel fracture	5-10°							
		① 324.2-326.3	20% coarse biotite	50°							

Ag ppb

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS			Ag pt
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb	
		① 338.8-339	2% blebby po		22739	330-335	5			10	2.1	
		① 340.5-340.6	band of sp >> po, trace ga, py	55°	22740	335-340	5			20	3.3	
		① 339-353.6	increasing silicification		22741	340-343.5	3.5			60	5.3	
		① 349-35	numerous quartz stringers	45°	22742	343.5-349	5.5			30	1.5	
		① 343.2	1 cm sp/po band	40°	22743	349-354	5			5	2.9	
		① 351	sp in siliceous stringer	80°								
353.6-394.7		3	<u>SILICEOUS QUARTZ BIOTITE GNEISS</u> medium grained, grey with black laminations (biotite), biotite 5-12% well foliated, < 2-5% disseminated poppy along foliation of biotite, locally garnetiferous along foliation, siliceous stringers common.	40-60°								

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS		
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb
		②353.6-367.5	brownish color, 10-15% biotite garnets.		22744	354-359	5			<5	2.9
		②374.2-376	greenish mineral in siliceous areas (tremolite?)		22745	359-364	5			<5	2.7
					22746	364-369	5			10	3.5
		②377-381	garnets		22747	369-374	5			20	5.4
		②380-384.5	leucocratic, <2% sulphides.		22748	374-379	5			310	4.1
		②384.5-388.8	siliceous, 3-5% po>py disseminated along foliation	55°	22749	379-384	5			240	4.7
					22750	384-389	5			160	13.2
		②388.8-394.7	greenish, amphibolitic, 2% po>py		22751	389-394	5			540	38.0
394.7-457.5		C.S.	Calc-SILICATES - fine to medium grained calc silicates, siliceous to calcareous, coarse biotite common, unoriented to poorly foliated, sulphides variable; 5% average in disseminations, net textures, and siliceous stringers								

Ag pt

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS			Ag ppb
FROM	TO					FROM	TO		MSA Au oz/T	Ag oz/T	Au ppb	
		©448.0-451.4	Medium-grained calc-silicates, 10-15% sp >> po >> py, ga									
		©450.9-451.4	calcareous									
		©451.4-457.5	medium grained green and white calc-silicates, <2% sulphides		22767	451-456	5	0.010		440	51.3	
457.5-581.1	3		SILICEOUS QUARTZ BIOTITE GNEISS - medium to coarse grained, 4-10% biotite with higher local concentrations well foliated, 2-10% sulphides - disseminated blebs po, py along foliation and local traces sp, ga	40-70°								
					22768	456-461	5	0.012		440	47.8	
					22769	461-466	5	0.011		310	28.2	
					22770	466-471	5			30	4.8	
					22771	471-476	5			70	9.1	
					22772	476-481	5			10	2.3	
		©466.4-468	30% coarse biotite bands with blueish, opalescent mineral and siliceous stringers		22773	481-486	5			40	2.4	
					22774	486-491	5	0.016 0.017	0.68	440	13.1	

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS			Ag ppw
FROM	TO					FROM	TO		MSA	Au oz/T	Ag oz/T	
		④497.1-502.1	40% coarse biotite in big bands		22775	491-496	5	0.013	0.013	0.37	490	12.4
		④507-509.5	40% coarse biotite in big bands		22776	496-501	5	0.018	0.015	0.25	790	10.6
		④509.5-512.5	- 20% coarse biotite, 4-8%		22777	501-505	4	0.024	0.020	0.11	745	7.1
			disseminated, blebby, and net		22778	505-509.5	4.5	0.019	0.017	0.20	745	9.2
			textured sp, po, > py, trace cpy		22779	509.5-512.5	3	0.180	0.171	0.62	5395	33.4
		④512.5-521.2	20-30% coarse biotite in	50°	22780	512.5-517	4.5	0.032	0.020	1.07	545	7.4
			wide bands (upto 1 ft.), 4-10% po > py		22781	517-522	5	0.159	0.125	0.76	4995	18.7
			3% garnets		22782	522-527	5	0.037	0.041	0.13	1345	5.3
		④527-531.1	2-10% garnets, 1-5% disseminated		22783	527-532	5	0.028	0.030	0.04	395	2.1
			and blebby po, py - also along		22784	532-537	5	0.032	0.024	0.08	895	2.3
			siliceous stringers		22785	537-542	5	0.022	0.030	0.73	795	11.9
		④542.8-546.1	50% coarse biotite, 3-4%		22786	542-547	5	0.016	0.008	0.16	335	5.1
			garnets, 3% po > py		22787	547-552	5	0.029	0.037	0.05	995	2.7
		④551-560	10% smeared garnets, also		22788	552-557	5	0.046	0.026	0.08	845	2.9

green calcic amphibole that has a
tourquoise iridescence, bladed habit

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS			Reppn
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb	
			silicified sections and siliceous stringers common, <2-5% disseminated po, py, <1-2% blebby magnetite, locally mildly carbonated									
					22799	607-612	5			15		1.0
					22800	612-617	5			15		0.4
		ⓐ608.7-614	silicified with many green siliceous stringers		22801	617-622	5			35		<0.1
				10-30°	22802	622-627	5			5		0.3
		ⓐ616.7-618.9	30% coarse biotite		22803	627-632	5			5		0.5
		ⓐ620.3-622.0	siliceous and mesocratic		22804	632-637	5			5		0.2
		ⓐ622.0-625	20% quartz stringers	45°	22805	637-642	5			5		0.3
		ⓐ625-626	25% coarse biotite		22806	642-647	5			35		0.2
		ⓐ626-631.1	leucocratic to mesocratic, very siliceous, 5% po, py		22807	647-652	5			15		<0.1
					22808	652-657	5			10		0.3
		ⓐ6392-648.2	calcic-amphibole, bladed with turquoise opalescent iridescence		22809	657-662	5			10		0.2

BOX INTERVAL (FEET)

SLUDGE

1	6 - 22.8
2	22.8 - 41.0
3	41.0 - 60.0
4	60.0 - 78.9
5	78.9 - 97.5
6	97.5 - 116.5
7	116.5 - 135.3
8	135.3 - 154.4
9	154.4 - 172.8
10	172.8 - 191.4
11	191.4 - 209.4
12	209.4 - 228.3
13	228.3 - 247.0
14	247.0 - 266.2
15	266.2 - 285.2
16	285.2 - 304.2
17	304.2 - 323.3
18	323.3 - 342.0
19	342.0 - 360.8
20	360.8 - 380.0
21	380.0 - 398.9
22	398.9 - 418.1
23	418.1 - 436.4
24	436.4 - 456.2
25	456.2 - 473.8
26	473.8 - 491.9
27	491.9 - 509.6
28	509.6 - 527.7
29	527.7 - 546.6
30	546.6 - 564.8
31	564.8 - 583.5
32	583.5 - 601.7
33	601.7 - 620.0
34	620.0 - 639.4
35	639.4 - 658.3
36	658.3 - 677.0
7	677.0 - 695.7
8	695.7 - 700.0 FEET

INTERVAL (FT)	ASSAY (AV O/T)
11 - 20	<0.001
20 - 30	<0.001
30 - 40	<0.001
40 - 50	<0.001
50 - 60	<0.001
60 - 70	<0.001
70 - 80	<0.001
80 - 90	<0.001
90 - 100	<0.001
100 - 110	<0.001
110 - 120	<0.001
120 - 130	<0.001
130 - 140	<0.001
140 - 150	0.002
150 - 160	<0.001

CA-86-013

Hole # 13

LACANA MINING CORPORATION

DIAMOND DRILL RECORD

Hole # 13

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FILE COPY

Property: NEW CALUMET MINES Location MINE GRID Down Hole Surveys ACID TEST Drilled By: TINDALE
 Area (Map #): _____ Grid: L0+20N Depth: _____ Az: _____ Dip: _____ From-To: Aug 17 - Aug 18/86
 Claim #: _____ 0+64E 180' _____ 89' Size(s): BQ
 M.D./County: PONTIAC Length: 400 (Units: FEET) 380' _____ 87' Logged By: C. Bishop
 Province: QUEBEC Azimuth: _____ Dip Collar: 90 _____ _____ Signed: _____

Remarks: _____

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS		
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb
0	13		CASING								
13	275.4	2	ALTERED AMPHIBOLITE - medium grained, mottled green and white, biotite commonly in greener mottles, lightly to moderately carbonated, mottles lined <1% sulphides, fractures rare	60-90° 45-60°							

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS			
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb	Ag ppb
		① 18.3-18.5	quartz carbonate veinlet	15°								
		① 47.5-53.5	zone of silicified sheeted fractures	15-30°								
		① 53.5-56.0	Pegmatite, orange feldspars, contacts	50°								
		① 60-80	mottles lineated	70°								
		① 70-73	relatively unaltered amphibolite									
		① 85-105	mottles lineated	80-90°								
		① 97-101	granular relatively unaltered amphibolite									
		① 105-130	1% py, mottles lineated	65°								
		① 112.3-119.2	siliceous bands common, 2% po, py									
		① 122.5-128.6	relatively unaltered amphibolite									
			with 1-2% py and minor po									
			in siliceous stringers									
		① 142.4-150	amphibolite with siliceous or		22817	140-145	5			<5		1.1
			pegmatitic bands, 1% po, py	75-90°	22818	145-150	5			<5		2.0

BOX	INTERVAL (FT)	SLUDGE	
		INTERVAL	ASSAY (Au c/T)
1	13 - 30.9	13 - 20	<0.001
2	30.9 - 58.0	20 - 30	<0.001
3	58.0 - 69.0	30 - 40	<0.001
4	69.0 - 87.5	40 - 50	<0.001
5	87.5 - 105.4	50 - 60	<0.001
6	105.4 - 123.9	60 - 70	<0.001
7	123.9 - 142.2	70 - 80	<0.001
8	142.2 - 160.9	80 - 90	<0.001
9	160.9 - 180.0	90 - 100	<0.001
10	180.0 - 198.4	100 - 110	<0.001
11	198.4 - 217.0	110 - 120	<0.001
12	217.0 - 235.1	120 - 130	<0.001
13	235.1 - 253.4	-	-
14	253.4 - 272.0		
15	272.0 - 290.2		
16	290.2 - 308.8		
17	308.8 - 327.5		
18	327.5 - 345.2		
19	345.2 - 364.3		
20	364.3 - 400.0		

Samples

22817 - 22846
22854 - 22857

Au Ag Geochem

22847 - 22853

Cu Ag Pb Zn Assay.

CA-86-014

Hole # 14

LACANA MINING CORPORATION

DIAMOND DRILL RECORD

Hole # 14

Page 1 of 12

FILE COPY

Property: NEW CALUMET MINES Location MINE GRID Down Hole Surveys ACID TEST Drilled By: TINDALE
 Area (Map #): _____ Grid: L 6 T O U S Depth: _____ Az: _____ Dip: _____ From-To: Aug 19-20, 1986
 Claim #: _____ 1+10W 149 _____ 49 • Size(s): BQ
 M.D./County: PONTIAC Length: 349 (Units: FEET) 349 _____ 47 • Logged By: C. Bishop.
 Province: QUEBE Azimuth: 306 • Dip Collar: 50 : _____ • Signed: _____

Remarks: _____

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS		
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb
0	11		CASING.								
11	53.8	2	ALTERED AMPHIBOLITE - fine to medium grained, mottled green and white, biotite 2-6%, mottles form lineation, local granular appearance, <1% sulphides	70°							
			① 18.6-20.4, 26.8-27.2 - Pegmatite, 5% biotite	60°							

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS			Ag ppm
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb	
53.8	66.2	9	<u>PEGMATITE</u> - bottom 5 ft. has salmon orange feldspars									
66.2	109.3	1b	<u>LEUCOCRATIC TO MESOCRATIC QUARTZ</u> <u>BIOTITE GNEISS</u> - medium grained, grey with black laminations (biotite), locally garnets, moderately foliated <2% disseminated pyrite	80°								
		ⓐ65.6-71.2	2-4% lensy blebs po, py along foliation		22858	65.5-70.5	5				30	1.8
		ⓐ71.2-75	1-2% po, py		22859	70.5-75.5	5				15	1.1
		ⓐ90-94	sinuous foliation, crosses core axis									
		ⓐ100	foliation	50°								
		ⓐ106-107.5	silicified fractures	45°	22860	104-109	5				15	1.0

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS			
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb	Ag ppb
109.3	110	9	Pegmatite with several whisps (1"-2") of calc-silicates and blebby graphite		22861	109	114	5			20	1.6
111.0	127.4	16/26	MELANOCRATIC QUARTZ BIOTITE GNEISS TO SILICIFIED AMPHIBOLITE - fine to medium grained, green, granular to moderately foliated 10-15% biotite	50°								
	111.0-111.5		calcite and calc-silicates		22862	114	119	5			20	2.0
	111.5-114.2		leucocratic quartz biotite gneiss		22863	119	124	5			30	1.7
	122.4-125.3		Pegmatite with 4% coarse biotite		22864	124	129	5			30	2.2

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS			Ag ppm
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb	
127.4	135.3	3, CB, CS	<u>Contact Zone</u> - banded siliceous biotite gneiss, coarse biotite, calc-silicates, fine to medium grained, garnets locally, quartz boudins common, 1-3% po, py and traces of sp and ga occur as disseminations and whisps in all types of bands	75-90°	22865	129	134	5			15	1.2
135.3	150.8	1	LEUCOCRATIC QUARTZ BIOTITE GNEISS - medium grained, 6-10% biotite, 5% garnets, moderately foliated, 1-2% po, py within siliceous stringers and as disseminations	60-65°	22866	134	139	5			95	1.3
					22867	139	144	5			390	6.7

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS			App.
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb	
171.8	180.6	2	ALTERED AMPHIBOLITE - mottled		22875	172	177	5			15	0.3
			green and white, <2% sulphides		22876	177	181	4			30	1.0
180.6	185.3	3, CB	SILICEOUS QUARTZ BIOTITE GNEISS									
			WITH BANDS OF COARSE BIOTITE -	80°	22877	181	185	4			130	1.3
			2% garnets, 4-7% sp, po, py associated with biotite bands									
185.3	189.0	CB	>40% COARSE BIOTITE -									
			reticulate to moderately foliated	55°	22878	185	189	4			80	3.1
			5-10% lensy blebs po, py									
189.0	196.6	3	SILICEOUS QUARTZ BIOTITE GNEISS,		22879	189	192	3			25	8.7
			very fractured, biotite rare, probably highly altered		22880	192	196.6	4.6			15	4.5

INTERVAL FROM TO	ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS			
					FROM	TO		Au oz/T	Ag oz/T	Au ppb	Ag ppb
196.6-206.5	C.S.	Calc-SILICATES - medium to coarse grained, 5% disseminated and blebby po, py >> sp		22881	196.6	201.6	5			70	3.7
	⊙198.5-206.5	30% calcite and calcite stringers	45°	22882	201.6	205.6	4			45	3.2
206.5-277.6	2b	ALTERED AMPHIBOLITE - green, fine to medium grained, silicified, probably fine grained calc-silicates within, poorly to moderately foliated 2% py, po	55-60°								
	⊙206.5-208.3	40% core recovery, rubble green amphibolite, vuggy with 10% disseminated py which also lines vugs.		22883	205.6	208.3	2.7			70	7.6

BOX	INTERVAL (FT)
1	11 - 25.7
2	25.7 - 44.1
3	44.1 - 63.2
4	63.2 - 81.5
5	81.5 - 109.5
6	109.5 - 118.7
7	118.7 - 137.0
8	137.0 - 155.1
9	155.1 - 173.1
10	173.1 - 191.6
11	191.6 - 209.8
12	209.8 - 228.3
13	228.3 - 246.1
14	246.1 - 264.3
15	264.3 - 282.7
16	282.7 - 300.9
17	300.9 - 319.0
18	319.0 - 337.0
19	337.0 - 349.6 EOH

SLUDGES	
INTERVAL (FT)	ASSAY (AV O/T)
11 - 19	<0.001
19 - 29	<0.001
29 - 39	<0.001
39 - 49	0.002
49 - 59	0.002
59 - 69	<0.001
69 - 79	0.001
79 - 89	0.001
89 - 99	0.004
99 - 109	<0.001
109 - 119	0.003
119 - 129	0.002
129 - 139	0.008
139 - 149	0.019
149 - 159	0.015
159 - 169	0.034
169 - 179	0.004
179 - 189	0.019
189 - 199	0.003
199 - 209	0.007
209 - 219	0.012
219 - 229	<0.001
229 - 239	0.008
239 - 249	0.001
249 - 259	<0.001
259 - 269	<0.001
269 - 279	<0.001
279 - 289	<0.001
289 - 299	0.003
299 - 309	<0.001

LACANA MINING CORPORATION

DIAMOND DRILL RECORD

Hole # 15 Page 1 of 11

FILE COPY

Property: NEW CALUMET MINES Location MINE GRID Down Hole Surveys ACID TEST ROTDRIP Drilled By: TINDALE

Area (Map #): _____ Grid: L7+50 S Depth: _____ Az: _____ Dip: _____ From-To: Aug 20-21

Claim #: _____ 0+38 E ACID 400 3 39 Size(s): BQ

M.D./County: PONTIAC Length: 410 (Units: FEET) _____ Logged By: C. Bishop

Province: QUEBEC Azimuth: 306 Dip Collar: 45 _____ Signed: _____

Remarks: _____

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS		
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb
0	6	O/B	CASING								
6	86.5	Lb	LEUCOCRATIC QUARTZ BIOTITE GNEISS medium grained, leucocratic to mesocratic, 5-15% biotite garnets locally, siliceous boudins common, moderately to well foliated <1% disseminated py	55-70°							

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS			
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb	
		② 20.7-29.2	50% bands of melanocratic phase or silicified amphibolite									
		③ 41.2-42.7	Pegmatite	90°								
		④ 75.0-76.5	Pegmatite									
86.5-166.9	2		ALTERED AMPHIBOLITE - fine to medium grained, mottled green and white, mottled lineation moderately to heavily carbonated <1% disseminated py.	50-60°								
		① 86.5-93.3	lightly carbonated/silicified		23001	86.5-91.5	5				5	40.1
			2% disseminated py, po		23002	91.5-99	7.5				10	0.3
		⑤ 93.3-96.6	Siliceous quartz biotite gneiss, 2% po, py, moderately foliated	80°								

Agpt

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS			
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb	
		① 96.8-101.1	very mildly carbonated, moderately silicified, +/- actin/trem, epidote, magnetite, 4% blebby po, py									
		② 135.7	po bleb.									
		③ 149.4-150.1	Quartz stringer with amphibolite and calc-silicate breccia									
					23003	162-167	5				10	0.4
166.9-220.7		3	SILICEOUS QUARTZ BIOTITE GNEISS, grey, fine to medium grained, 5% biotite, moderately foliated, quartz stringers/boudins common along foliation, often salmon orange color, garnets locally, <1% disseminated py, po.	60-70°								

15 pp

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS			Ag ppb
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb	
		①166.8-172	2-3% py		23004	167-172	5			15	0.6	
		②212	1" band greenish fine-grained calc-silicates, 4% po, py		23005	215.5-220.5	5			<5	0.5	
220.7-225.6		CS.	<u>CALC-SILICATES</u> - medium grained, brown and white banded, poorly to moderately foliated	70-80°								
		③221.2	30% calcite, 1% sp blebs		23006	220.5-225.5	5			85	7.8	
		④222.5	1% blebs sp, ga									
		⑤223	1% blebs sp.									
⑥225.6-228.1		CB.	40-70% COARSE BIOTITE - reticular to poorly foliated, also calc-silicates	60°	23007	225.5-228.1	2.6	0.007	0.71	1980	24.2	

⑦226.9 2-3% galena (silvery blebs)

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS			Ag ppb
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb	
228.1	230	3	Siliceous Quartz Biotite Gneiss - 40% lensy and banded sp > po > py, ga > cpy	45°	23008	228.1	230	1.9	0.098	1.85	1635	65.3
230	232.7	2	Altered Amphibolite - fine to medium grained, mildly carbonated, probably calc-silicates too, <2% sulphides		23009	230	232.7	2.7			70	5.4
232.7	236.2	3	Siliceous Quartz Biotite - medium grained, well lined and banded, 5-10% sp, po >> py, ga	50°	23010	232.7	236.2	3.5			295	25.1

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS			
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb	Ag ppb
236.2	311.8	2	ALTERED AMPHIBOLITE - medium		23011	236.2	241	4.8			25	2.2
			grained, mottled green and white,		23012	241	246	5			10	1.0
			biotite 5-10% within green		23013	246	251	5			20	0.8
			mottles, lightly to moderately		23014	251	256	5			10	0.4
			carbonated and locally silicified,		23015	256	261	5			10	0.7
			mottles form lamination,	75-80°	23016	261	266	5			<5	<0.1
			<2% sulphides		23017	266	271	5			10	0.3
		⊙263.6-264.4	pegmatite	45°	23018	271	276	5			10	0.1
		⊙243.7	trace of sp		23019	276	281	5			<5	0.4
		⊙243.8-244.2	intensely silicified		23020	281	286	5			5	<0.1
		⊙244.2-246	pegmatite sub-parallel to C.A.		23021	286	291	5			10	0.2
		⊙276.4-278.8	pegmatite with 25% coarse biotite	50°	23022	291	296	5			10	0.2
		⊙300-301.5	50-60% coarse biotite		23023	296	301	5			10	<0.1
		⊙301.5-311.8	very silicified, probable actin/trem.		23024	301	306	5			10	<0.1

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS			Ag ppb
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb	
320.2	324.5	W.C.	WHITE CARBONATE. >40% calcite with calc-silicates, vuggy, 4% po, py, sp blebs		23028	320.2	325	4.8			100	5.9
324.5	346.0	C.S.	CARC-SILICATES - coarse grained, green to dark green, sub-hedral to euhedral trem/aefin, unoriented to slightly lincated	60-90°								
			5-10% po >> py, disseminated blebs and net textured		23029	325	330	5			100	10.5
		ⓐ336.1-337.2	>40% coarse biotite	80°	23030	330	335	5			130	2.5
		ⓑ337.2-346.0	5-10% sp, po >> py		23031	335	340	5			60	2.3
					23032	340	345	5			280	5.2
346	355.9	CB	>40% Coarse Biotite, mildly foliated, 5% disseminated py > po	60°	23033	345	350	5			60	4.4

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS		
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb
		② 350-355.9	silicified		23034	350-355.5	5.5			90	4.6
355.9	372.7	3	SILICEOUS QUARTZ BIOTITE GNEISS								
			grey to dark grey, medium grained, mesocratic locally, moderately foliated, orange siliceous boulders common, 2% po, py	50°	23035	355.5-360.5	5			30	2.2
					23036	360.5-365	4.5			10	1.1
					23037	365-370	5			10	0.4
					23038	370-372.7	2.7			10	0.5
372.7	375.1	5	Siliceous Biotite Hornblende Gneiss - green, fine to medium grained, < 2% sulphides		23039	372.7-375.1	2.4			20	0.1

Box	INTERVAL (FT)	SLUDGES	
		INTERVAL (FT)	ASSAY (A/O/T)
1	5 - 24.6		
2	24.6 - 43.9		
3	43.9 - 62.1	6 - 20	< 0.001
4	62.1 - 80.7	20 - 30	< 0.001
5	80.7 - 99.2	30 - 40	< 0.001
6	99.2 - 118.4	40 - 49.5	< 0.001
7	118.4 - 137.7	50 - 59.5	< 0.001
8	137.7 - 155.7	60 - 67.5	< 0.001
9	155.7 - 173.4	70 - 79.5	< 0.001
10	173.4 - 191	80 - 89.5	0.001
11	191.0 - 209.5	90 - 99	< 0.001
12	209.5 - 228.7	100 - 110	< 0.001
13	228.7 - 246.6	110 - 120	N.S.
14	246.6 - 265.8	120 - 130	< 0.001
15	265.8 - 284.8	130 - 140	< 0.001
16	284.8 - 303.9	140 - 150	< 0.001
17	303.9 - 322.1	150 - 160	< 0.001
18	322.1 - 344.1	160 - 170	< 0.001
19	344.1 - 359.1	170 - 180	< 0.001
20	359.1 - 377.3	180 - 190	< 0.001
21	377.3 - 396.6	190 - 200	< 0.001
22	396.6 - 410.0	200 - 210	0.001
		210 - 220	0.004
		220 - 230	0.141
		230 - 240	0.084
		240 - 250	0.003
		250 - 260	N.S.
		260 - 270	0.002
		270 - 280	0.007
		280 - 290	0.006
		290 - 300	0.011
		300 - 310	< 0.001
		310 - 320	0.014
		320 - 330	0.008
		330 - 340	0.008
		340 - 350	0.007
		350 - 360	0.060
		360 - 370	0.003
		370 - 380	0.008
		380 - 390	0.002
		390 - 400	0.002
		400 - 410	< 0.001

ROTODIP - actual footage

is less ten feet because rotodip at top of CORE TUBE

FOOTAGE	DIP
230	43.5°
250	41.5°
260	41.5°
280	40.5°
300	41.0°
320	40.5°
340	41.0°
360	40.0
380	40.0
400	39.5

CA-86-016

Hole # 16

LACANA MINING CORPORATION

DIAMOND DRILL RECORD

Hole # 16

Page 1 of 11

FILE COPY

Property: NEW CALUMET MINES Location MINE GRID Down Hole Surveys ACID TEST Drilled By: TINDALE
 Area (Map #): _____ Grid: L7+50 S ROTODIP Depth: _____ Az: _____ Dip: _____ From-To: Aug 22-23, 1986
 Claim #: _____ 0+05 W ACID 360 _____ 70° Size(s): BQ
 M.D./County: PONTIAC Length: 370 (Units: FEET) _____ • Logged By: C. BISHOP
 Province: QUEBEC Azimuth: 238 • Dip Collar: 70 • Signed: _____

Remarks: _____

INTERVAL FROM TO	ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS		
					FROM	TO		Au oz/T	Ag oz/T	Au ppb
0 - 6		CASING								
2 - 70.9	1	MESOCRATIC TO LEUCOCRATIC QUARTZ BIOTITE GNEISS - grey to dark grey, medium grained and locally fine grained, biotite forms fine laminations that define moderate foliation tiny garnets throughout 1-2%, siliceous boudins common, <1% disseminated py	60-80°							

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS		
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb
70.9	131.9	2	ALTERED AMPHIBOLITE - mottled and lineated green and white, fine to medium grained, biotite within green mottles, light to moderate carbonate alteration, mottles form lineation	55-75°							
		ⓐ75.8-77.9	siliceous quartz biotite gneiss with trem/actin		23064	70-75	5			5	<0.1
					23065	75-80	5			<5	0.3
		ⓐ70.9-84	very mildly carbonated, mildly silicified								
		ⓐ94-94.8	20% biotite								
		ⓐ95.2-96.9	Pegmatite.								
		ⓐ125-131.9	silicified, granular appearance		23066	125-130	5			10	0.4

Ag ppb

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS			
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb	
		① 169.7-171.1	fine to medium grained calc-silicates									
			5% disseminated blebs po, py									
		① 171.1-172.5	Siliceous quartz biotite Gneiss -									
			whitish flaky mineral, fibrous?									
			4% po, py, trace sp.									
		① 172.5-173.5	siliceous, fine grained, 3% po, py		23071	170-175	5			120		8.5
		① 173.5-174	Siliceous quartz biotite Gneiss									
			5% po, py, trace sp.									
		① 174-174.3	calc-silicates, 5% po, py									
		① 174.3-174.9	Siliceous quartz biotite gneiss,									
			5% po, py, 1% sp.									
		① 174.9-176.3	banded mix, 5% po, py,									
			1% sp, silvery mineral (graphite)									
		① 175.1-175.6	coarse biotite, 8% po, py	65°								

Ag p1

8.5

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS			Ag ppb
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb	
		Ⓢ175.6-178.6	Siliceous quartz biotite gneiss, 5-10% po, py >> sp.		23072	175-180	5			455	14.1	
		Ⓢ178.6-182.8	Siliceous quartz biotite gneiss, <1% sulphides		23073	180-182.8	2.8			40	1.6	
					23074	182.8-186.7	3.9			475	9.5	
		Ⓢ182.8-190.7	40% quartzo-feldspathic boudins, wispy foliation, 1-2% po, py, trace sp with 2-4" bands of 5-8% po, py	65°	23075	186.7-190.7	4.0			145	10.4	
		Ⓢ190.7-191.6	20% coarse biotite, 8-10% po, py		23076	190.7-193.7	3			120	13.7	
		Ⓢ191.6-196.5	Siliceous biotite gneiss, 2% po, py									
		Ⓢ			23077	193.7-197.7	4.0			40	4.4	
196.5-262.9		2	ALTERED AMPHIBOLITE - green to mottled green, fine to medium grained 3-6% biotite in greener mottles, mildly to moderately carbonated and silicified, <1% sulphides mottles lenticled	80°	23078	197.7-200.6	2.9			5	0.6	
					23079	200.6-205	4.4			<5	0.4	
					23080	205-210	5			<5	0.5	

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS			
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb	Ag ppb
		①197.7-200.6	pegmatite		23081	210	215	5			5	<0.1
		②225.9-230.7	Melanocratic biotite gneiss		23082	215	220	5			5	<0.1
					23083	220	225	5			5	0.4
262.9	274.0	3	<u>Siliceous QUARTZ BIOTITE GNEISS</u>		23084	225	230	5			5	<0.1
			greenish bands common,		23085	230	235	5			<5	0.1
			5% biotite, 2% po, py	75°	23086	235	240	5			10	<0.1
		③264.1-266.1	silicified amphibolite,		23087	240	245	5			15	0.3
			calc-silicates, coarse biotite,		23088	245	250	5			<5	0.1
			<2% po, py		23089	250	255	5			5	0.4
		④267.5	2" sp, coarse biotite		23090	255	260	5			10	0.1
		⑤269.8-270.4	>40% coarse biotite		23091	260	265	5			5	<0.1
			5% po, py		23092	265	270	5			40	1.1
		⑥271.9-272.5	>40% coarse biotite, 10% po, py		23093	270	274	4			515	2.0

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS			Ag ppb
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb	
274	284	CB	> 40% COARSE BIOTITE,		23094	274	279	5	0.151	> 20,000		6.0
			accessory coarse calc-silicates		23095	279	284	5		100		1.2
			5-10% po, py									
		Ⓞ277-277.5	5% disseminated blebs sp with hematite, calcite									
284	320	3	SILICEOUS QUARTZ BIOTITE GNEISS									
			with coarse biotite, calc-silicate bands, grey to dark grey, medium grained, 5-10% Biotite, moderately to well foliated	75-80°								
			2-5% po, py.									
		Ⓞ284-290.8	< 2% po, py, traces sp		23096	284	289	5		125		1.1
		Ⓞ290.8-291.8	Coarse biotite, calc-silicates, 5% po, py		23097	289	293	4		15		0.5

BOX	INTERVAL (FT)	SLUDGES	
		INTERVAL (FT)	ASSAY (Au 0/1)
1	2 - 22		
2	22 - 41.7		
3	41.7 - 60.6	6 - 20	<0.001
4	60.6 - 79.7	20 - 30	0.002
5	79.7 - 98.9	30 - 40	<0.001
6	98.9 - 118.4	40 - 50	<0.001
7	118.4 - 137.1	50 - 60	<0.001
8	137.1 - 156.1	60 - 70	0.008
9	156.1 - 175.2	70 - 80	<0.001
10	175.2 - 193.4	80 - 90	0.002
11	193.4 - 212.2	90 - 100	<0.001
12	212.2 - 231.1	100 - 110	<0.001
13	231.1 - 250.0	110 - 120	0.002
14	250.0 - 268.8	120 - 130	0.001
15	268.8 - 287.4	130 - 140	<0.001
16	287.4 - 306.7	140 - 150	<0.001
17	306.7 - 325.2	150 - 160	<0.001
18	325.2 - 344.1	160 - 170	0.001
19	344.1 - 363.0	170 - 180	0.007
20	363.0 - 370.0 EOH	180 - 190	0.007
		190 - 200	0.008
		200 - 210	0.008
		210 - 220	<0.001
		220 - 230	0.002
		230 - 240	<0.001
		240 - 250	<0.001
		250 - 260	0.002
		260 - 270	0.001
		270 - 280	0.164
		280 - 290	0.029
		290 - 300	0.051
		300 - 310	0.007
		310 - 320	0.004
		320 - 330	0.014
		330 - 340	0.001
		340 - 350	0.004
		350 - 360	0.001
		360 - 370	0.003

ROTO DIP

FOOTAGE OF INSTRUMENT (FT)	READING (DEG)
20	67
40	67
60	69
80	69.5
100	68
120	69.5
140	68
173	67
190	66.5
210	68.5
230	67.5
250	68.5
270	68
290	80 (OUTLIER)
310	67.5
340	68.5
350	69.5

CA-86-017

Hole # 17

LACANA MINING CORPORATION

DIAMOND DRILL RECORD

Hole # 17 Page 1 of 12

FILE COPY

Property: New CAUMMET MINES Location MINE GRID Down Hole Surveys ACID Drilled By: TINDALE
ROTODIP
 Area (Map #): _____ Grid: L7+00 S Depth: _____ Az: _____ Dip: _____ From-To: Aug 24-25, 1986
 Claim #: _____ 0+25 E 337 _____ : 47 • Size(s): BQ
 M.D./County: PONTIAC Length: 357 (Units: FT) _____ • Logged By: C. BISHOP
 Province: QUEBEC Azimuth: 306 • Dip Collar: 47 • Signed: _____

Remarks: _____

INTERVAL FROM TO	ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL FROM TO	SAMPLE LENGTH	ASSAYS		
							Au oz/T	Ag oz/T	Au ppb
0 - 6		CASING							
6 - 47.2	1	LEUCOCRATIC TO MESOCRATIC QUARTZ BIOTITE GNEISS - locally siliceous, medium grained, grey to grey green, 1-4% garnets, moderately foliated/lineated saussuritized feldspars?, siliceous boudins lit per lit and commonly with wall rock fragments or calc-silicate development.	60°						

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS			Ag ppn
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb	
47.2	129.3	2	ALTERED AMPHIBOLITE - mottled green and white, fine to medium grained, biotite in green mottles, chloritised and lightly to moderately carbonated, locally siliceous mottles lenticled	60°								
			<1% sulphides									
		Ⓞ47.2-56	mixed bands of siliceous amphibolite and carbonated amphibolite, probably some calc-silicates (hem / actin)		23109	48-53	5				10	0.3
					23110	53-58	5				5	0.1
		Ⓞ59.3-60	quartz carbonate with fluorite		23111	58-60	2				10	0.2

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS			
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb	
		①146.5-146.7	lenticled globs of soft anhedral, greenish mineral (<5%)									
		②154-154.5	S-fold in foliation.									
		③173-179.1	increasing siliceous nature, coarse biotite, 1-3% blebs po, py		23117	174-179	5				5	0.7
179.1-182.3		CS	<u>Calc-SILICATES</u> - medium grained, very calcareous, greenish white, non-foliated, <1-1% disseminated po, py									
		④179.1-179.9	siliceous boudin		23118	179-183.0	4				30	3.2

15pp

0.7

3.2

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS			
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb	
182.3	191.8	3	SILICIOUS QUARTZ BIOTITE GNEISS									
			5% coarse biotite, poorly to moderately foliated	60°								
			3-5% blebby po, py, also lenny along foliation									
		⊙182.3-183.3	bands of coarse biotite,		23119	183.0	188	5			45	5.4
			5-10% po, py, 1-2% sp, ga.									
		⊙188.7-190.5	>30% coarse biotite,	75-80°	23120	188	191.8	3.8			30	2.3
			2-6% blebs po, py									
191.8	200.8	CB, CS	COARSE BIOTITE AND CALC-									
			SILICATES - medium to coarse grained, reticulate to foliated,		23121	191.8	196	4.2			1250	10.7
			3-10% blebby, net textured		23122	196	201	5			60	6.0

po, py

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS						
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb	Pb%	Zn%		
241.2	259.5	C.S.	<u>CALC-SILICATES</u> - slightly lenticled to graphic texture, coarse grained greens and white, siliceous and calcareous banded, 5-15% po, py including 2-6% sp, ga - disseminated and lency												
	252-259.5		calcareous 2-4% po, py		23131	240-245	5	0.003	0.30	0.26					
	247.5-250.2		graphic texture.		23132	245-248	3	0.013	0.31	0.16					
					23133	248-252	4	0.002	0.20	0.11					
259.5	268	W.C.	WHITE CARBONATE >40% with accessory calc-silicates, vuggy bands, 1-4% po, py with trace of sp.		23134	252-256.5	4.5	0.001	0.26	0.02					
					23135	256.5-259.5	3.0								
					23136	259.5-264.5	5								
					23137	264.5-269.5	5								

Ag ppb

Pb% Zn%

Au ppb (Ag ppb)

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS			Ag ppf
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb	
		②264.5-268	5% po, py, 1-2% sp, increasing calc-silicates.									
					23138	267.5-274.5	5			125		6.6
268-275.9		C.S.	<u>Calc-SILICATES</u> - medium to coarse grained, greens and whites, reticulate to graphic textures									
		②268-279	fractured and rubbly - fault?	70-80	23139	274.5-279.5	5			70		6.9
		②268-279	dark green calc-silicates in a graphic texture, 10% po, py, sp disseminated and ret textured with cross-cutting siliceous veinlets, hematite staining		23140	279.5-284.5	5			160		2.2
					23141	284.5-289.5	5			20		1.0

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS			
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb	
		⊙279-292.5	light olive green, coarse grained with increasing biotite, <4% po, py trace sp.									
					23142	289.5-294.5	5				25	1.2
					23143	294.5-299.5	5				30	1.7
		⊙292.5-295.9	fine to medium grained calc-silicates, <4% po, py									
295.9-306		CB, 3	Alternating Bands of >40% coarse biotite and biotite (15-20%) Siliceous quartz biotite gneiss - moderately foliated and lined	60-70°	23144	299.5-304.5	5				80	3.2
			3-7% disseminated po, py		23145	304.5-308	3.5				40	3.1
		⊙297-298, 300.4-301	coarse biotite									

ASPt

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS			
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb	
306	357	1	MESOCRATIC QUARTZ BIOTITE GNEISS									
			medium grained, grey, 10-15% biotite, siliceous banding									
			lot par lot common, moderately to well foliated	60-75°								
		① 331.2-333	fine grained amphibolite		23146	308	313	5			20	1.5
		② 318-320	pegmatite		23147	313	318	5			115	0.5
		③ 320-357	more leucocratic nature		23148	330.5	333	2.5			5	0.1
357			EOH									

Ag ppb

BOX	INTERVAL (FT)	SLUDGES	
		INTERVAL	ASSAY (AV O/T)
1	5 - 23		
2	23 - 41.9		
3	41.9 - 60.6		
4	60.6 - 79.2	10 - 18	< 0.001
5	79.2 - 98.0	18 - 28	< 0.001
6	98.0 - 116.4	28 - 38	0.001
7	116.4 - 134.7	38 - 48	< 0.001
8	134.7 - 153.0	48 - 58	< 0.001
9	153.0 - 171.4	58 - 68	< 0.001
10	171.4 - 189.8	68 - 78	< 0.001
11	189.8 - 208.0	78 - 88	< 0.001
12	208.0 - 226.5	88 - 98	< 0.001
13	226.5 - 244.9	98 - 108	< 0.001
14	244.9 - 263.5	108 - 118	< 0.001
15	263.5 - 281.9 (very rubblely)	118 - 128	< 0.001
16	281.9 - 300.9	128 - 138	< 0.001
17	300.9 - 319.4	138 - 148	< 0.001
18	319.4 - 337.4	148 - 158	< 0.001
19	337.4 - 354.7	158 - 168	< 0.001
20	354.7 - 357	168 - 178	0.003
		178 - 188	0.005
		188 - 198	N.S.
		198 - 208	0.002
		208 - 218	0.001
		218 - 228	< 0.001
		228 - 238	0.002
		238 - 248	0.033
		248 - 258	0.003
		258 - 268	0.002
		268 - 278	0.018
		278 - 288	0.040
		288 - 298	0.003
		298 - 308	0.007
		308 - 318	0.003
		318 - 328	0.001
		328 - 338	0.002
		338 - 348	0.005
		348 - 358	< 0.001

ROTODIP

INSTRUMENT DEPTH (FT)	DIPREADING (deg)
18	46.5
38	47.5
58	46.5
78	46.5
98	47
118	46.5
138	45.5
158	45
178	46
198	45.5
218	47
228	46.5
248	45
260	45.5
276	45
288	45.5
308	45.5
318	45.5
335	45

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS			
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb	Ag ppb
174	106.8	7	PORPHYROBLASTIC HORNBLENE GNEISS									
			green to grey green, fine to medium grained with hornblende porphyroblasts, 5-8% hornblende, euhedral to subhedral, massive to a mild lineation formed by hornblende, locally small silicified areas with siliceous stringers, <1-2% py with rare po.	45-75°								
		ⓐ 17.4-25.7	mildly to moderately silicified									
		ⓑ 35.1-36.2, 41.4-42.0	Pegmatite? - greenish quartz and altered white subhedral mineral (feldspars?), 3% coarse biotite	10°	23149	34-39	5					<5 0.2

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS			
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb	Ag ppb
		②25-83	mild foliation	60-70°								
		②70.1-71.4, 73.6-75, 79.4-81, 91-91.5	quartz calcite alteration around siliceous fractures		23150	70-75	5			<5		0.1
			fractures	45°	23151	75-80	5			<5		0.2
		②82-90	1-2% disseminated po, py									
		②86.3-90	mesocratic siliceous quartz biotite gneiss.	80°								
106.8-168.4	7,6,1		Mixed Zone - interfingering bands and mixed zones of amphibolites (60%) and biotite gneisses (40%) medium grained, 3-10% biotite, poorly to well foliated, bandings ranges from inches to feet, <1-2% sulphides,	55-75°								

Small calcareous areas locally are associated with 10%-20% biotite. -possibly related to a fault zone.

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS		
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb
		①130-140	80% CORE RECOVERY, drill rig lost water for ten feet @ 138'		23152	106-111	5			<5	0.2
					23153	111-116	5			<5	0.4
		①131-132.3	Siliceous stringer with open space in middle, contains drusy quartz and 1/2" quartz crystal	25°	23154	116-121	5			<5	0.1
					23155	121-126	5			<5	0.3
					23156	126-131	5			<5	0.4
					23157	131-136	5			<5	0.5
		①132.6-136	intensely foliated, rubbly, 3-4% py along foliation planes	65-70°	23158	136-141	5			<5	<0.1
					23159	141-146	5			<5	0.2
		①153.8-159	Leucocratic Amphibolite, 10% biotite		23160	146-151	5			<5	<0.1
		①159-164.7	biotitic amphibolite		23161	151-156	5			<5	<0.1
		①164.7-166.2	quartz-carbonate alteration, 5% blebs po > py		23162	156-161	5			<5	<0.1
					23163	161-163.8	2.8			<5	0.4
					23164	163.8-166.2	2.4			<5	0.1

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS			
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb	Ag ppm
		Ⓢ166.2-168.4	20-30% po > py >> cpy with greenish black euhedral garnets and calcite - this subhedral to euhedral grained sulphide zone is in a calcite groundmass		23165	166.2	168.4	2.2		15	2.0	
168.4	361.4	1	LEUCOCRATIC TO MESOCRATIC QUARTZ BIOTITE GNEISS - grey, medium grained, 3-8% biotite, garnets locally, siliceous stringers and bandings common, moderately foliated $45-60^\circ$									
		Ⓢ168.4-175	Mesocratic quartz biotite gneiss, 8% biotite		23166	168.4	170.4	2.0		<5	0.3	
					23167	170.4	175	4.6		<5	0.3	

Ⓢ168.4-175 1-2% disseminated po, py

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS		
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb
		②302.8-304.5	melanocratic quartz biotite gneiss to leucocratic amphibolite								
		② 318-361.4	moderately foliated	60°							
		② 318	convoluted s-shaped quartz boudin								
		②335.8-336.9	pegmatite, contacts ②	45°							
		②345-361.4	increasing number of siliceous boudins								
361.4-395.8	9		PEGMATITE - 3-8% coarse biotite randomly oriented to mildly foliated, fragments of amphibolite at lower contact	60°							

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS			
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb	Ag ppm
507.3	509.1	3	<u>SILICEOUS QUARTZ BIOTITE GNEISS -</u> 2-5% po, py									
					23185	507.5	512.5	5			85	7.7
509.1	522.2	6, 2b	<u>SILICEOUS AMPHIBOLITE TO BIOTITE</u> <u>HORNBLANDE GNEISS - fine to</u> medium grained, green, siliceous and only locally mild carbonate alteration, poorly foliated	70-85°	23186	512.5	517.5	5			55	3.4
			<1-2% disseminated py, po.		23187	517.5	522.5	5			20	0.5
		⊙509.1-518.5	leucocratic Amphibolite - mixed amphibolite and siliceous quartz biotite gneiss		23188	522.5	527.5	5			10	0.3
					23189	527.5	532.5	5			15	0.6
					23190	532.5	537.5	5			5	0.2
		⊙526.5-527.2	calcite vein	70°	23191	537.5	542.5	5			15	0.3
		⊙544-545	quartz vein	10°	23192	542.5	547.5	5			10	0.8

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS			
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb	
			moderately to well foliated,	40-70°								Aggr
			2-5% py > po in blebs and									
			disseminations, sulphides									
			associated with coarse biotite									
			and siliceous stringers,									
			biotite can have a reticulate									
			fabric.									
		Ⓢ562.2-563.6	, 567-570 - greenish quartz									
			(chloritic?)		23197	562.2-567	4.8			45	7.0	
		Ⓢ570.3	coarse cubic py, trace po, sp.		23198	567-572	5			50	10.3	
		Ⓢ575.8-580	>40% COARSE BIOTITE with	70°	23199	572-575.8	3.8			70	9.9	
			whitish green soft mineral 20% (TRAC?)		23200	575.8-580	4.2			25	3.7	
			mildly carbonated at lower contact		23201	580-585	5			80	8.6	
		Ⓢ576.6-576.8	10% sp banded with talc	30°	23202	585-590	5			95	10.6	

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS			Ag ppb
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb	
		@591.5-592.8	>40% coarse biotite	75°	23203	590-595	5			40		5.8
		@595-599.1	>40% coarse biotite interbanded with 20% quartz stringers									
		@595-597	heavy kinks on biotite.		23204	595-600	5			15		1.8
		@601.9-604	>40% coarse biotite, reticulate fabric with heavily altered whitish mineral (feldspars)		23205	600-605	5			15		2.2
		@605-609	30% coarse biotite, 30% angular quartz fragments, plus greenish diopside-like angular mineral and fibrous, radiating soft (<3) mineral that looks like an amphibole		23206	605-610	5			<5		1.2

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS		
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb
		②609-610.4	greenish quartz		23207	609-614	5			35	5.6
		②629.7-634.0	>40% COARSE BIOTITE		23208	614-619	5			540	10.7
			with siliceous stringers and		23209	619-624	5			10	1.9
			a green calcic amphibole in		23210	624-629	5			5	0.3
			a bladed radiating habit		23211	629-634	5			5	<0.1
			(also iridescent on some surfaces)		23212	634-639	5			<5	0.5
		②643.7-644.4	647-648.6 - bull white quartz		23213	639-644	5			15	1.2
		②630-660	foliation and lineation	65°	23214	644-649	5			<5	0.3
		②663-665.5	fine grained, massive, looks		23215	649-654	5			5	0.6
			like bull white quartz digesting		23216	654-659	5			5	0.2
			wall rock, greenish chropside-like		23217	659-664	5			<5	0.5
			mineral common.		23218	664-669	5			5	<0.1
		②673.4-676.5	>30% coarse biotite	60°	23219	669-673.4	4.4			<5	0.1
		②676.5-682	5% py → po		23220	673.4-676.5	3.1			<5	<0.1

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS		
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb
		⑥691.3-692.3	>40% COARSE BIOTITE, fracture	65°	23221	676.5-680	3.5			<5	0.1
			at lower contact (25° to CA)		23222	680-685	5			5	<0.1
			filled with white fibrous talc		23223	685-690	5			<5	0.5
		⑦703.0-709.1	40% whitish green quartz, 60%		23224	690-695	5			30	0.1
			siliceous quartz biotite gneiss,	65°	23225	695-700	5			5	0.7
			greenish talc present, lower		23226	700-705	5			<5	0.2
			contact	35°	23227	705-710	5			5	0.3
		⑦709.1-723.0	anhedral greenish talc 1-5%		23228	710-715	5			10	0.3
		⑦721.4-723.0	8" siliceous / feldspathic alteration		23229	715-720	5			<5	<0.1
			above 1" fracture	35°	23230	720-725	5			<5	0.3
		⑦733-744.7	leucocratic, 5-12% biotite,		23231	725-730	5			10	0.2
			2-3% po, py		23232	730-735	5			10	0.3
		⑦770.5-771.8	25% coarse-grained biotite	65°	23233	735-740	5			—	—
			4% po, py		23234	740-745	5			10	0.2

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS		
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb
		@792-795	s-shaped foliation		23246	800-805	5			60	2.5
		@819-820	kinks in foliation		23247	805-810	5			105	2.6
					23248	810-815	5			60	1.9
822.8-938.8		1	LEUCOCRATIC QUARTZ BIOTITE GNEISS		23249	815-820	5			45	1.1
			grey, medium grained, 5-10% biotite in laminae which are segregated by siliceous banding		23250	820-825	5			30	1.9
			garnets locally, moderately foliated	55-70°	23251	825-830	5			25	<0.1
			2% py > po		23252	830-835	5			10	0.4
		@822.8-838	mesocratic quartz biotite gneiss, 10-20% biotite,		23253	835-840	5			15	0.2
		@930	- kinks in foliation		23254	840-845	5			25	<0.1
					23255	845-850	5			25	<0.1
					23256	850-855	5			10	<0.1
					23257	855-860	5			10	<0.1
					23258	860-865	5			10	0.1
					23259	865-870	5			25	<0.1

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS			
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb	Ag ppb
938.8	950		MAGNETITE-RICH HORIZON.		23260	870	875	5			<5	0.1
			siliceous granite biotite gneiss		23261	875	880	5			<5	<0.1
			to siliceous amphibolite,		23262	880	885	5			<5	<0.1
			medium to fine grained,		23263	885	890	5			5	<0.1
			grey to black, moderately		23264	890	895	5			5	<0.1
			foliated and lineated	70°	23265	895	900	5			15	<0.1
			3-8% biotite, very hard,		23266	900	905	5			25	0.3
			3-10% disseminated and		23267	905	910	5			<5	<0.1
			blebby magnetite, 1-2% py		23268	910	915	5			5	<0.1
					23269	915	920	5			<5	0.2
	940	940.7	very black, some kind of		23270	920	925	5			<5	<0.1
			vein in middle, hematite 5%,		23271	925	930	5			<5	<0.1
			hard to distinguish core because		23272	930	935	5			<5	<0.1
			the drillers have had a bad		23273	935	938.5	3.5			<5	0.2

hydraulic leak for the last 200 feet.

Box	INTERVAL (FT)	SLUDGE		ROTOPIP	
		INTERVAL (FT)	ASSAY (AV O/T)	FOOTAGE OF INSTR	DI CA
1	8-25.7				
2	25.7-44.8	0-20	<0.001	20	90
3	44.8-64.1	20-30	<0.001	40	88
4	64.1-83.3	30-40	<0.001	60	90
5	83.3-102.2	40-50	<0.001	80	21
6	102.2-121.8	50-60	0.001	100	86
7	121.8-140.9	60-70	0.002	120	86
8	140.9-160.0	70-80	0.004	130	86
9	160.0-178.4	80-90	0.001	150	85
10	178.4-198.0	90-100	<0.001	170	88
11	198.0-216.6	100-110	0.002	190	85
12	216.6-235.3	110-120	<0.001	200	87
13	235.3-253.0	120-130	<0.001	220	85
14	253.0-271.5	130-140	<0.001	240	84
15	271.5-290.0	140-150	<0.001	260	85
16	290.0-308.6	150-160	<0.001	280	85
17	308.6-327.0	160-170	<0.001	300	85
18	327.0-345.0	170-180	<0.001	320	85
19	345.0-363.9	180-190	<0.001	340	84
20	363.9-383.1	190-200	<0.001	360	85
21	383.1-402.3	200-210	<0.001	380	85
22	402.3-421.6	210-220	<0.001	400	85
23	421.6-441.4	220-230	<0.001	420	90
24	441.4-460.3	230-240	<0.001	440	85
25	460.3-479.7	240-250	<0.001	460	45.5
26	479.7-498.0	250-260	<0.001	480	84.5
27	498.0-517.8	260-270	<0.001	500	85
28	517.8-536.0	270-280	<0.001	520	84.5
29	536.0-555.0	280-290	<0.001	540	84
30	555.0-573.9	290-300	<0.001	560	84.5
31	573.9-592.0	300-310	<0.001	580	83.5
32	592.0-610.7	310-320	<0.001	600	83
33	610.7-630.0	320-330	<0.001	620	83.5
34	630.0-649.0	330-340	<0.001	640	84
35	649.0-668.0	340-350	<0.001	660	84
36	668.0-687.0	350-360	<0.001	680	84.5
37	687.0-705.8	360-370	<0.001	700	83.5
38	705.8-725.2			720	84
39	725.2-744.7			740	83.5
40	744.7-763.8			760	83.5
41	763.8-782.7			780	79.5
42	782.7-800.6			800	91.5
43	800.6-820.9			820	83.5
44	820.9-840.0			840	83.5
45	840.0-859.0			860	83.5
46	859.0-877.2			880	83.5
47	877.2-896.1			900	83.5
	896.1-915.0			920	83.5
	915.0-933.4			940	83.0
	933.4-950.0 (End)				

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS		
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb
		⊙62-68.2	heavily fractured and	15-50°	23280	60-65	5			<5	0.6
			silicified, locally calcareous		23281	65-70	5			<5	0.2
		⊙62-63.5	pegmatitic boudin								
		⊙84-105	relatively unaltered or silicified								
			amphibolite, massive, green,								
			1-2% py, po, mildly foliated	45°							
		⊙93.8-94.7	silicified fracture	30°							
		⊙99.5-100.2	quartz veins, garnets								
		⊙112.6-113.2	120.4-120.6, 121.3-121.6, 125.2-125.3								
			128.2-128.3, 130.1-131.4, 133.0-133.1, 137.6-138,								
		143-145.4,	155.8-154.2 - fractured and	20-40°							
		8	silicified areas								
		⊙100-170	moderately foliated	50°							

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS			Ag ppb
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb	
		① 401.3-402.1	2 inch vein of 30% po, py > cpy	15°								
		① 402.6-402.8	5% po, py		23298	399-404	5			25		6.2
		① 404.5-404.8	disseminated po, py along foliation		23299	404-409	5			10		0.8
		① 413.4-413.8	very greenish quartz, 5% py lower contact	50°	23300	409-414	5			10		2.9
413.8-518.0	2	ALTERED AMPHIBOLITE - fine to medium grained, mottled green and white, biotite in greener mottles, moderate carbonate alteration, mottles form lineation, <1% po, py		70-80°								
					23301	414-419	5			<5		0.4
		① 423.1-428.1	melanocratic quartz biotite gneiss, grey, moderately foliated, 2-3% po, py	50-60°	23302	419-424	5			5		0.7
					23303	424-429	5			5		2.1

INTERVAL FROM TO	ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL FROM TO	SAMPLE LENGTH	ASSAYS			Ag ppb
							Au oz/T	Ag oz/T	Au ppb	
		① 428.1-428.5 quartz vein, 5-8% po, py		23304	429-434	5			5	0.8
		① 429-430 sheeted silicified fractures		23305	434-439	5			10	0.5
		① 430.7-431.7, 432.5-433.3, 434.4-434.6, 434.8-435.1		23306	439-444	5			<5	0.5
		436.5-437.1, 455.8-457.8 - pegmatites, 4% biotite		23307	444-449	5			<5	0.6
		① 428.1-455 relatively unaltered, mildly silicified,		23308	449 -454	5			<5	0.2
		fine grained amphibolite		23309	454-459	5			<5	2.1
		① 470.8-477.3 leucocratic to mesocratic to siliceous		23310	459-464	5			10	0.7
		quartz biotite gneiss, 2% po, py		23311	464-469	5			10	0.8
				23312	469-474.5	5.5			15	2.2
518.0-599.7	3	<u>SILICEOUS QUARTZ BIOTITE GNEISS</u>		23313	474.5-480	5.5			40	2.3
		grey, fine to medium grained,		23314	480-485	5			20	1.8
		very siliceous, 3-10% biotite,		23315	485-490	5			15	0.9
		moderately to well foliated,	70-80°	23316	490-492	2			20	0.9
		5% disseminated po > py,		23317	492-497	5			20	0.9

Cpy common

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS			
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb	Ag ppw
		① 530.7 , 536	traces cpy		23318	497	502	5			10	0.9
		① 548.9-550.2	10% disseminated po > py, cpy		23319	502	507	5			5	1.3
		① 550.2-553.2	quartz stringer with wisps of biotite in middle and		23320	507	512	5			10	3.0
			10-15% po >> py, cpy.		23321	512	517	5			30	5.1
		① 555.4-555.6	white carbonate, < 3% sulphides		23322	517	522	5			30	6.1
		① 557.6	silvery blebs		23323	522	527	5			30	3.6
		① 557.8-558.9	WHITE CARBONATE > 40%, 2-4% po, py		23324	527	532	5			190	5.6
			blebs and lenses along foliation		23325	532	537	5			20	4.7
		① 570-585	10-15% po >> py as disseminated		23326	537	542	5			40	4.6
			blebs and lenses along foliation		23327	542	547	5			15	3.9
		① 571-577.7	5-8% sp >> gg, cpy in < 1" bands, 20% ① 571-572		23328	547	550	3			35	7.9
			total sulphides, cpy along fracture.		23329	550	553.5	3.5			20	5.6
		① 582-585.2	5-10% sp in bands, 10-20%		23330	553.5	558.5	5			10	4.0
					23331	558.5	563	4.5			5	3.6

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS			Ag ppm
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb	
		⊙583.7-584.6	coarse biotite >40%	80°	23332	563	567	4			10	2.8
		⊙591.6	trace cpy		23333	567	569	2			10	3.8
		⊙590-596.4	medium grained biotite 30%		23334	569	574	5	0.004	0.75	0.09	6.99
		⊙598-599.7	coarse grained biotite 30%		23335	574	579	5	0.003	0.39	0.11	0.61
			10% po > py > sp, cpy		23336	579	582	3	0.005	0.96	0.07	0.16
					23337	582	587	5	0.010	0.66	0.28	0.98
599.7	603.2	CS.	Calc-SILICATES - medium grained, speckled green and white, with tremolite/actinolite, epidote, mildly calcareous, 10% po, py		23338	587	592	5	0.003	0.42	0.05	0.05
			5-8% sp > ga, total 15-20% sulphides		23339	592	597	5	0.003	0.33	0.05	0.07
					23340	597	599.7	2.7	0.002	0.41	0.09	0.22
		⊙601-602										
		⊙602-603.2	>40% coarse biotite, 10% po, py, also calc-silicates		23341	599.7	603.2	3.5			185	32.9

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS			Ag ppb
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb	
603.2	633	3	<u>SILICEOUS QUARTZ BIOTITE GNEISS</u>									
			medium to fine grained, grey,									
			5-15% biotite, moderately									
			foliated and lineated; 5% po, py	60°								
		ⓐ603.2-605.2	10-15% sp, po >> py > cpy		23342	603.2-605.2	2				110	13.7
			in blebs and bands		23343	605.2-610	4.8				90	11.8
		ⓐ607.9-613.0	30- >40% coarse biotite,	60-70°	23344	610-615	5				40	11.3
			5-10% po, py, traces cpy									
		ⓐ608.2-608.4	rubbly (fault?)									
		ⓐ608.4-608.6	3% sp along foliation									
		ⓐ611.4-611.7	very siliceous with 3% disseminated,									
			whispy blebs sp.									
		ⓐ613-614	very siliceous 4% biotite									
		ⓐ616-633	<2-2% po, py		23345	615-620	5				5	1.9

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS		
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb
656	660	5	SILICEOUS AMPHIBOLITE TO		23353	655	660	5			<5
			fine GRAINED Biotite Hornblende								
			Gneiss - dark green, garnets								
			locally, massive, <1% sulphides								
	657.4 - 658.4		- siliceous section, 40%								
			quartz, hornblende								
660			EOH.								
		* NOTE *	LAST HALF OF HOLE								
			VERY HARD TO LOG - THERE								
			WAS A MAJOR HYDRAULIC LEAK								
			IN DRILL AND CORE IS								
			COVERED - BLACK COLOR, UNWASHABLE								

Ag pp
0.2

Box	INTERVAL (FT)	SLUDGES		ROTODIP	
		INTERVAL (FT)	ASSAY (AU O/T)	FOOTAGE OF INSTRUMENT	D11 CODE
1	6 - 26.1				
2	26.1 - 45.6	0 - 20	<0.001		
3	45.6 - 64.3	20 - 30	<0.001	20	20
4	64.3 - 83.4	30 - 40	<0.001	40	85
5	83.4 - 102.0	40 - 50	<0.001	60	85.5
6	102.0 - 121.2	50 - 60	0.002	80	86
7	121.2 - 141.0	60 - 70	0.001	100	85.5
8	141.0 - 159.6	70 - 80	<0.001	120	90
9	159.6 - 179.0	80 - 90	0.001	140	85
10	179.0 - 197.4	90 - 100	<0.001	160	86.5
11	197.4 - 216.8	100 - 110	<0.001	180	85
12	216.8 - 235.8	110 - 120	<0.001	200	85.5
13	235.8 - 255.0	120 - 130	<0.001	220	85.5
14	255.0 - 274.4	130 - 140	<0.001	240	85.5
15	274.4 - 293.1	140 - 150	<0.001	260	85.5
16	293.1 - 312.5	150 - 160	0.007	280	85
17	312.5 - 331.3	160 - 170	<0.001	300	86.5
18	331.3 - 350.4	170 - 180	<0.001	320	86
19	350.4 - 369.7	180 - 190	0.003	340	85.5
20	369.7 - 388.5	190 - 200	<0.001	360	86.5
21	388.5 - 407.7	200 - 210	0.001	380	86.5
22	407.7 - 426.2	210 - 220	<0.001	400	85
23	426.2 - 445.3	220 - 230	<0.001	420	85
24	445.3 - 464.1	230 - 240	<0.001	440	86
25	464.1 - 483.0	240 - 250	<0.001	460	86.5
26	483.0 - 502.0	250 - 260	0.002	480	87
27	502.0 - 521.1	260 - 270	0.003	500	85.5
28	521.1 - 540.0	270 - 280	0.003	520	86.5
29	540.0 - 559.0	280 - 290	0.007	540	85
30	559.0 - 577.7	290 - 300	0.002	560	85
31	577.7 - 596.4	300 - 310	0.002	580	85.5
32	596.4 - 615.3	310 - 320	<0.001	590	90
33	615.3 - 634.0	320 - 330	<0.001	610	87.5
34	634.0 - 652.7	330 - 340	<0.001	630	87
35	652.7 - 660.0	340 - 350	0.003	650	85
		350 - 360	0.001		

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS			
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb	Ag ppm
		①111.4-112.3	light grey with green mineral (hornblende)		23361	105	110	5			5	1.1
					23362	110	115	5			5	1.4
		①115.6-117.2	mildly carbonated, sheeted carbonate fractures	15°	23363	115	120	5			<5	0.8
					23364	120	125	5			<5	1.2
		①148.0-151.2	very green, foliation criss-crossing core axis		23365	125	130	5			<5	1.3
					23366	130	135	5			<5	1.1
					23367	135	140	5			<5	1.2
151.2	323.0	2	ALTERED AMPHIBOLITE - fine to medium grained, green to mottled green and white to olive green, 1-5% biotite, euhedral hornblende		23368	140	145	5			<5	1.8
					23369	145	150	5			<5	2.3
			1-5% biotite, euhedral hornblende		23370	150	155	5			<5	0.5
			common, moderately foliated,	45-60°	23371	155	160	5			<5	0.8
			light carbonate alteration with		23372	160	165	5			<5	1.7
			local sections of moderate alteration		23373	165	170	5			<5	0.1

<1% sulphides

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS			Ag ppm
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb	
		①151.2-171.0	highly siliceous, up to 8% biotite		23374	170	175	5			<5	0.4
		①153.9-156.5	157.3-157.8 - pegmatitic veins		23375	175	180	5			<5	0.4
		①157.8-161.4	rubby section with sub-parallel fractures		23376	180	185	5			<5	0.6
		①168.9-170.3	bull white quartz stringer		23377	185	190	5			<5	0.8
		①188.3-195	10-15% biotite, +/- sillimanite	60-70°	23378	190	195	5			<5	0.4
			(coarsely crystalline)		23379	195	200	5			<5	0.1
		①215.9-217.6	siliceous quartz biotite gneiss		23380	200	205	5			<5	0.3
		①230.9-234.6	2% py > ep > ga, moderate carbonate alteration.		23381	205	210	5			<5	0.5
		①264.5-266	moderately carbonated		23383	215	220	5			<5	0.2
		①257.3-264.5	sheeted carbonate veinlets		23384	220	225	5			5	0.6
		①264.5-264.8	256.3-257.3 15-20% sp >> py, ga		23385	225	230	5			<5	0.7
		①271.2-273.2	quartz-carbonate zones, trace sp, ga		23386	230	235	5			25	9.7
		①290.2-291.9	pegmatite, 3% biotite		23387	235	240	5			20	7.7

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS			Ag ppm
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb	
		①300-323	1-2% disseminated po, py		23388	240-245	5			5	1.2	
		①309.9-310.6	30% sp >> po, ga, cpy		23389	245-250	5			<5	0.9	
		①317.8-319.1	Pegmatite		23390	250-255	5			<5	0.8	
					23391	255-260	5			135	49.7	
323.0-333.8		9	PEGMATITE - 3% coarse biotite, contacts at 60° to core axis.		23392	260-265	5			<5	1.6	
					23393	265-270	5			<5	0.8	
					23394	270-275	5			<5	0.4	
					23395	275-280	5			5	1.1	
333.8-468.9		2	ALTERED AMPHIBOLITE - fine to medium grained, mottled green and white, biotite within green mottles, mottles form lineation, moderately to intensely carbonated, <1-1% po, py		23396	280-285	5			<5	0.1	
					23397	285-290	5			<5	0.4	
					23398	290-295	5			<5	0.5	
				50-70°	23399	295-300	5			<5	0.4	
					23400	300-305	5			<5	0.8	
					23401	305-310	5			10	2.9	

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS			Ag ppm
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb	
		333.8-351	mildly silicified bands		23402	310-315	5			60	13.9	
		346.5-347.3	quartz stringer	20°	23403	315-320	5			5	1.3	
		348.8-349.9	siliceous quartz biotite gneiss,		23404	320-323	3			<5	0.7	
			3% po, py		23405	333.8-340	6.2			5	1.7	
		375-385	mottles leneated	20°	23406	340-345	5			5	2.4	
		436.7-457	silicified fractures common	25°	23407	345-350	5			<5	4.1	
		460-468.9	increasing silicification		23408	350-355	5			5	2.5	
		468.4-468.9	20-25% coarse biotite		23409	355-360	5			10	1.0	
					23410	360-365	5			5	1.0	
468.9-479.0		3	SILICEOUS QUARTZ BIOTITE GNEISS		23411	365-370	5			<5	0.8	
			medium to fine grained, 3-7%		23412	435-440	5			<5	0.4	
			biotite, probably mixed with		23413	440-445	5			10	0.5	
			fine grained calc-silicates,		23414	445-450	5			10	0.7	
			moderately foliated, <2% po, py	80°	23415	450-455	5			20	0.7	

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS			Ag ppm
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb	
		@496-496.2	496.4-496.6 - greenish fine grained amphibolite or calc-silicate bands									
		@508.5-510.0	medium grained calc-silicates, green, siliceous									
		@509-510	5% sp > ga, po, py		23427	508-513	5	0.052	0.81	2080	44.1	
		@513-514.1	quartz boudin		23428	513-518	5	0.030	0.65	1150	16.7	
					23429	518-523	5	0.034	0.74	1105	22.4	
525.3-556.3	C.S., 2b	CALC-SILICATES AND SILICEOUS AMPHIBOLITE			23430	523-528	5			320	5.7	
			greenish-grey, fine to medium grained,		23431	528-533	5			190	2.8	
			locally garnetiferous, massive to		23432	533-538	5			270	2.6	
			poorly foliated, ≤ 2% sulphides	50°	23433	538-543	5			20	1.8	
		@529-530	massive (2") clumps of		23434	543-548	5			35	2.9	
			fine grained garnets		23435	548-553	5			100	2.4	
		@545.5-556.3	2-3% po, py		23436	553-558	5			80	14.0	

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS			
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Pb% Au ppm	Zn%
		⑤577-577.4	coarse calc-silicates and biotite, 2% sulphides									
		⑤577.4-578	siliceous quartz biotite gneiss, 5-8% sp, ga, po, py in bands		23441	575.5-579	3.5	0.007	1.28	0.49	1.24	
		⑤578-579	calc-silicates with 20-30% calcite, 2% po, py.									
579-635.6		3	SILICEOUS QUARTZ BIOTITE GNEISS fine to medium grained, grey to grey brown, 5-8% biotite, moderately foliated, 3-5% disseminated po, py along foliation	60°								
					23442	579-584	5			390	5.0	
					23443	584-589	5	0.021	0.15	1355	2.4	
		⑤584-590.8	5% <1" garnets, subhedral					0				

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS		
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb
639.4	717.8	3	SILICEOUS QUARTZ BIOTITE GNEISS								
			medium grained, grey, 3-10% biotite, locally banded garnets and calc-silicates which are usually associated with biotite, poorly to moderately foliated	50°							
		@639.4-675.1	5-8% disseminated po, py								
		@675.1-717.8	<2-3% po, py		23455	639.4-645	5.6		0.61	65	24.5
		@639.4-656	probably fine grained calc-silicates mixed in		23456	645-649.7	4.7		0.37	55	10.7
					23457	649.7-655	5.3		0.36	155	10.6
		@651.7-653.2	>40% coarse biotite, 8% py, po		23458	655-660	5		0.24	155	8.8
		@653.2-654	siliceous stringer								
		@655-657.7	siliceous fine grained calc-silicates								
		@655, 656, 657, 657.7	traces sp.								

Au ppm

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS		
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb
717.8	732.2	5	AMPHIBOLITE - green, fine grained, massive to poorly foliated	60°							
			<1% sulphides, silicified		23471	717.8-722.8	5			10	0.4
			fractures common, moderately magnetic, probably fine grained magnetite		23472	722.8-727.8	5			15	0.3
					23473	727.8-732.8	5			5	0.4
732.2	771.9	3	SILICEOUS QUARTZ BIOTITE GNEISS								
			<u>FAULT ZONE</u> - unaltered (20%)								
			to severely bleached and silicified	30-45°							
			-bleached zones white to buff to light green, poorly foliated	50°							
			- Munched up zone !!								

Ag ppm

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS			
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb	
771.9	789.0	5	AMPHIBOLITE - green, finegrained, locally silicified. with siliceous									
			bandings; <1% sulphides,		23482	772	777	5			<5	0.8
			1-5% MAGNETITE blebs		23483	777	782	5			<5	0.6
		@773.5-774.1	Looks like calc-silicate band	50°	23484	782	786	4			<5	0.3
		@778.1-779.1	781.9-782.4 - pegmatitic bandings		23485	786	790	4			<5	0.3
789	790	3	LEUCOCRATIC QUARTZ BIOTITE GNEISS									
			gamets, 2% magnetite blebs.									

Age ppm

BOX	INTERVAL (FT)	ROTOR DIP		SLUDGES	
		DEPTH INSTRUMENT (FT)	DIP (DEG)	INTERVAL	ASSAY Au (O/T)
1	13 - 28				
2	28 - 46.1				
3	46.1 - 63.7	20	90	0-20	—
4	63.7 - 81.7	40	90	20-30	<0.001
5	81.7 - 100.7	60	90	30-40	<0.001
6	100.7 - 119.3	80	88.5	40-50	<0.001
7	119.3 - 138.5	100	90	50-60	<0.001
8	138.5 - 157.3	120	89.5	60-70	<0.001
9	157.3 - 175.8	137	88.5		
10	175.8 - 194.7	150	89		
11	194.7 - 213.8	170	88.5		
12	213.8 - 232.5	190	88.5		
13	232.5 - 251.4	210	88.5		
14	251.4 - 270.0	230	88.5		
15	270.0 - 289.3	250	88.5		
16	289.3 - 308.5	270	88.5		
17	308.5 - 326.5	290	87.5		
18	326.5 - 346.4	310	88		
19	346.4 - 365.6	330	88		
20	365.6 - 384.4	350	88		
21	384.4 - 403.2	370	87.5		
22	403.2 - 421.9	390	88		
23	421.9 - 441.0	410	89.5		
24	441.0 - 460.0	430	88		
25	460.0 - 479.5	450	88		
26	479.5 - 498.5	470	90		
27	498.4 - 517.2	490	88.5		
28	517.2 - 536.1	503	89.5		
29	536.1 - 555.2	515	88.5		
30	555.2 - 573.7	530	88.5		
31	573.7 - 592.4	550	88.5		
32	592.4 - 611.6	570	89.5		
33	611.6 - 630.6	590	88.5		
34	630.6 - 649.1	610	88.5		
35	649.1 - 668.0	630	88.5		
36	668.0 - 687.0	650	89.5		
37	687.0 - 705.8	670	88		
38	705.8 - 724.4				
39	724.4 - 743.5				
40	743.5 - 762.2				
41	762.2 - 780.9				
42	780.9 - 790.0				

Property: New Calumet Mines Location MINE GRID Down Hole Surveys ACID TESTS Drilled By: TINDALE
 Area (Map #): _____ Grid: L2+00N Depth: _____ Az: _____ Dip: _____ From-To: Sept 5-6 / 1986
 Claim #: _____ 1+10W 200 — • 69 Size(s): BQ
 M.D./County: PONTIAC Length: 410 (Units: FEET) 400 — • 70° Logged By: C. Bishop
 Province: QUEBEC Azimuth: 238 • Dip Collar: 70 • Signed: _____

Remarks: _____

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS		
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb
0	20		CASING								
20	99.5	2	<u>ALTERED AMPHIBOLITE - fine to medium grained, green and white mottled, fine to medium grained biotite in green mottles, moderately to heavily carbonated with local light siliceous and carbonate alteration, mottles form lamination, <1% sulphides</u>	70°							

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS			Ag ppm
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb	
		①58.4-61.2	Pegmatite, 3% biotite, sharp contacts	30-40°	25501	61-66	5			<5	1.0	
		①68.3-71.2, 71.6-73.0	-, siliceous quartz biotite gneiss, light green, moderately foliated, 2-4% po, py, 5% biotite	75°	25502	66-71	5			15	2.6	
		①73.0-75.0	silicified		25503	71-75	4			20	2.9	
		①75.0-79.2	quartz vein; whbly		25504	75-79.2	4.2			30	6.3	
		①78.0	3% subhedral ga blebs		25505	79.2-84	4.8			10	1.7	
		①79.2-84.3	8-10% coarse biotite, 1-2% po, py		25506	84-89	5			<5	1.5	
		①93-99.5	mottles leucated	20°								
99.5-131.0		9	<u>PEGMATITE</u> - 2-3% whsipy medium grained biotite, contacts preferred orientation of biotite rare	30°								

INTERVAL FROM TO	ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL FROM TO	SAMPLE LENGTH	ASSAYS			Ag ppm
							Au oz/T	Ag oz/T	Au ppb	
131.0-182.2	2	ALTERED AMPHIBOLITE - same as 20'-99.5, mottles Unateed	70-80°							
	①137.2-140.3	pegmatite, 1-2% biotite		25507	160-165	5			<5	0.8
	①152.0-152.3	calcite vein	80°	25508	165-170	5			<5	1.2
	①160.0-163	mottles Unateed	50°	25509	170-175	5			<5	0.8
	①172.6-173.2	pegmatite		25510	175-180	5			5	1.6
	①173.2-182.2	mild silicification		25511	180-182.5	2.5			10	3.2
182.2-219.5	3	SILICEOUS QUARTZ BIOTITE GNEISS grey to brownish grey, medium to fine grained, 4-7% biotite, locally garnets, calc-silicates and siliceous bands rare, moderately Unateed, 2-4% po, py lenses along biotite foliation	60°							

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS			Ag ppm
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb	
		①192.3-192.9	melanocratic, 1% tiny silvery blebs (graphite?)		25512	182.5-187.5	5			<5		6.9
					25513	187.5-191	3.5			<5		7.1
		①192.9-194.2	amphibolite, mild carbonate alteration, 2-5% po, py, sp, ga in disseminations, bands, also galena infilling		25514	191-196	5			260		22.9
			1 mm cross fractures									
		①194.2-195.1	5-8% coarse biotite, 5% sp in discrete bands									
		①195.1-195.8	silicified amphibolite		25515	196-200	4			45		11.3
		①200-204	several 1" bands of 5-10% sp, traces ga, cpy disseminated		25516	200-204	4	0.033	0.99	1545		33.8
					25517	204-209	5			85		6.8
					25518	209-214	5			20		3.8
					25519	214-219	5			15		2.7

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS				
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb		
219.5	246.9	2b	ALTERED AMPHIBOLITE - fine to medium grained, green and white mottles are lineated, heavy silicification, no carbonate alteration, white lineations probably leucocratic, <1% sulphides		25520	219	224	5			40	1.0	
					25521	224	229	5			70	1.2	
					25522	229	234	5			35	0.9	
					25523	234	239	5			25	1.0	
					25524	239	244	5			25	0.6	
					25525	244	249	5			40	1.4	
246.9	265.6	3	SILICEOUS QUARTZ BIOTITE GNEISS grey brown green, 3-5% biotite, poorly to moderately foliated and lineated, 4% disseminated pyrite, garnets locally										
						70-80°							

Ag ppm

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS		
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb
		②265.6-267	>40% coarse biotite								
		②273.7-274	>40% calcite		25529	265.5-270.5	5			140	26.3
		②274.9-275.5	>40% coarse biotite		25530	270.5-275.5	5			60	18.8
275.5-284.1		3	<u>SILICEOUS QUARTZ BIOTITE GNEISS</u>								
			10% biotite, moderately foliated	70°							
			5-8% lensy po, py								
		②275.5-280	5% fine grained disseminations of silvery mineral (galena?)		25531	275.5-279	3.5			525	20.6
					25532	279-284	5			75	6.0
		②276.6-277.1	calc-silicates and coarse biotite, 10-15% poppy								
		②281.4-281.6	mud seam with talc, calcareous	60°							

Ag ppm

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS		
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb
		②301-304.5	fine grained siliceous calc-silicates, 5-10% po, py		25537	301-304.5	3.5			165	
304.5	322.8	W.C.	WHITE CARBONATE - >40% calcite, bands of calc-silicates common with no preferred orientation to 60° to core axis, < 1% sulphides								
		②303.7-311	30% dark green, subhedral mineral. (epidote?)		25538	304.5-310	5.5			10	0.9
					25539	310-315	5			5	0.1
		②311-322.8	20-30% light brown green mineral, very soft, calcite getting "dirtier"		25540	315-320	5			5	0.1

Ag ppm

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS			
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb	
322.8	330.3		<u>ALTERED WHITE CARBONATE</u> , dirty limestone, mildly calcareous, light olive-green matrix with medium grained green mineral, flourite very common as angular open space fillings. and stringers, <1% sulphides									
		Ⓞ322.8-326.7	mildly calcareous, light olive green color.		25541	320	325	5			5	
		Ⓞ326.1	1/2" flourite stringer	30°								
		Ⓞ326.7-327.4	>30% flourite, contacts sharp	30-35°								
		Ⓞ327.4-328.1	banded flourite and biotite	30°	25542	325	330.3	5.3			5	
		Ⓞ328.1-330.3	massive, light green, several 20-30° fractures with talc and flourite									

Ag ppm

0.4

1.3

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS			
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb	
330.3	343.6	C.S., CB	CALC-SILICATES AND COARSE BIOTITE medium to coarse grained, green to dark green, unoriented to poorly foliated, 3-5% disseminated po > py	60-70°								
		@330.3-333	light green to dark green spotted calcareous zone, calcite stringers, minor fluorite <2% sulphides		25543	330.3-335	4.7			15		0.5
		@333-337.7	calc-silicates with 10% biotite									
		@336.5-336.9	50% fluorite, 50% coarse biotite	40°	25544	335-338.6	3.6			30		1.1
		@341.3-342.3	siliceous area with biotite		25545	338.6-343.6	5			70		4.8

5 ppm

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS			
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb	
343.6	370.1	3	<u>SILICEOUS QUARTZ BIOTITE GNEISS</u>									
			grey to dark grey, medium grained, 5-15% biotite in laminated layers and bands, moderately to well foliated,		25546	343.6	349	5.4			140	7.2
			4-8% po, py associated with biotite and decreasing towards lower contact.		25547	349	354	5			20	0.8
				70-85°	25548	354	359	5			10	0.3
					25549	359	364.5	5.5			5	0.5
					25550	364.5	370	5.5			5	0.7
370.1	391.5		<u>FAULT ZONE?</u> heavily altered siliceous quartz biotite gneiss, to quartz vein, white to buff to orange, well fractured with orange to buff infillings, very siliceous									

Ag ppm

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS			Ag ppm
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb	
		@370.1-373	orangy color, siliceous, minor po, py coating fractures		25551	370	373	3			5	0.5
		@373-378	intensely fractured. with 20-25% py > po, traces of fine grained silvery, metallic mineral		25552	373	378	5			20	0.5
		@378-380	mildly fractured, 5% po, py		25553	378	383	5			10	0.3
		@380-385.9	buff to white, mildly fractured, minor coarse biotite		25554	383	385.9	2.9			45	0.1
		@385.9-391.5	massive to well laminated, minor mildly altered siliceous quartz biotite gneiss, 2-4% py	60-70°	25555	385.9	391.5	4.6			10	0.6

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS			
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb	
391.5	410	1	LEUCOCRATIC QUARTZ BIOTITE GNEISS									
			grey to white, medium grained, 5-8% biotite, well laminated	60-80°								
			garnets locally, <1% sulphides									
					25556	390.5-395.5	5				5	0.4
		②398.7-399.1	407.3-407.5 - siliceous calc-silicate		25557	395.5-400.5	5				<5	0.2
			bands		25558	400.5-405.5	5				<5	<0.1
		④400-410	magnetite blebs increasing from <1% to 2%		25559	405.5-410	4.5				<5	0.1
410			E.O.H.									

Ag ppm

BOX	INTERVAL
1	20 - 38.9
2	38.9 - 57.3
3	57.3 - 75.7
4	75.7 - 93.8
5	93.8 - 112.2
6	112.2 - 130.6
7	130.6 - 149.6
8	149.6 - 168.4
9	168.4 - 186.9
10	186.9 - 205.7
11	205.7 - 224.8
12	224.8 - 243.3
13	243.3 - 261.9
14	261.9 - 280.9
15	280.9 - 300.0
16	300.0 - 318.7
17	318.7 - 337.5
18	337.5 - 356.9
19	356.9 - 376.3
20	376.3 - 395.0
21	395.0 - 410.0 E.O.H

NO SLUDGES

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS		
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb
			with coarse biotite, poorly to moderately foliated, <1-1% py, po	50-60°							
		@20-30, 30-40	90-95% core recovery								
		@30-31	rubby core								
		@13.5-15.6	pegmatitic boudin								
		@33-33.4	calcite vein	60°							
		@40-52.4	interfingered with siliceous quartz biotite gneiss								
52.4-124.3	1		<u>LEUCOCRATIC TO SILICEOUS QUARTZ BIOTITE GNEISS</u> - grey with black (biotite) laminations, fine to medium grained, 5-10% biotite, sparse garnets locally, moderately foliated, siliceous stringers common, <1-1% po, py	60°							

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS			Ag ppm
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb	
		①163.9-164.1, 204.3-205.2	siliceous quartz biotite gneiss		25560	215	220	5			<5	0.2
					25561	220	225	5			<5	0.6
		②217-222	rubby due to long sub-parallel fracture		25562	225	230	5			<5	0.9
		③229-233	calcite and talc infilling long sub-parallel fracture		25563	230	235	5			5	1.5
					25564	235	240	5			15	1.1
		④272-274	mildly siliceous		25565	260	265	5			5	1.2
		⑤285-291.5	mildly siliceous, 10-15% biotite		25566	265	270	5			<5	0.8
					25567	270	275	5			5	0.8
291.5	304.8	9	<u>PEGMATITE</u> - 3-5% biotite		25568	275	281	6			5	1.5
					25569	281	286	5			10	0.6
304.8	440.2	2	<u>ALTERED AMPHIBOLITE</u> - green to mottled green and white, fine to medium grained, 3-8% biotite, hornblende locally, mild to moderate carbonate alteration		25570	286	291.5	5.5			10	1.8
					25571	291.5	296	4.5			30	9.2
					25572	305	310	5			15	2.9
					25573	310	315	5			<5	1.7

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS			
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb	
440.2	473.7	2b	<u>ALTERED AMPHIBOLITE</u> - green to brownish green, medium grained, milky carbonated to moderately silicified, intense silicification in bands, 2-4% po, py									
		ⓐ440.2-452	quartz vein		25600	439	444	5			80	10.2
		ⓐ440.2-455.6	10-15% biotite, 4% po, py	50°	25601	444	449	5			45	6.5
		ⓐ444-444.5	siliceous amphibolite		25602	449	452	3			185	5.5
		ⓐ445.6-446.6	greenish mottles		25603	452	457	5			85	5.3
		ⓐ449.9-450.4	siliceous amphibolite, 10% po, py		25604	457	462	5			80	7.4
		ⓐ457.7	trace sp.		25605	462	467	5			65	3.6
		ⓐ452-460	5-7% disseminated po, py		25606	467	471	4			30	4.9
		ⓐ470-473.7	8-15% biotite		25607	471	474.5	3.5			40	4.4

Ag ppb

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	ASSAYS		
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb
473.7	491.6	C.S.	<u>Calc-Silicates</u> - locally siliceous quartz biotite gneiss, coarse biotite, calcite - coarse grained, grey to light green to buff, details of this zone below								
	⊙ 473.7-474.5		>40% coarse biotite, some calc-silicates, 5% po, py	60°							
	⊙ 474.5-475.5		Siliceous quartz biotite gneiss, 2% biotite, 5-8% disseminated blebs po, py		25608	474.5-479.5	5	<0.001	0.68		
	⊙ 475.5-478.8		siliceous calc-silicates and coarse biotite, coarse grained, 10% po, py and 3% sp > ga occurring in <1-1" bands	60°							

INTERVAL		ROCK TYPE	DESCRIPTION	PLANAR FEATURE ANGLE°	SAMPLE #	INTERVAL		SAMPLE LENGTH	MSA. ASSAYS			
FROM	TO					FROM	TO		Au oz/T	Ag oz/T	Au ppb	
536	540.5	2b	ALTERED AMPHIBOLITE - massive, siliceous, <2% po, py, magnetic		25621	535.5	540.5	5			335	1.4
540.5	553	3	SILICEOUS QUARTZ BIOTITE GNEISS 5-8% biotite, moderately foliated 5% disseminated po, py	60-70°								
	548-548.6		calc-silicate band		25622	540.5	545.5	5	0.044	<0.01	1890	2.2
	549.8-553		coarse biotite laminations increasing to 20%, po, py increasing to 10%		25623	545.5	549.8	4.3	0.022	0.08	400	8.1
					25624	549.8	553	3.2	0.012	0.17	355	7.4

Box	INTERVAL (FT)	SLUDGES		ROTOR D.P.	
		INTERVAL (FT)	ASSAY (Au O/T)	DEPTH (FT) INSTRUMENT	DIP (DEG)
1	11 - 30.5				
2	30.5 - 50				
3	50 - 69.3	0 - 20	<0.001	389	89
4	69.3 - 88.7	20 - 30	0.002	400	88
5	88.7 - 107.4	30 - 40	<0.001	420	88
6	107.4 - 126.1	40 - 50	<0.001	440	89
7	126.1 - 144.8	50 - 60	<0.001	460	88.5
8	144.8 - 163.8	60 - 70	<0.001	480	87.5
9	163.8 - 182.9	70 - 80	<0.001	492	88.5
10	182.9 - 201.5	80 - 90	<0.001	510	88.5
11	201.5 - 220.0	90 - 100	<0.001	530	88.5
12	220.0 - 238.6	100 - 110	<0.001	550	88.5
13	238.6 - 257.8	110 - 120	<0.001	570	87.5
14	257.8 - 276.6	120 - 130	<0.001	590	89.0
15	276.6 - 295.5	130 - 140	<0.001	610	88
16	295.5 - 313.7	140 - 150	<0.001	630	88.5
17	313.7 - 332.5	150 - 160	<0.001	650	88
18	332.5 - 351.1	160 - 170	<0.001	670	88
19	351.1 - 370.0	170 - 176	<0.001		
20	370.0 - 388.6				
21	388.6 - 405.9				
22	405.9 - 424.7				
23	424.7 - 443.7				
24	443.7 - 461.6				
25	461.6 - 480.7				
26	480.7 - 499.6				
27	499.6 - 518.7				
28	518.7 - 537.3				
29	537.3 - 556.0				
30	556.0 - 574.8				
31	574.8 - 593.8				
32	593.8 - 612.3				
33	612.3 - 631.1				
34	631.1 - 650.0				
35	650.0 - 668.5				
36	668.5 - 687.4				
37	687.4 - 690.0				

EOH